

FRESHWATER INFLOW EFFECTS
ON FISHES AND INVERTEBRATES
IN THE MYAKKA RIVER AND
MYAKKAHATCHEE CREEK ESTUARIES

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SUMMARY

Quantitative ecological criteria are needed to establish minimum flows and levels for rivers and streams within the Southwest Florida Water Management District (SWFWMD), as well as for the more general purpose of improving overall management of aquatic ecosystems. As part of the approach to obtaining these criteria, the impacts of managed freshwater inflows on downstream estuaries are being assessed. A 20-month study of freshwater inflow effects on habitat use by estuarine organisms in the Myakka River and Myakkahatchee Creek estuaries was undertaken from May 2003 to December 2004.

The general objective of the present data analysis was to identify patterns of estuarine habitat use and organism abundance under variable freshwater inflow conditions and to evaluate responses. Systematic monitoring was performed to develop a predictive capability for evaluating potential impacts of proposed freshwater withdrawals and, in the process, to contribute to baseline data. The predictive aspect involves development of regressions that describe variation in organism distribution and abundance as a function of natural variation in inflows. These regressions can be applied to any proposed alterations of freshwater inflows that fall within the range of natural variation documented during the data collection period.

For sampling purposes, the tidal Myakka River and Myakkahatchee Creek were divided into nine zones from which plankton net, seine net and trawl samples were taken on a monthly basis. Salinity, water temperature, dissolved oxygen and pH measurements were taken in association with each net deployment. Daily freshwater inflow estimates for the Myakka River and Myakkahatchee Creek were derived from gauged inflows. It should be noted that the relatively short duration of sampling (20 months), coupled with relatively high flows over the study period, demand cautious interpretation of results, particularly with respect to low-flow conditions.

A large body of descriptive habitat-use information was generated and is presented in accompanying appendices. In general, observed habitat-use patterns were

consistent with findings from other tidal rivers on Florida's west coast. The three gear types documented the distributions of the egg, larval, juvenile and adult stages of estuarine-dependent marine, estuarine-resident, and freshwater fishes.

The bay anchovy (*Anchoa mitchilli*), gobiosoma gobies (*Gobiosoma bosc* and *G. robustum*), the clown goby (*Microgobius gulosus*) and the hogchoker (*Trinectes maculatus*) comprised 91% of the larval, juvenile and adult fishes collected by the plankton net. Juvenile eastern mosquitofish (*Gambusia holbrooki*) and larval silversides (*Menidia* spp.) were also frequently collected. Juvenile brown hoplo catfish (*Hoplosternum littorale*), and introduced freshwater exotic, were the fourth most abundant juvenile fish in the plankton net catch. Decapod zoeae, cumaceans, gammaridean amphipods, the mysid *Americamysis almyra*, the copepod *Acartia tonsa*, the appendicularian *Oikopleura dioica*, and unidentified *Amerimysis* mysid juveniles comprised 80% of the invertebrates collected by the plankton net. *A. tonsa* and *O. dioica* are river-plume taxa that invaded the tidal river during low inflow periods, whereas the abundances of all other dominant taxa were typically centered within the tidal river proper.

Seine (shoreline) fish collections were dominated by bay anchovy (*Anchoa mitchilli*), silversides (*Menidia* spp.), eastern mosquitofish (*Gambusia holbrooki*), spot (*Leiostomus xanthurus*), eucinostomus mojarras (*Eucinostomus* spp.), and hogchoker (*Trinectes maculatus*). The trawl (channel) catch was dominated by bay anchovy, hogchoker, sand seatrout (*Cynoscion arenarius*), spot, and southern kingfish (*Menticirrhus americanus*). Invertebrates collected by seines were dominated by daggerblade grass shrimp (*Palaemonetes pugio*) and brackish grass shrimp (*P. intermedius*); invertebrate trawl catches primarily consisted of pink shrimp (*Farfantepenaeus duorarum*) and blue crab (*Callinectes sapidus*).

Spawning within or near the survey area was indicated by the presence of either eggs or newly hatched larvae. Eggs of the bay anchovy and striped anchovy were directly identified in the samples, with bay anchovy eggs being much more abundant. Larval distributions indicated that skilletfish (*Gobiesox strumosus*), silversides (*Menidia*

spp., *Membras martinica*), unspecified mojarras (gerreids), sand seatrout (*Cynoscion arenarius*), kingfishes (*Menticirrhus* spp.), blennies (blenniids), gobies (gobiids) and the hogchoker (*Trinectes maculatus*) spawned within or near the survey area. Most spawning took place near the mouth of the Myakka River. Live-bearing species such as the eastern mosquitofish (*Gambusia holbrooki*), gulf pipefish (*Syngnathus scovelli*), chain pipefish (*S. louisianae*) and lined seahorse (*Hippocampus erectus*) probably underwent parturition within the area.

Estuarine-dependent taxa are spawned at seaward locations and generally migrate into tidal rivers during the late larval or early juvenile stage, whereas estuarine-resident taxa are often present within tidal rivers throughout their life cycles. Estuarine-dependent taxa that use the tidal river as a nursery area are the numerical dominants in the Myakka River; overall, eight of the ten most abundant taxa in the river channel and five of the ten most abundant taxa in nearshore habitats can be considered estuarine-dependent. Six of the ten most abundant taxa found in channel and nearshore habitats of Myakkahatchee Creek are estuarine-dependent. Eight of the most abundant estuarine-dependent taxa in the Myakka River and Myakkahatchee Creek spawn outside Charlotte Harbor. Six of these offshore spawners are among the most economically valuable species in Florida, including menhadens (*Brevoortia* spp.), spot, striped mullet (*Mugil cephalus*), red drum (*Sciaenops ocellatus*), blue crab, and pink shrimp. The other two abundant offshore-spawning taxa include eucinostomus mojarras (*Eucinostomus* spp.) and southern kingfish (*Menticirrhus americanus*), a species of some economic importance. Four additional common estuarine-dependent species spawn within Charlotte Harbor. Two of these species have relatively minor direct economic value (i.e., hardhead catfish [*Ariopsis felis*], and sand seatrout [*Cynoscion arenarius*]), and two others are among the most abundant species in the system (i.e., hogchoker and bay anchovy). The juvenile nursery habitats for selected species were characterized from seine and trawl data in terms of preference for the shoreline or channel, type of shoreline, physical location (distance from river mouth), and salinity.

More taxa were collected by plankton net during the spring and summer months than at other times of year. Alteration of inflows would appear to have the lowest potential for impacting many taxa during the period from December through February, which is the period when the fewest estuarine taxa were present. The highest potential for impacting many species would appear to be from March to June, a time of year when naturally low inflows are coupled with increasing use of the estuary as nursery habitat. The potential for impact is species-specific. During fall, winter, and early spring, for example, there could be impact on red drum and menhadens because these fishes recruit to tidal river nursery habitats during fall and winter. The larvae or early juveniles of other species, such as the bay anchovy, are present year-round.

Based on seine and trawl data, few clear seasonal patterns of taxon richness were evident in either the Myakka River or Myakkahatchee Creek. Monthly shoreline taxon richness in the Myakka River was quite variable but appeared highest from May–July and October–December. There was a lack of clear seasonal trends in taxon richness from the channel habitat. The relatively short duration of sampling in Myakkahatchee Creek (15 months) hinders conclusions regarding seasonality of taxon richness. Based on these data, we tentatively conclude that the potential for impacting the greatest number of species by anthropogenic alteration of freshwater inflows in the Myakka River occurs from May–July and October–December. Overall abundances and abundances of new recruits of nekton taxa indicate extensive use of the tidal river habitat during all months, but temporal resource partitioning among species is evident. Estuarine spawners have peaks in all months except January, and offshore spawners have peaks in all months except August and September. Many offshore spawners had peaks in abundance from mid-autumn to mid-summer, while estuarine spawners tended to peak in summer. Tidal river residents' abundance peaks included late summer–late winter and late spring/early summer periods. Recruitment peaks—indicated by elevated abundance of the smallest size classes taken in seines and trawls—are concentrated in late autumn and winter for offshore spawners, whereas those for estuarine spawners and residents are concentrated in summer.

The catch-per-unit-effort (number of animals per 100 m²) was generally greater in the Myakka River than Myakkahatchee Creek, particularly for estuarine-dependent taxa using the area as a nursery. This was largely due to the importance of the lower Myakka River—the region below its confluence with Myakkahatchee Creek to the outflow into Charlotte Harbor—for these taxa. Division of the study area into ~5-km reaches generally shows that CPUE in Myakkahatchee Creek (river km 22.3–27.3) is very similar to the equivalent reach within the Myakka River.

Among organisms collected by plankton net, there were 41 significant distribution responses to inflow into the tidal Myakka River. All except one (98%) were negative, indicating that the vast majority of taxa collected by plankton net moved downstream in response to increased inflow. The single positive relationship involved postlarvae of the zoster shrimp, *Hippolyte zostericola*. Although this relationship may be spurious, postlarval *Hippolyte* primarily occur in deeper waters near the mouth of the river. Upstream movement could have been caused by strengthening of two-layered circulation by inflow, causing animals in the lower part of the water column to move farther upstream as inflows increased.

The plankton catch from Myakkahatchee Creek produced only seven distribution responses, and four of these (57%) were positive. Two possible explanations for upstream movement in Myakkahatchee Creek are (1) its largely straight, dredged channel facilitated two-layered circulation and (2) downstream movement of animals within the Myakka River increased the abundance of certain taxa in the general area of Myakkahatchee Creek. However, decapod zoea and mysis larvae generally moved well downstream of the mouth of Myakkahatchee Creek during elevated inflows into the Myakka River, which would render the second explanation less likely.

In the case of seine and trawl data, nearly one-half (46%) of the 90 pseudo-species/gear/river combinations (hereafter simply referred to as ‘pseudo-species’) evaluated for distributional responses to freshwater inflow exhibited significant responses. The percentage of pseudo-species showing significant relationships to inflow was somewhat similar between the Myakka River (48%) and Myakkahatchee

Creek (38%). Over 75% of the best-fitting (i.e., high r^2 values from regression models) significant responses were negative (i.e., animals moved upstream with decreasing freshwater inflow), and more than half of the best models were associated with long flow lag periods (i.e., average flow for the 98 to 364 days prior to nekton sample collection). Of the ten best-fitting models suggesting movement upstream with increasing inflow (i.e., a positive response to inflow), various explanations for the observed trends can be offered. In the cases of smaller bay anchovy and larger striped mojarra from Myakkahatchee Creek, the results may be spurious since the gradients of the regression slopes are very small; striped mullet from the Myakka River exhibited a very steep slope which is attributable to influence of two points on the regression. Several tidal river residents (i.e., eastern mosquitofish, redear sunfish [*Lepomis microlophus*], and sailfin molly [*Poecilia latipinna*]) centered in the Myakka River above its confluence with Myakkahatchee Creek may have moved downstream with increasing flow; individuals near the downstream extent of these species' distributions could have been displaced from the entire system upon encountering the additional flow of Myakkahatchee Creek, thus leaving the remaining members of their populations (and hence the center of abundance) above the confluence and giving the impression of upstream movement. There is no obvious explanation for downstream movement with decreasing inflow for spot and clown goby (*Microgobius gulosus*). The ten overall best-fitting seine or trawl models among residents most commonly incorporated long flow lag periods, although there were also several medium-term lags. Best models among estuarine-dependent estuarine spawners tended to include medium to long flow lag periods, while those of estuarine-dependent offshore spawners principally possessed long flow lags, as well as several short-term lags. Best models explained 23 to 93% of the variability in distribution. The highest r^2 values, >50%, were found among both estuarine-dependent and resident species and incorporated flow lag periods ranging from 1 (blue crab) to 357 days (brook silverside, *Labidesthes sicculus*).

Abundance responses were found for 51 taxa in the plankton-net collections from the Myakka River, with nearly half (45%) being positive, wherein abundance increased

as inflow increased. Of the 23 positive responses, 16 involved freshwater taxa that were introduced downstream with increasing inflows, and seven involved estuarine or estuarine-dependent taxa. The latter group consisted of bay anchovy adults, two early stages of hogchoker, two stages of *Americamysis* mysids, juvenile silversides (*Menidia*) and an estuarine isopod, *Cyathura polita*. *Menidia* is largely an estuarine fish, but it is known to be able to complete its life cycle within fresh water as well. *Menidia*'s response time was too short (3 d) to reflect a true population response, as was that of *Cyathura* (also 3 d). Short response times by estuarine taxa may reflect behaviors that allow organisms to reposition themselves in response to increased inflow. Animals may move into the channel or, in the case of benthic forms such as *Cyathura*, may move into the water column to take advantage of the fresh water's downstream flow, causing the catch of such animals to increase quickly as a function of inflow (Robins et al. 2005). On the other hand, the responses of the bay anchovy, hogchoker and *Americamysis* had durations that were commensurate with the effects of improved reproductive output or improvement in growth and survival. Inflow explained 25-65% of the variation in these taxa. These responses are potentially meaningful to inflow management.

Most plume-associated taxa, which are typically found in higher salinity estuarine waters, moved away from the mouth of the tidal river during high-inflow periods, giving them a negative abundance correlation with inflow. Several peracarid crustaceans that are usually most abundant within the interior of the tidal river, such as cymothoid isopods (*Lironeca* sp.), the isopod *Edotea triloba*, the isopod *Sphaeroma quadridentata*, the mysid *Bowmaniella dissimilis*, and the mysid *Taphromysis bowmani*, also decreased in abundance during high inflow periods. Several of these appeared to leave the survey area during high-inflow periods.

Among the 104 pseudo-species considered in the seine and trawl regression analyses, abundances of 65% were significantly related to average inflow. Percentages of pseudo-species possessing significant relationships to inflow were similar between the Myakka River (71%) and Myakkahatchee Creek (61%). The greatest proportion of variance in abundance was explained by linear models for 26 pseudo-species and by

quadratic models for 42 pseudo-species. Of the 26 linear models, 65% were negative relationships, i.e., increasing abundance with decreasing inflow. Over 50% of quadratic models suggested greatest abundance at intermediate inflows ('intermediate-maximum'); the remaining quadratic models were relatively evenly divided between positive, negative, and intermediate-minimum responses. The proportion of abundance responses to inflow differed by life-history category: residents contrasted with estuarine and offshore spawners in having more positive responses than negative (Fig. 3.8.2). Minimum abundance at intermediate inflows was only found in a few resident and offshore-spawning pseudo-species. The best-fitting models tended to incorporate longer lags for residents and either short-term or long-term lags for offshore spawners; best models were well distributed among lag periods for estuarine spawners. Lag periods ranged from 7 to 364 days, with a peak at 168 days, for residents; 1 to 364 days, with a peak at 1 day, for estuarine spawners; and 1 to 364 days, with a peak at 1 day for offshore spawners. The strongest abundance-inflow relationships among residents—those where inflow explained a sizeable portion of variance ($r^2 > \sim 60\%$) in at least eight data points—were for shoreline-associated species and probably indicated inflow-related changes in catchability. Increases in abundance of both size classes of Seminole killifish (*Fundulus seminolis*; Myakkahatchee Creek) and brook silverside (both tributaries) with increased inflows may have been due to immigration to the study area from upstream freshwater areas. High abundance of eastern mosquitofish and bluegill (*Lepomis macrochirus*) at intermediate inflows in both tributaries may be caused by low catchability a) at low inflows due to occupation of habitats upstream of the study area and b) at high inflows due to spreading of the populations into a greater habitat area (facilitated by higher water levels) or into areas inaccessible to our sampling gears. The best-fitting relationships between estuarine spawner abundance and inflow were varied. Larger hogchoker, for example, observed an increase in abundance in response to same-day inflow in the Myakka River channel. This may be due to enhanced immigration from upstream areas (see above). The apparent high shoreline abundance of larger striped mojarra (*Eugerres plumieri*) at intermediate flows lagged by 210 days in

the Myakka River is a good example of a single data point (zero abundance at flow of 148 cfs) exerting excessive influence on the regression; removal of this point gives a negative relationship between abundance and flow that is not easily explained biologically, since this species prefers low salinities and seems unlikely to have been displaced from the system over such a long time lag. The same is true of smaller sand seatrout in the channel of Myakkahatchee Creek. This size class of sand seatrout in the Myakka River channel declined linearly in response to increased inflow. Maximum abundance of bay anchovy in Myakkahatchee Creek differed according to size class and flow lag period: intermediate-sized fish (26–35 mm) were found in highest abundance at either low or high same-day flows, whereas adults (>35 mm) showed the opposite pattern when long-term flow lag was considered. These differences are not easily explained in biological terms. As with residents and estuarine spawners, offshore-spawning species showed varying responses to flow. Linear increases in shoreline abundance in relation to flow in the Myakka River were evident in larger pinfish and larger spot. Both of these responses were to flows lagged over long periods. It is tempting to attribute this to increased flow enhancing recruitment through beneficial effects on the reproductive population of these species, but since they are offshore-spawning species this seems unlikely. Tidewater mojarra from shorelines of Myakkahatchee Creek showed a non-linear decrease in abundance in tandem with increasing same-day flow; this may be attributable to displacement into the Myakka River. Several offshore-spawning species had relationships with flow that suggested highest abundance at intermediate flow, including smaller blue crab, leatherjack, spot, and red drum. The form of this response could be driven by chemical attraction to the Myakka River and Myakkahatchee Creek: at low flow, the presumed odor attracting nekton to these tributaries would be relatively weak; with increasing flow, the attractant signal would increase and enhance recruitment to the tributaries; at very high flows, the chemical signal would be diluted, leading to diminished abundance.

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Rivers export nutrients, detritus, and other productivity promoting materials to the estuary and sea. Freshwater inflows also strongly influence the stratification and circulation of coastal waters, which in itself may have profound effects on coastal ecosystems (Mann and Lazier 1996). Estuary-related fisheries constitute a very large portion of the total weight of the U.S. fisheries yield (66% of finfish and shellfish harvest, Day et al. 1989; 82% of finfish harvest, Imperial et al. 1992). The contribution of estuary-related fisheries is consistently high among U.S. states that border the Gulf of Mexico, where the estimates typically exceed 80% of the total weight of the catch (Day et al. 1989). Examples from around the world indicate that these high fisheries productivities are not guaranteed, however. In many locations, large amounts of fresh water have been diverted from estuaries to generate hydroelectric power or to provide water for agricultural and municipal use. Mann and Lazier (1996) reviewed cases where freshwater diversions were followed by the collapse of downstream fisheries in San Francisco Bay, the Nile River delta, James Bay, Canada, and at several inland seas in the former U.S.S.R. Sinha et al. (1996) documented a reversal of this trend where an increase in fisheries landings followed an increase in freshwater delivery to the coast.

Fishery yields around the world are often positively correlated with freshwater discharge at the coast (Drinkwater 1986). These correlations are often strongest when they are lagged by the age of the harvested animal. In south Florida, Browder (1985) correlated 14 years of pink shrimp landings with lagged water levels in the Everglades. Associations between river discharge and fisheries harvests have also been identified for various locations in the northern and western Gulf of Mexico (Day et al. 1989, Grimes 2001). Surprisingly, discharge-harvest correlations sometimes extend to non-estuarine species. Sutcliffe (1972, 1973) reported lagged correlations between discharge of the St. Lawrence River and the harvest of non-estuarine species such as American lobster and haddock. In recognition of the potential complexities behind these correlations,

Drinkwater (1986) advised that the effect of freshwater inflows be considered on a species-by-species basis.

Freshwater influence on coastal ecosystems extends beyond its immediate effects on fisheries. Because of the intricate nature of many food web interactions, changes in the abundance of even a single species may be propagated along numerous pathways, some anticipated and some not, eventually causing potentially large changes in the abundance of birds, marine mammals and other groups of special concern (Christensen 1998, Okey and Pauly 1999). Mann and Lazier (1996) concluded “one lesson is clear: a major change in the circulation pattern of an estuary brought about by damming the freshwater flows, a tidal dam, or other engineering projects may well have far reaching effects on the primary and secondary productivity of the system.”

This project was conducted to support the establishment of minimum flows for the Myakka River and Myakkahatchee Creek by the Southwest Florida Water Management District (SWFWMD). Minimum flows are defined in Florida Statutes (373.042) as the “limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area.” In the process of establishing minimum flows for an estuarine system, the SWFWMD evaluates the effects of the freshwater inflows on ecological resources and processes in the receiving estuary. The findings of this project will be used by the SWFWMD to evaluate the fish nursery function of the Weeki Wachee River estuary in relation to freshwater inflows. It is not the purpose of this project to determine the level of effect that constitutes significant harm, as that determination will be made by the Governing Board of the SWFWMD.

This project uses plankton-net, seine, and trawl surveys to document the abundance and distribution of fishes and invertebrates that use the tidal Myakka River and Myakkahatchee Creek as habitat. There were several objectives for this project. One was to produce a descriptive database that could serve as a baseline for comparison with future ecological change. These baseline data also provide seasonality records that identify the times of year when the risk of adverse impacts would be greatest for specific organisms.

Another principal objective was to develop regressions to model the responses of estuarine organisms to variations in freshwater inflows. The resulting models would then be available for evaluating proposed minimum flows or the potential impacts of proposed freshwater management plans. These models were developed for both estuarine fishes and the invertebrate prey groups that sustain young fishes while they occupy estuarine nursery habitats.

2.0

METHODS

2.1

Study Area

The Myakka River watershed covers approximately 1554 square kilometers (600 square miles) in Manatee, Sarasota, and Charlotte Counties. The river channel extends in a generally southerly direction 106 kilometers (66 miles) from the river's headwaters to its mouth at Charlotte Harbor. The 55 km segment of the Myakka River in Sarasota County has been designated as a Florida Wild and Scenic River. This reach, plus the remaining estuarine portion of the river in Charlotte County, have also been designated as an Outstanding Florida Water. The Myakka River watershed is only lightly urbanized with only 6.4 percent of the land use/cover classified as urban, residential, or industrial (SWFWMD 2001). Upland forests, wetlands, and open water comprise a total of 42 percent of the watershed, while agriculture and rangeland comprise 27 and 16 percent of the land use/cover, respectively.

The tidal portion of the Myakka River (Fig. 2.1.1) is microtidal, drowned-river-valley estuary that connects to the Gulf of Mexico via Charlotte Harbor. At the river mouth, the mixed, mainly semi-diurnal tide has a range of <1 m. Tidal influence on water levels in the Myakka extend 40 kilometers upstream from the river mouth to a small structure in the river channel known as Down's Dam. Major tributaries that enter the Myakka River in this tidal reach are Deer Prairie Creek near river kilometer 26 and Myakkahatchee Creek, also known as Big Slough Canal, near river kilometer 22. Myakkahatchee Creek is used for water supply by the City of North Port at an intake site located above a salinity barrier four kilometers upstream of the creek's confluence with the Myakka River. Water supply withdrawals from the Myakkahatchee Creek averaged 1.9 cfs during 2004. A highly urbanized tributary, the Cocoplum Waterway, is also impounded by a salinity barrier and discharges to the tidal reach of Myakkahatchee Creek just below the City's water supply facility. Additional descriptions of the tidal Myakka River and a review of earlier fish surveys are presented by Estevez et al. (1991).

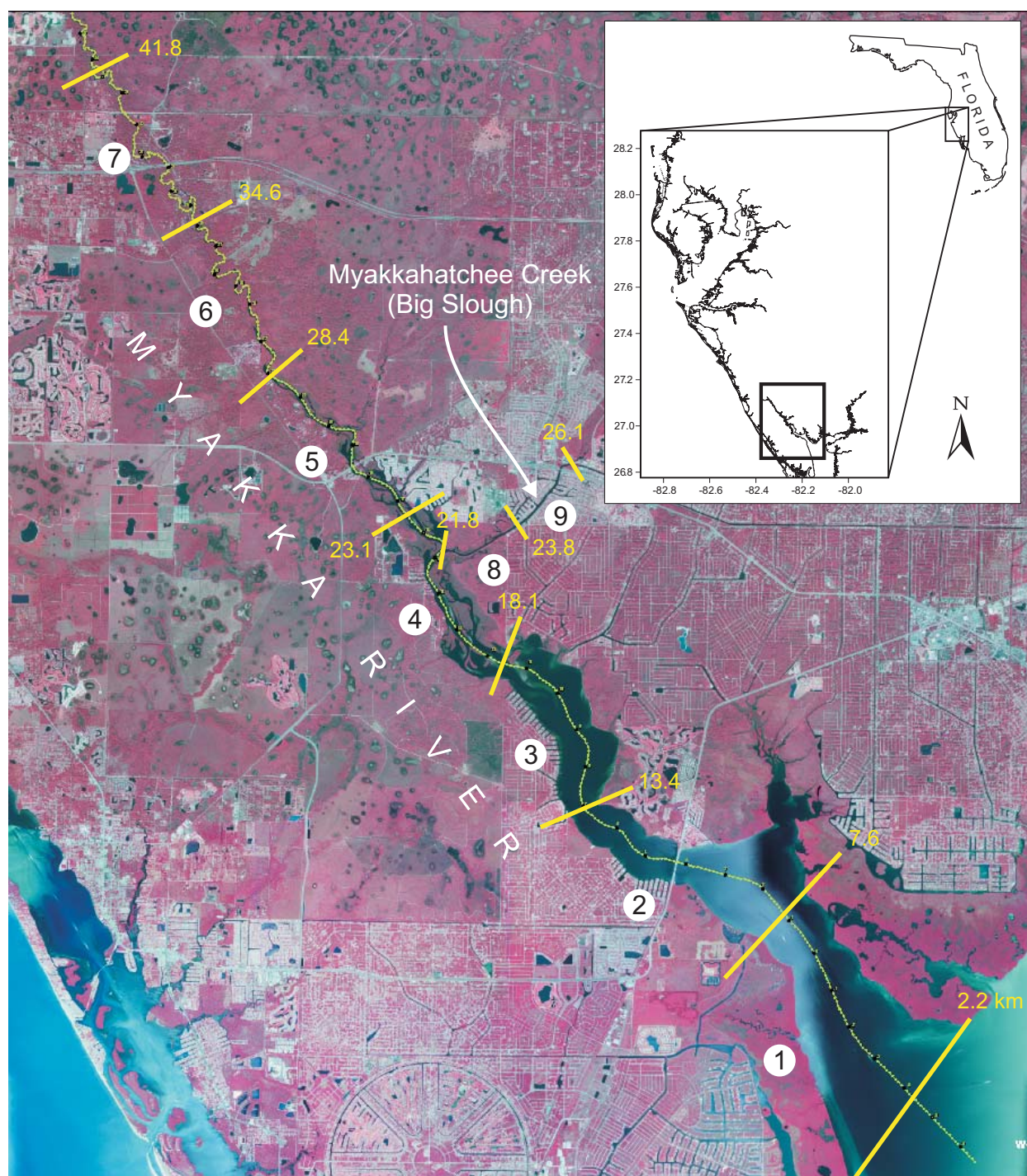


Fig. 2.1.1 Map of survey area. Numbers within circles identify sampling zones.

2.2 Survey Design

Three gear types were implemented to monitor organism distributions: a plankton net deployed during nighttime flood tides and a bag seine and otter trawl deployed during the day under variable tide stages. The plankton net surveys were conducted by the University of South Florida College of Marine Science, and the seine and trawl surveys were conducted by the Fisheries-Independent Monitoring (FIM) program of the Fish and Wildlife Research Institute (Florida Fish and Wildlife Conservation Commission).

The small organisms collected at night by the plankton net represent a combination of the zooplankton and hyperbenthos communities. The term *zooplankton* includes all weakly swimming animals that suspend in the water column during one or more life stages. The distribution of such animals is largely subject to the motion of the waters in which they live. The term *hyperbenthos* applies to animals that are associated with the bottom but tend to suspend above it, rising higher into the water column at night or during certain times of year (vertical migrators). The permanent hyperbenthos of estuaries (non-transient hyperbenthos) tends to be dominated by peracarid crustaceans, especially mysids and amphipods (Mees et al. 1993). Many types of hyperbenthos are capable of actively positioning themselves at different places along the estuarine gradient by selectively occupying opposing tidal flows.

The faunal mixture that forms in the nighttime water column includes the planktonic eggs and larvae of fishes (ichthyoplankton). One of the most common reasons for using plankton nets to survey estuarine waters is to study ichthyoplankton. Although fish eggs and larvae are the intended focus of such studies, invertebrate plankton and hyperbenthos almost always dominate the samples numerically. The invertebrate catch largely consists of organisms that serve as important food for juvenile estuarine-dependent and estuarine-resident fishes. In an effort to characterize the invertebrate catch more completely, all water-column animals collected by the plankton net were enumerated at a practical taxonomic level.

Seines and trawls were used to survey larger organisms that typically evade plankton nets. Generally speaking, the data from seine hauls document habitat use by shallow-water organisms whereas the data from trawls document habitat use in deeper areas. The dominant catch for both gear types is juvenile fishes, although the adults of smaller species are also commonly caught. The seines and trawls also regularly collect a few of the larger macroinvertebrate species from tidal rivers, notably juvenile and adult blue crabs (*Callinectes sapidus*) and juvenile pink shrimp (*Farfantepenaeus duorarum*).

Monthly sampling in the Myakka River began in May 2003 and ended in December 2004. Sampling in Myakkahatchee Creek was conducted from May 2003 to July 2004. The tidal portions of the Myakka River and Myakkahatchee Creek were divided into nine collection zones (Fig. 2.1.1; Tables 2.2.1, 2.2.2). Within each zone, two plankton net tows, two seine hauls and one trawl were made each month.

Table 2.2.1. Distribution of sampling effort within the tidal Myakka River (May 2003–December 2004). Zone position is measured relative to the Myakka River mouth.

Zone (km)	Plankton	Seine	Trawl
1 (2.2–7.6)	40	40	20
2 (7.6–13.4)	40	40	20
3 (13.4–18.1)	40	40	20
4 (18.1–23.1)	40	40	20
5 (23.1–28.4)	40	40	20
6 (28.4–34.6)	40	40	20
7 (34.6–41.8)	40	40	20
Totals	280	280	140

Table 2.2.2. Distribution of sampling effort within tidal Myakkahatchee Creek (May 2003–June 2004 [plankton]; May 2003–July 2004 [seine and trawl]). Zone position is measured relative to the Myakka River mouth.

Zone (km)	Plankton	Seine	Trawl
8 (21.8–23.8)	28	30	15
9 (23.8–26.1)	28	30	15
Totals	56	60	30

2.3

Plankton Net Specifications and Deployment

The plankton gear consisted of a 0.5-m-mouth-diameter 500- μ m-mesh conical (3:1) plankton net equipped with a 3-pt nylon bridle, a calibrated flow meter (General Oceanics model 2030R or SeaGear model MF315), a 1-liter plastic cod-end jar, and a 9-kg (20-lb.) weight. The net was deployed between low slack and high slack tide, with sampling beginning within two hours after sunset and typically ending less than four hours later. Tow duration was 5 min, with tow time being divided equally among bottom, mid-water and surface depths. The fishing depth of the weighted net was controlled by adjusting the length of the tow line while using tachometer readings to maintain a constant line angle. The tow line was attached to a winch located on the gunnel near the transom. Placement of the winch in this location caused asymmetry in the steering of the boat, which caused propeller turbulence to be directed away from the towed net. Tow speed was approximately 1.3 m s^{-1} , resulting in a tow length of >400 m over water and a typical filtration of 70-80 m^3 . Upon retrieval of the net, the flowmeter reading was recorded, and the contents of the net were rinsed into the cod-end jar using an electric wash-down pump and hose with an adjustable nozzle. The samples were preserved in 6-10% formalin in ambient saline.

The net was cleaned between surveys using an enzyme solution that dissolves organic deposits. Salinity, temperature, pH and dissolved oxygen were measured at one-meter intervals from surface to bottom after each plankton-net deployment.

2.4

Seine and Trawl Specifications and Deployment

The gear used in all seine collections was a 21.3-m center-bag seine with 3.2-mm mesh and leads spaced every 150 mm. To deploy the seine, the boat dropped off a member of the seine crew near the shoreline with one end of the seine, and the boat then

played out the net in a semicircle until the boat reached a second drop-off point near the shoreline. The lead line was retrieved simultaneously from both ends, with effort made to keep the lead line in contact with the bottom. This process forced the catch into the bag portion of the seine. Area sampled by each seine collection was approximately 68 m².

The 6.1-m otter trawl had 38-mm stretched mesh, a 3.2-mm mesh liner, and a tickler chain. It was towed in the channel for five minutes in either an arc or a straight line. Tow speed averaged 0.6 m s⁻¹, resulting in a typical tow length of about 180 m. Trawl width averaged 4 m, giving an approximate area sampled by a typical tow of 720 m². Salinity, temperature, pH, and dissolved oxygen were measured at the surface and at 1-m intervals to the bottom in association with each gear deployment.

2.5

Plankton Sample Processing

All aquatic taxa collected by the plankton net were identified and counted, except for invertebrate eggs and organisms that were attached to debris (sessile stages of barnacles, bryozoans, sponges, tunicates and sessile coelenterates). During sorting, the data were entered directly into an electronic database via programmable keyboards that interfaced with a macro-driven spreadsheet. Photomicrographs of representative specimens were compiled into a reference atlas that was used for quality-control purposes.

Most organisms collected by the plankton net fell within the size range of 0.5-50 mm. This size range spans three orders of magnitude, and includes mesozooplankton (0.2-20 mm) macrozooplankton/micronekton (>20 mm) and analogous sizes of hyperbenthos. To prevent larger objects from visually obscuring smaller ones during sample processing, all samples were separated into two size fractions using stacked sieves with mesh openings of 4 mm and 250 µm. The >4 mm fraction primarily consisted of juvenile and adult fishes, large macroinvertebrates and large particulate organic matter. In most cases, the fishes and macroinvertebrates in the >4 mm fraction could be identified and enumerated without the aid of microscopes.

A microscope magnification of 7-12X was used to enumerate organisms in the >250 µm fraction, with zoom magnifications as high as 90X being available for identifying individual specimens. The >250 µm fraction was usually sorted in two stages. In the first sorting stage, the entire sample was processed as 10-15 ml aliquots that were scanned in succession using a gridded petri dish. Only relatively uncommon taxa ($n < 50$) were enumerated during this first stage. After the entire sample had been processed in this manner, the collective volume of the aliquots was recorded within a graduated mixing cylinder, the sample was inverted repeatedly, and then a single 30-60 ml aliquot was poured. The aliquot volume typically represented about 12-50% of the entire sample volume. The second sorting stage consisted of enumerating the relatively abundant taxa within this single aliquot. The second sorting stage was not required for all samples. The second stage was, however, sometimes extended to less abundant taxa ($n < 50$) that were exceptionally small or were otherwise difficult to enumerate.

2.5.1 Staging Conventions.

All fishes were classified according to developmental stage (Fig. 2.5.1.1), where

preflexion larval stage = the period between hatching and notochord flexion; the tip of the straight notochord is the most distal osteological feature.

flexion larval stage = the period during notochord flexion; the upturned notochord or urostyle is the most distal osteological feature.

postflexion larval stage = the period between completion of flexion and the juvenile stage; the hypural bones are the most distal osteological feature.

metamorphic stage (clupeid fishes) = the stage after postflexion stage during which body depth increases to adult proportions (ends at juvenile stage).

juvenile stage = the period beginning with attainment of meristic characters and body shape comparable to adult fish and ending with sexual maturity.

Decapod larvae were classified as zoea, megalopa or mysis stages. These terms are used as terms of convenience and should not be interpreted as technical definitions. Planktonic larvae belonging to Anomura and Brachyura (crabs) were called zoea. Individuals from these groups displaying the planktonic to benthic transitional morphologies were classified as megalopae. All other decapod larvae (shrimps) were classified as mysis stages until the uropods differentiated into exopods and endopods (5 total elements in the telsonic fan), after which they were classified as postlarvae until they reached the juvenile stage. The juvenile stage was characterized by resemblance to small (immature) adults. Under this system, the juvenile shrimp stage (e.g., for *Palaemonetes*) is equivalent to the postlarval designation used by some authors.

In many fish species, the juvenile stage is difficult to distinguish from other stages. At its lower limit, the juvenile stage may lack a clear developmental juncture that distinguishes it from the postflexion or metamorphic stage. Likewise, at its upper limit, more than one length at maturity may be reported for a single species or the reported length at maturity may differ between males and females. To avoid inconsistency in the staging process, length-based staging conventions were applied to the more common taxa. These staging conventions agree with stage designations used by the U.S. Fish and Wildlife Service (e.g., Jones et al. 1978). The list in Table 2.5.1.1 is comprehensive, representing the conventions that have been required to date by various surveys. Some of the species or stages in the list were not encountered during the surveys covered by this report.

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Table 2.5.1.1. Length-based staging conventions used to define developmental stage limits. Fish lengths are standard length (SL) and shrimp length is total length.

Postflexion-juvenile transition (mm): Juvenile-adult transition (mm):

<i>Lucania parva</i>	10	<i>Anchoa mitchilli</i>	30
<i>Menidia</i> spp.	10	<i>Lucania parva</i>	15
<i>Eucinostomus</i> spp.	10	<i>Gambusia holbrooki</i>	15
<i>Lagodon rhomboides</i>	10	<i>Heterandria formosa</i>	10
<i>Bairdiella chrysoura</i>	10	<i>Menidia</i> spp.	35
<i>Cynoscion arenarius</i>	10	<i>Eucinostomus</i> spp.	50
<i>Cynoscion nebulosus</i>	10	<i>Gobiosoma bosc</i>	20
<i>Sciaenops ocellatus</i>	10	<i>Gobiosoma robustum</i>	20
<i>Menticirrhus</i> spp.	10	<i>Microgobius gulosus</i>	20
<i>Leiostomus xanthurus</i>	15	<i>Microgobius thalassinus</i>	20
<i>Orthopristis chrysoptera</i>	15	<i>Gobiesox strumosus</i>	35
<i>Achirus lineatus</i>	5	<i>Trinectes maculatus</i>	35
<i>Trinectes maculatus</i>	5	<i>Palaemonetes pugio</i>	20
<i>Gobiesox strumosus</i>	5	<i>Membras martinica</i>	50
<i>Eugerres plumieri</i>	10	<i>Syngnathus</i> spp.	80
<i>Prionotus</i> spp.	10	<i>Poecilia latipinna</i>	30
<i>Symphurus plagiusa</i>	10	<i>Anchoa hepsetus</i>	75
<i>Anchoa mitchilli</i>	15		
<i>Sphoeroides</i> spp.	10		
<i>Chilomycterus schoepfii</i>	10		
<i>Lepomis</i> spp.	10		
<i>Micropterus salmoides</i>	10	Metamorph-juvenile transition (mm):	
<i>Membras martinica</i>	10		
<i>Chloroscombrus chrysurus</i>	10	<i>Brevoortia</i> spp.	30
<i>Hemicaranx amblyrhynchus</i>	10	<i>Dorosoma petenense</i>	30
<i>Micropogonias undulatus</i>	15		
<i>Chaetodipterus faber</i>	5		

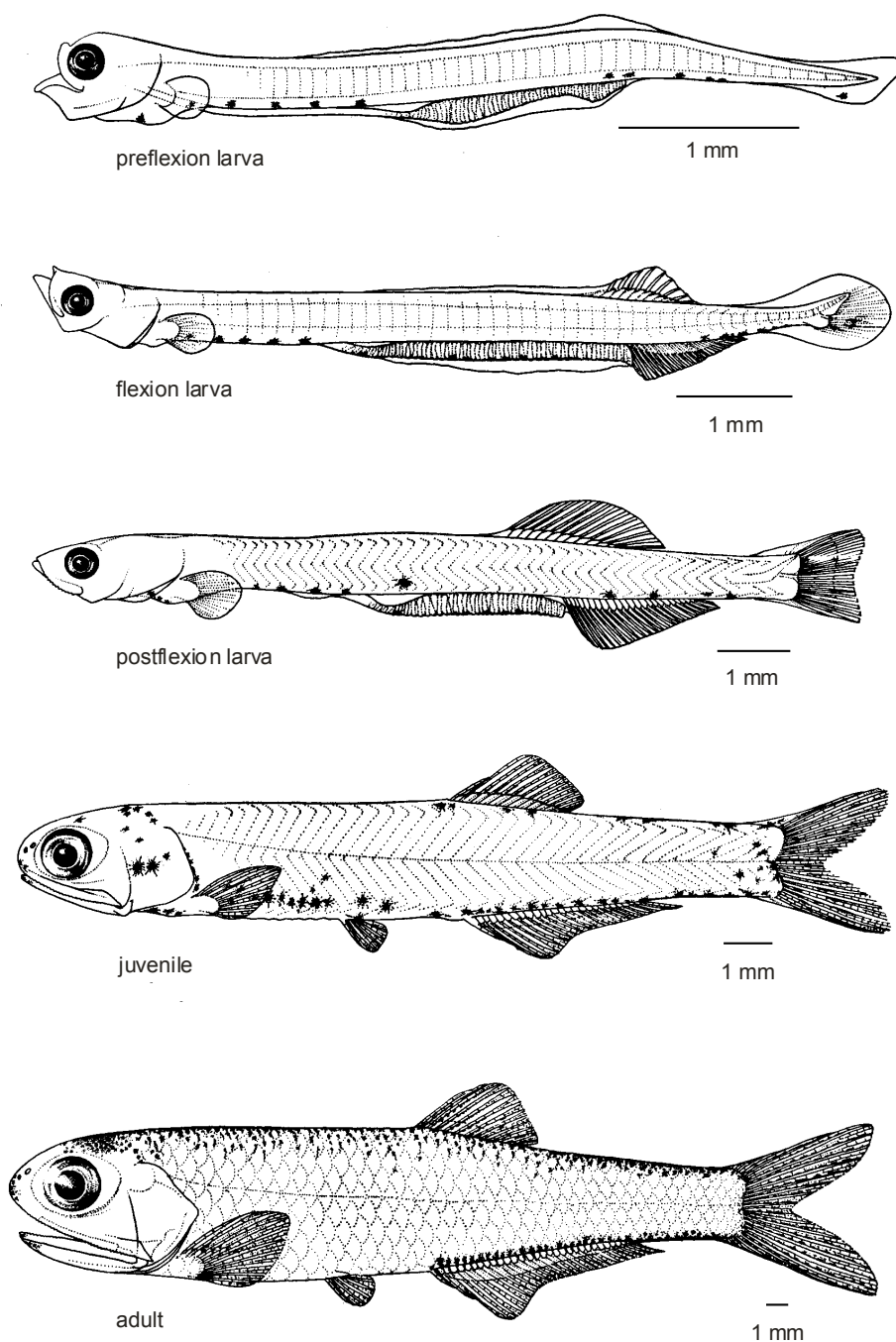


Fig. 2.5.1.1. Fish-stage designations, using the bay anchovy as an example. Specimens measured 4.6, 7.0, 10.5, 16, and 33 mm standard length.

Fish and selected crustaceans collected in seine and trawl samples were removed from the net into a bucket and processed onboard. Animals were identified to lowest practical taxonomic category, generally species. Representative samples (three individuals of each species from each gear on each sampling trip) were brought back to the FWC/FWRI laboratory to confirm field identification. Species for which field identification was uncertain were also brought back to the laboratory. A maximum of 10 measurements (mm) were made per taxon, unless distinct cohorts were identifiable, in which case a maximum of 10 measurements were taken from each cohort; for certain economically valuable fish species, twenty individuals were measured. Standard length (SL) was used for fish, post-orbital head length (POHL) for pink shrimp, and carapace width (CW) for crabs. Animals that were not measured were identified and counted. When large numbers of individuals ($> 1,000$) were captured, the total number was estimated by fractional expansion of sub-sampled portions of the total catch split with a modified Motoda box splitter (Winner and McMichael, 1997). Animals not chosen for further laboratory examination were returned to the river.

Due to frequent hybridization and/or extreme difficulty in the identification of smaller individuals, members of several abundant species complexes were not identified to species. We did not separate menhaden, *Brevoortia*, species. *Brevoortia patronus* and *B. smithi* frequently hybridize, and juveniles of the hybrids and the parent species are difficult to identify (Dahlberg, 1970). *Brevoortia smithi* and hybrids may be the most abundant forms on the Gulf coast of the Florida peninsula, especially in tidal rivers (Dahlberg, 1970), and we treated them as one functional group. The two abundant silverside species (genus *Menidia*) tend to hybridize, form all-female clones, and occur in great abundance that renders identification to species impractical due to the nature of the diagnostic characters (Duggins et al., 1986; Echelle and Echelle, 1997; Chernoff, personal communication). Species-level identification of mojarras (genus *Eucinostomus*) was limited to individuals ≥ 40 mm SL due to great difficulty in separating *E. gula* and *E. harengulus* below this size (Matheson, personal observation). The term “eucinostomus mojarras” is used for these small specimens. Species-level

identification of gobies of the genus *Gobiosoma* (i.e., *G. robustum* and *G. bosc*) used in analyses were limited to individuals ≥ 20 mm SL for the same reason; these are hereafter referred to as “gobiosoma gobies”. Similarly, needlefishes (*Strongylura* spp.) other than *S. notata* were only identified to species at lengths ≥ 100 mm SL.

2.7 Data Analysis

2.7.1 Freshwater Inflow (F).

Inflow rates to the study area include data from two gauged streamflow sites. All flow rates were expressed as average daily flows in cubic feet per second (cfs). Flows to the Myakka River are measured by the US Geological Survey (USGS) at site 02298830 (Myakka River near Sarasota). Average daily flows for Myakkahatchee Creek were obtained from records collected by the City of North Port at Water Control Structure 101, a concrete weir equipped with slide gates that is located about 4.2 kilometers upstream of the mouth of Myakkahatchee Creek. Flows for days with missing data in the county records were estimated by the SWFWMD using regressions of flows from an upstream gage operated by the USGS (Big Slough Canal near Myakka City, site 02299410) with the recorded daily flows at WCS 101 reported by the City (Big Slough Canal and Myakkahatchee Creek refer to the same waterway). Streamflow data from these sites were used for the period through December 31, 2004.

2.7.2 Organism-Weighted Salinity (S_U).

The central salinity tendency for catch-per-unit-effort (CPUE) was calculated as

$$S_U = \frac{\sum (S \cdot U)}{\sum U}$$

where U is CPUE (No. m^{-3} for plankton data and No. $100 m^{-2}$ for seine and trawl data) and S is water-column average salinity during deployment.

2.7.3 Center of CPUE (km_U).

The central geographic tendency for CPUE was calculated as

$$km_U = \frac{\sum (km \cdot U)}{\sum U}$$

where km is distance from the river mouth. A constant of 6.5 km was added to the original values based on the center line provided by SWFWMD to accommodate sampling below the 0 km mark. The confluence of the Myakka River and Myakkahatchee Creek was therefore at an adjusted river km of 23.3.

2.7.4 Organism Number (N) and Relative Abundance ($\bar{N}$).

Using plankton-net data, the total number of organisms in the tidal portion of each survey area was estimated by summing the products of mean organism density ($\bar{U}$, as No. m^{-3}) and tide-corrected water volume (V) from volume zones (Fig. 2.1.1) as

$$N = \sum (\bar{U} \cdot V)$$

For most of the Myakka River, volumes corresponding to NGVD29 were available from SWFWMD. These volumes were adjusted to the actual water level at the time of collection using data from the water-level recorder on the Myakka River at US 41 (NOAA station 8725837), after using the NGS VERTCON program to convert the NAVD88 datum of this recorder to NGVD29. Vertical-datum-adjusted bathymetric data from Myakkahatchee Creek (from SWFWMD) and the mouth of the Myakka River (NOAA chart) were kriged (Surfer 7, Golden Software 1999, linear semivariogram model) to provide a basis for the level-corrected volumes for the remaining parts of the survey area.

For seine and trawl data, relative abundance (mean number per 100 m^2 sampled area) was calculated for each month as

$$\bar{N} = 100 \times \frac{N_{total}}{A_{total}}$$

where N_{total} = total number of animals captured in that month and A_{total} is the total area sampled in that month. $\bar{N}$ is also occasionally referred to as CPUE in some instances.

2.7.5 Inflow Response Regressions.

All analyses treated data from the Myakka River and Myakkahatchee Creek separately. Regressions were run for km_U on F , N on F , and $\bar{N}$ on F . N , $\bar{N}$, km_U (seine/trawl data only), and F were Ln-transformed prior to regression to improve normality. For Myakka River regressions, F was the sum of flows from the gauges at Myakka River at Sarasota and WCS 101 (see section 2.7.1 above); for Myakkahatchee Creek regressions, only data from the latter gauge were used. To avoid censoring zero values in seine and trawl regressions, a constant of 1 was added to F and $\bar{N}$.

Regressions using plankton-net data were limited to taxa that were encountered during a minimum of 10 of the monthly surveys. Twelve linear and nonlinear regression models were evaluated for each taxon. In these regressions, F was represented by same-day inflow and by mean inflows extending as far back as 120 days prior to the sampling date. The combination of consecutive dates that produced the maximum regression fit was used to model the N and km_U responses to F for each taxon. This approach provided an indication of the temporal responsiveness of the various taxa to inflow variations. An organism was considered to be responsive if the regression slope was significantly different from zero at $p < 0.05$.

Seine and trawl regressions were limited to taxa that were reasonably abundant (total abundance > 100 in seines, > 50 in trawls) and frequently collected (present in at least 3% of collections for each gear). Monthly length-frequency plots (Appendix C) were examined in order to assign appropriate size classes ('pseudo-species') and recruitment windows for each of these taxa. For distribution regressions (km_U), all months were considered when a pseudo-species was collected in at least one sample from that month. For abundance regressions ($\bar{N}$), all samples collected within a determined recruitment period from monthly length-frequency plots (Appendix C) were considered. Mean flows from the date of sampling, as well as continuously lagged

weekly averages from the day of sampling to 365 d before sampling (i.e., average flow of sampling day and preceding 6 days, average flow of sampling day and preceding 13 days, etc.), were considered and linear and quadratic regressions were evaluated.

2.7.6 Data Limitations and Gear Biases.

All nets used to sample aquatic organisms are size selective. Small organisms pass through the meshes and large organisms evade the gear altogether. Intermediate-sized organisms are either fully retained or partially retained. When retention is partial, abundance becomes relative. However, temporal or spatial comparisons can still be made because, for a given deployment method and size of organism, the selection process can usually be assumed to have constant characteristics over space and time. The 500- μ m plankton gear retains a wide range of organism sizes completely, yet it should be kept in mind that many estimates of organism density and total number are relative rather than absolute. Organism measurements from Little Manatee River and Tampa Bay plankton samples (Peebles 1996) indicate that the following taxa will be collected selectively by 500- μ m mesh: marine-derived cyclopoid copepods, some cladocerans, some ostracods, harpacticoid copepods, cirriped nauplii and cypris larvae, the larvacean *Oikopleura dioica*, some decapod zoeae, and some adult calanoid copepods. Taxa that are more completely retained include: cumaceans, chaetognaths, insect larvae, fish eggs, most fish larvae and postlarvae, some juvenile fishes, gammaridean amphipods, decapod mysis larvae, most decapod megalopae, mysids, isopods, and the juveniles and adults of most shrimps. This partitioning represents a very general guide to the relative selectivities of commonly caught organisms.

The plankton nets were deployed during nighttime flood tides because larval fishes and invertebrates are generally more abundant in the water column at night (Colton et al. 1961, Temple and Fisher 1965, Williams and Bynum 1972, Wilkins and Lewis 1971, Fore and Baxter 1972, Hobson and Chess 1976, Alldredge and King 1985, Peebles 1987, Haney 1988, Lyczkowski-Shultz and Steen 1991, Olmi 1994) and during specific tide stages (Wilkins and Lewis 1971, King 1971, Peebles 1987, Olmi 1994,

Morgan 1995a, 1995b). Organisms that selectively occupy the water column during flood tides tend to move upstream, and organisms that occupy the water column during all tidal stages tend to have little net horizontal movement other than that caused by net estuarine outflow (Cronin 1982, McCleave and Kleckner 1982, Olmi 1994). The plankton catch was therefore biased toward organisms that were either invading the tidal rivers or were attempting to maintain position within the tidal rivers. This bias would tend to exclude the youngest larvae of some estuarine crabs, which are released at high tide to facilitate export downstream with the ebb tide (Morgan 1995a). However, as the young crabs undergo their return migrations at later larval stages, they become most available for collection during nighttime flood tides (Olmi 1994, Morgan 1995b).

Seines and trawls tend to primarily collect small fish, either adults of small-bodied species or juveniles of larger taxa. Trawls tend to capture larger fish than seines (Nelson and Leffler, 2001), and whether this is due to gear characteristics or preferred use of channel habitat by larger fish is uncertain. Sampling efficiency inevitably varies by species and size class (Rozas and Minello, 1997), but we assume reasonable consistency between samples collected with a given gear type. We acknowledge that movement of various taxa (e.g. killifishes, Fundulidae and Cyprinodontidae) into emergent vegetation at high water levels occurs (Rozas and Minello, 1997) and could complicate interpretation of some results.

3.0

RESULTS AND DISCUSSION

3.1

Streamflow Status During Survey Years

The most prominent feature on the inflow hydrographs for both systems (Fig. 3.1.1) was the summer wet season. During both 2003 and 2004, peak summer inflows occurred during the period between May and October.

3.2

Physico-chemical Conditions

Inflows during the 2003 wet season appeared to reduce salinities in the tidal Myakka River slightly more than those of the 2004 wet season (Fig. 3.2.1). Myakkahatchee Creek was nearly entirely fresh from June through October 2003 (fig. 3.2.2).

In the Myakka River, individual measurements of dissolved oxygen (DO, all depths) varied more with pH ($n=955$, $r=0.72$, $p<0.000$) than water temperature ($n=955$, $r=-0.58$, $p<0.0000$) or salinity ($n=955$, $r=0.41$, $p<0.0000$). The results of forward stepwise regression produced the same explanatory hierarchy (from high explanatory value to low), wherein pH explained 52% (same as above, $[0.72]^2=0.52$), water temperature explained 12% of the residuals from the pH-DO relationship, and salinity explained 4% of the residuals left by the two previous relationships. The first selected variable (pH) will always be the variable with the highest independent correlation with the dependent variable, but the behavior of the remaining explanatory variables is not so clearly evident. In this case, the salinity coefficient reversed its sign and became negative.

In Myakkahatchee Creek, individual measurements of dissolved oxygen (all depths) also varied more with pH ($n=196$, $r=0.68$, $p<0.000$) than water temperature ($n=196$, $r=-0.66$, $p<0.0000$) or salinity ($n=196$, $r=-0.05$, $p=0.48$). In this system, salinity did not have a significant relationship with dissolved oxygen when considered independently. However, in forward stepwise regression, pH explained 47%, salinity explained an additional 17%, and water temperature explained an additional 5%. The

general agreement between trends in pH and DO is evident in Fig. 3.2.1 and, in particular, Fig. 3.2.2.

The domination of variation in DO by commensurate variation in pH has been observed in other tidal rivers (Hillsborough, Alafia and Palm, MacDonald et al. 2005). In semi-confined bodies of water, low pH and low DO can be caused by high levels of respiration (i.e., high CO₂ production lowers pH, and this is coupled with high O₂ consumption), and high pH can be caused by high levels of photosynthesis (i.e., CO₂ depletion raises pH, and this is coupled with high photosynthetic O₂ production). These results point to DO dynamics that are heavily influenced by biological processes. The upper Myakka River is more confined than the lower river (i.e., it has longer flushing times), and tends to have lower pH and DO levels (Table 3.2.1).

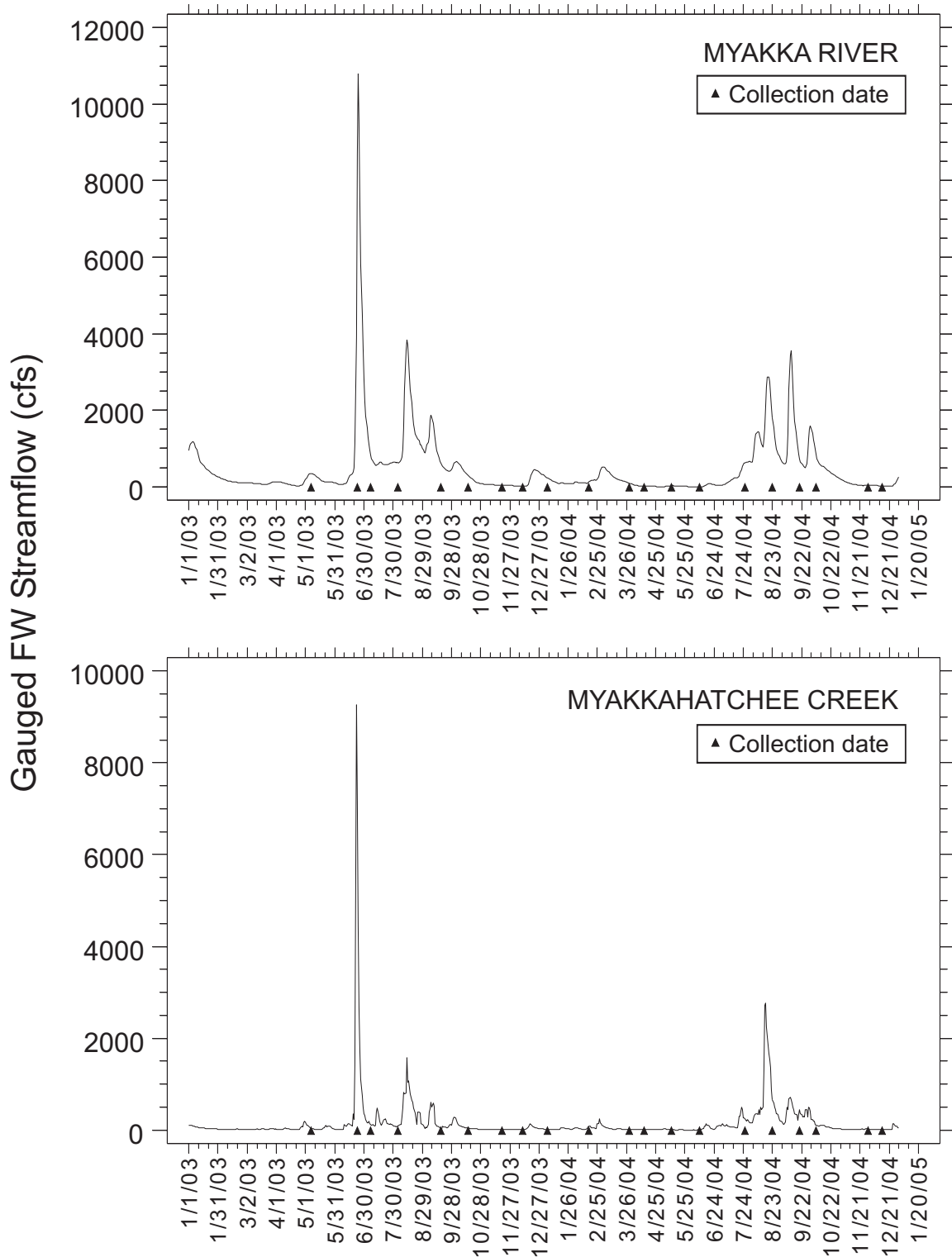


Fig. 3.1.1. Gauged freshwater streamflow, with plankton survey dates indicated. Myakka River data are from USGS gauge 02298830 (Myakka River near Sarasota). Myakka Hatchee Creek data were obtained from Water Control Structure 101 by the City of North Port.

Table 3.2.1. Electronic meter summary statistics associated with plankton net deployment. Mean depth is mean depth at deployment. Sample sizes (n) reflect the combination of survey frequency (20 monthly surveys in Myakka River and 14 in Myakkahatchee Creek) and depths of measurement. Measurements were made at surface, bottom and at one-meter intervals between surface and bottom.

MYAKKA RIVER																								
Location (km from mouth)	Mean Depth (m)	Salinity (psu)						Water Temperature (°C)						Dissolved Oxygen (mg/l)						pH				
		n	mean	std. dev.	min.	max.	n	mean	std. dev.	min.	max.	n	mean	std. dev.	min.	max.	n	mean	std. dev.	min.	max.			
	3.7	3.5	99	17.9	7.8	1.1	26.6	99	25.6	4.3	18.4	31.1	99	6.2	2.1	0.3	10.0	99	7.9	0.3	7.0	8.4		
	5.5	3.2	88	17.1	8.2	0.2	26.6	88	25.5	4.3	18.4	31.5	88	6.0	1.8	0.5	8.4	88	7.9	0.3	7.0	8.3		
	8.8	1.9	66	13.8	9.0	0.1	25.7	66	25.9	4.2	18.4	31.2	66	6.1	2.0	0.9	11.9	66	7.8	0.4	6.6	8.3		
	11.4	2.3	74	12.0	8.7	0.1	24.5	74	26.1	4.0	18.1	31.0	74	6.3	1.4	3.3	9.1	74	7.7	0.5	6.5	8.2		
	14.6	1.8	63	9.9	8.3	0.1	22.7	63	26.2	4.0	18.2	31.0	63	6.3	1.4	3.1	9.0	63	7.6	0.6	6.3	8.2		
	16.6	1.2	48	7.6	7.4	0.1	20.9	48	25.9	4.1	17.8	30.8	48	6.2	1.6	3.6	9.3	48	7.5	0.6	6.3	8.2		
	18.8	1.9	64	6.6	6.2	0.1	19.0	64	26.0	3.9	18.2	31.1	64	6.0	1.5	3.0	8.4	64	7.4	0.6	6.3	8.1		
	20.7	2.6	77	5.6	5.7	0.1	17.2	77	25.9	3.6	18.8	30.5	77	5.8	1.7	2.9	8.3	77	7.3	0.6	6.1	8.1		
	23.8	1.1	49	2.6	3.8	0.1	15.0	49	26.1	3.9	17.5	31.7	49	5.6	1.9	2.9	8.3	49	7.0	0.6	5.8	7.9		
	26.8	1.7	62	1.5	3.1	0.1	13.8	62	26.1	3.7	18.5	31.1	62	5.6	2.2	2.5	9.2	62	7.0	0.6	5.8	8.0		
	29.6	1.5	57	0.9	2.6	0.1	10.3	57	26.1	3.8	15.0	30.6	57	5.4	2.4	2.5	11.3	57	6.9	0.7	5.7	8.5		
	32.1	2.4	75	0.5	1.4	0.1	6.5	75	25.5	3.9	17.1	30.5	75	5.2	1.7	2.5	8.3	75	6.9	0.6	5.6	7.9		
	37.8	2.0	69	0.2	0.2	0.1	0.9	69	25.4	3.9	17.1	30.1	69	4.6	1.6	2.4	7.9	69	6.6	0.6	5.5	7.8		
	40.2	1.9	64	0.1	0.1	0.1	0.4	64	25.7	3.9	17.0	31.0	64	4.8	1.8	2.2	8.2	64	6.6	0.5	5.6	7.7		
MYAKKAHATCHEE CREEK																								
	22.2	2.9	58	4.7	5.0	0.1	16.2	58	25.9	3.4	19.2	30.4	58	5.8	1.3	3.6	8.2	58	7.3	0.5	6.3	8.0		
	23.3	2.4	50	4.2	4.9	0.1	17.0	50	25.8	3.5	19.3	30.3	50	5.9	1.7	0.8	8.6	50	7.4	0.4	6.2	8.0		
	24.3	2.4	53	3.8	4.8	0.1	17.0	53	25.6	3.5	19.3	30.3	53	6.0	1.9	0.8	9.1	53	7.4	0.4	6.1	8.0		
	25.1	1.2	35	2.8	4.1	0.1	16.1	35	25.2	3.5	19.4	29.9	35	6.3	1.5	2.2	9.5	35	7.4	0.4	6.1	8.0		

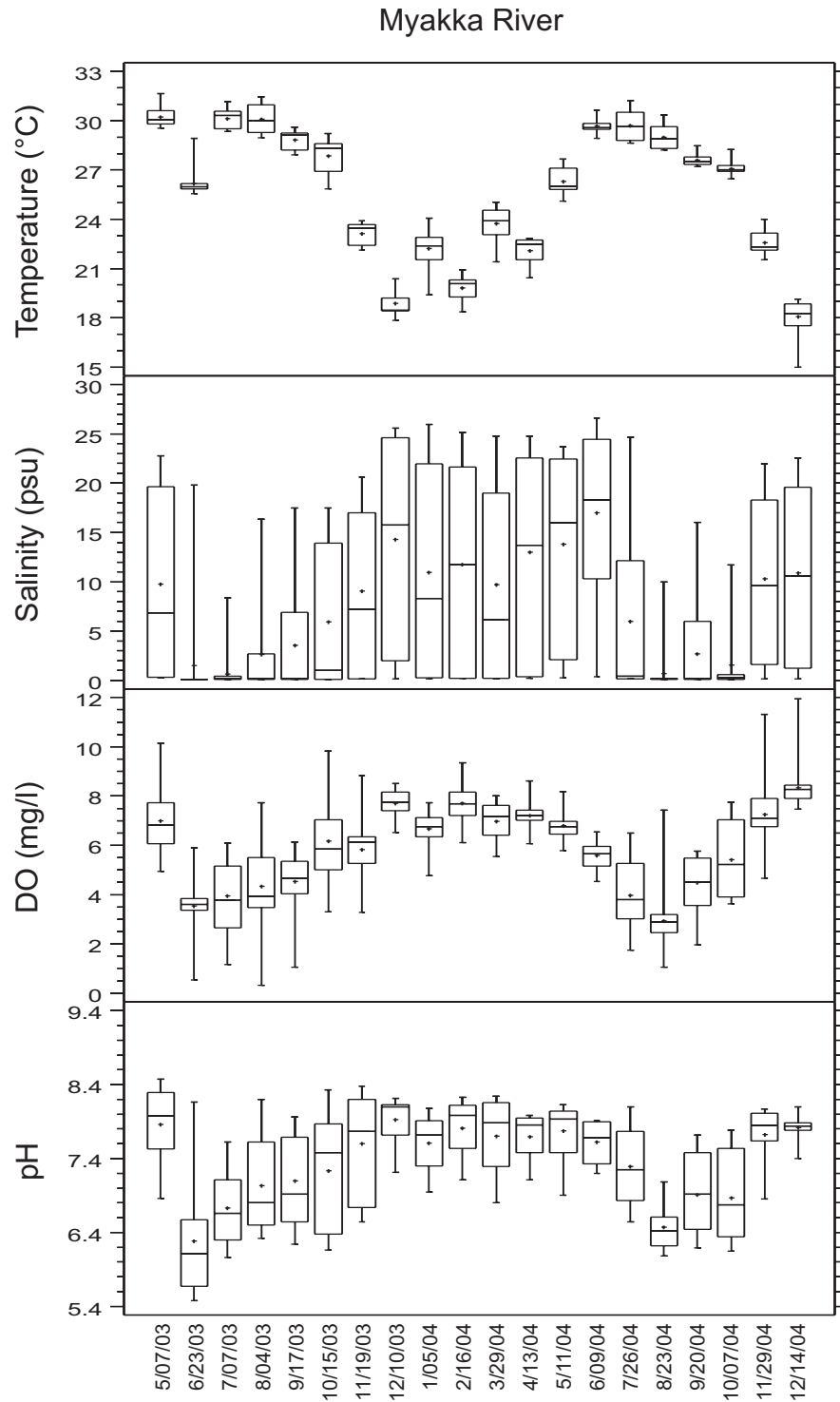


Fig. 3.2.1. Electronic meter data associated with the plankton-net surveys of the Myakka River, where the cross identifies the mean, the horizontal line identifies the median, the box delimits the interquartile range, and the whiskers delimit the total range.

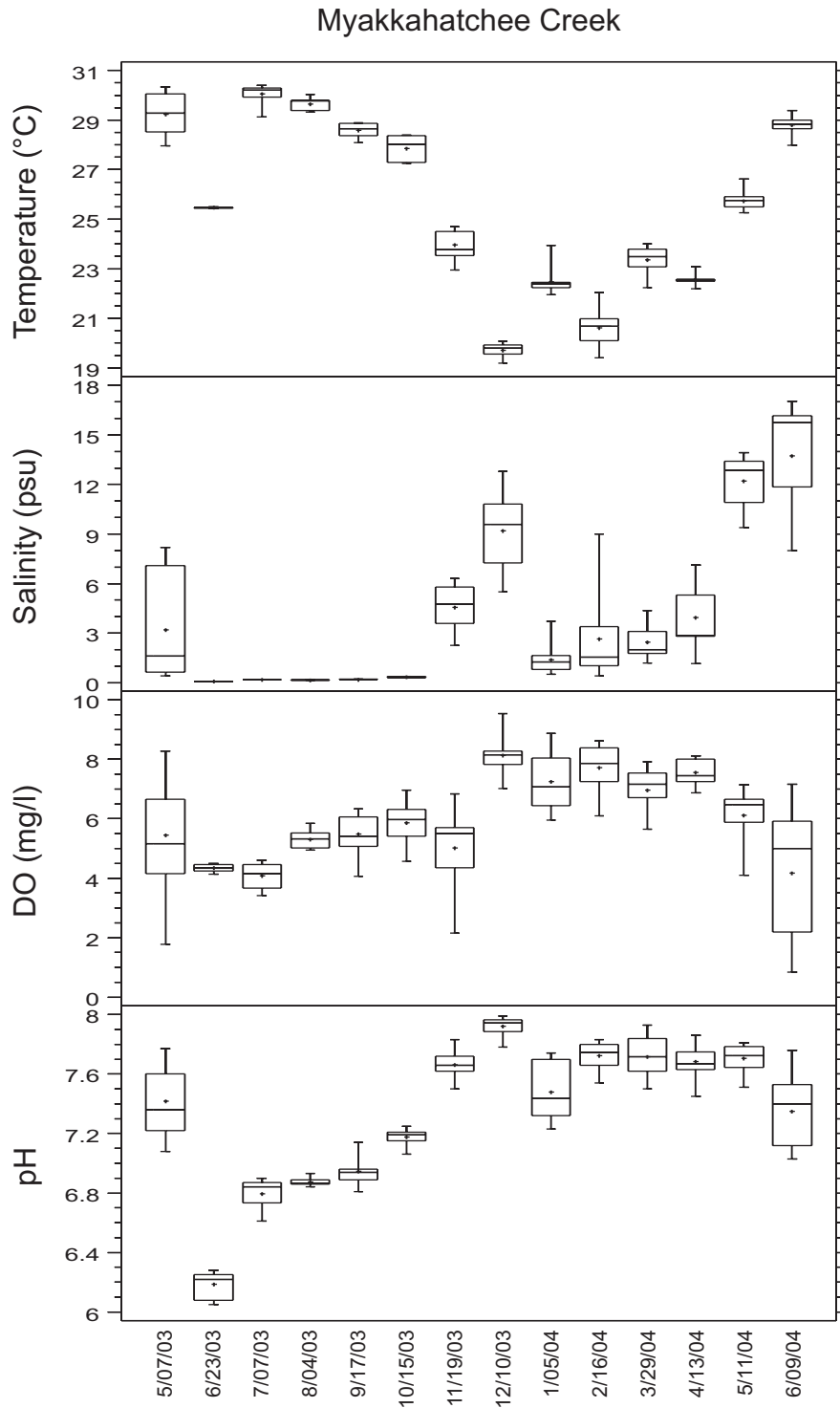


Fig. 3.2.2. Electronic meter data associated with the plankton-net surveys of Myakkahatchee Creek, where the cross identifies the mean, the horizontal line identifies the median, the box delimits the interquartile range, and the whiskers delimit the total range. Note that the axes are scaled differently from those in Table 3.2.1.

3.3

Catch Composition

3.3.1 Fishes.

3.3.1.1 **Plankton net.** The bay anchovy (*Anchoa mitchilli*), gobiosoma gobies (*Gobiosoma bosc* and *G. robustum*), the clown goby (*Microgobius gulosus*) and the hogchoker (*Trinectes maculatus*) comprised 91% of the larval, juvenile and adult fishes collected by the plankton net. Juvenile eastern mosquitofish (*Gambusia holbrooki*) and larval silversides (*Menidia* spp.) were also frequently collected. Juvenile brown hoplo catfish (*Hoplosternum littorale*), and introduced freshwater exotic, were the fourth most abundant juvenile fish in the plankton net catch (Table A1).

3.3.1.2 **Seine.** The seine catch (Tables B1-B2, B5, B7-B8) was dominated by bay anchovy (*Anchoa mitchilli*), silversides (*Menidia* spp.), eastern mosquitofish (*Gambusia holbrooki*), spot (*Leiostomus xanthurus*), eucinostomus mojarras (*Eucinostomus* spp.), and hogchoker (*Trinectes maculatus*). These taxa comprised over 85% of total seine catch of fishes.

3.3.1.3 **Trawl.** The trawl catch (Tables B3-B4, B6, B9-B10) was dominated by bay anchovy, hogchoker, sand seatrout (*Cynoscion arenarius*), spot, and southern kingfish (*Menticirrhus americanus*). These taxa comprised nearly 94% of total trawl catch of fishes.

3.3.2. Invertebrates.

3.3.2.1. **Plankton net.** Decapod zoeae, cumaceans, gammaridean amphipods, the mysid *Americamysis almyra*, the copepod *Acartia tonsa*, the appendicularian *Oikopleura dioica*, and unidentified *Amerimysis* mysid juveniles comprised 80% of the invertebrates collected by the plankton net (Tables A1-A6). *A. tonsa* and *O. dioica* are river-plume

taxa that invaded the tidal river during low inflow periods, whereas the abundances of all other dominant taxa were typically centered within the tidal river proper.

3.3.2.2 Seine. The seine catch (Tables B1-B2, B5, B7-B8) was dominated by daggerblade grass shrimp (*Palaemonetes pugio*) and brackish grass shrimp (*P. intermedius*), which comprised over 85% of the invertebrate catch.

3.3.2.3 Trawl. The trawl catch (Table B3-B4, B6, B9-B10) was dominated by pink shrimp (*Farfantepenaeus duorarum*) and blue crab (*Callinectes sapidus*). These taxa comprised over 98% of total trawl catch of invertebrates.

3.4 Use of Area as Spawning Habitat

There are two lines of evidence that suggest local spawning by estuarine or estuarine-dependent fishes: (1) the presence of eggs in the plankton samples and (2), in cases where the eggs are known to be benthic or can't be identified directly, a preponderance of the earliest larval stage - the preflexion stage - relative to older larval stages. The preflexion stage of most species does not undergo extensive horizontal migrations, whereas the postflexion and early juvenile stages are often highly migratory. The eggs of most species hatch within one or two days of spawning.

Percomorph fish eggs were the most common non-invertebrate taxon collected by the plankton net. These were centered at km 8.6 at a weighted mean salinity of 22.6 psu. Ongoing hydroacoustic surveys of the Charlotte Harbor area conducted by James Locascio (USFCMS, pers. comm. to EBP) indicate that sand seatrout (*Cynoscion arenarius*) spawn within the mouths of the Myakka and Peace Rivers during spring and early summer, but the spawning activity shifts south toward Cape Haze and the lower harbor as summer inflows increase. The southward movement may simply be avoidance of the benthic hypoxia zones that tend to form in the river mouths and in the upper harbor during high inflow periods, but it also places the eggs where hatching larvae would encounter more zooplankton prey because the zooplankton maximum also

shifts seaward as inflows increase. The presence of early larvae of the silver perch (*Bairdiella chrysoura*), sand seatrout and kingfishes (*Menticirrhus* spp.) suggests that the percomorph eggs primarily belonged to these species. Eggs of the bay anchovy (*Anchoa mitchilli*) and striped anchovy (*A. hepsetus*) were also present and were directly identified. In general, these results agree with the findings of Estevez et al. (1991), who also reported egg and early larva abundances as being most abundant near the river mouth, particularly during spring.

The fish in Table 3.4.1 are highly likely to spawn within the tidal Myakka river – primarily near the river mouth - or in close proximity to it. For these taxa, the numerical dominance of the earliest larval stage suggests local origin. Live-bearing species such as the eastern mosquitofish (*Gambusia holbrooki*), gulf pipefish (*Syngnathus scovelli*), chain pipefish (*S. louisianae*) and lined seahorse (*Hippocampus erectus*) probably underwent parturition within the area.

Table 3.4.1. Relative abundance of larval stages for non-freshwater fishes with a collection frequency >10 for the larval-stage aggregate, where *Pre* = preflexion (youngest larval stage), *Flex* = flexion stage (intermediate larval stage) and *Post* = postflexion (oldest larval stage). **X** identifies the most abundant stage and x indicates that the stage was present.

Taxon	Common Name	Pre	Flex	Post
<i>Anchoa</i> spp.	anchovies	X	x	x
<i>Gobiesox strumosus</i>	skilletfish	X	x	x
<i>Menidia</i> spp.	silversides	X	x	x
<i>Membras martinica</i>	rough silverside	X	x	x
gerreids	mojarra	X	x	x
<i>Cynoscion arenarius</i>	sand seatrout	X	x	x
<i>Menticirrhus</i> spp.	kingfishes	X	x	x
Blenniids	blennies	X	x	x
Gobiids	gobies	X	x	x
<i>Bathygobius soporator</i>	frillfin goby	X	x	
<i>Trinectes maculatus</i>	hogchoker	X	x	x

3.5 Use of Area as Nursery Habitat

Estuarine-dependent taxa that use the tidal river as a nursery area are the numerical dominants in the Myakka River: Overall, eight of the ten most abundant taxa in the river channel and five of the ten most abundant taxa in nearshore habitats can be considered estuarine-dependent. For an overview of estuarine dependency see Peebles (2005). Six of the ten most abundant taxa found in channel and nearshore habitats of Myakkahatchee Creek are estuarine-dependent. Eight of the most abundant estuarine-dependent taxa in the Myakka River and Myakkahatchee Creek spawn outside Charlotte Harbor. Six of these offshore spawners are among the most economically valuable species in Florida, including menhadens (*Brevoortia* spp.), spot,

striped mullet (*Mugil cephalus*), red drum (*Sciaenops ocellatus*), blue crab, and pink shrimp. The other two abundant offshore-spawning taxa include eucinostomus mojarra (*Eucinostomus* spp.) and southern kingfish (*Menticirrhus americanus*), a species of some economic importance. Four additional common estuarine-dependent species spawn within Charlotte Harbor. Two of these species have relatively minor direct economic value (i.e., hardhead catfish [*Ariopsis felis*], and sand seatrout [*Cynoscion arenarius*]), and two others are among the most abundant species in the system (i.e., hogchoker and bay anchovy).

3.6.1. Plankton Net.

The number of taxa collected during an individual survey is not a true measure of species richness because many taxa could not be identified to species level. Nevertheless, this index produces a clear seasonal pattern. Specifically, more taxa tend to be collected during the spring and summer months than at other times of year (Fig. 3.6.1.1), in agreement with results of a similar ichthyoplankton survey of the Myakka River conducted by Estevez et al. (1991). Lowest apparent richness was observed from September through February.

As in the Estevez et al. (1991) study, species diversity was highest near the mouth of Myakka River due to an increased presence of marine-derived species. Diversity was also occasionally high at the upstream end of the tidal river due to the presence of freshwater species. This created a low-diversity zone in the middle reaches of the tidal river, as observed by Merriner et al. (1976). Freshwater inflow and the seasonal arrival of young animals can shift this pattern downstream or upstream. Ichthyoplankton underwent a strong decrease in richness during the rainy season, whereas invertebrate richness was enhanced by the addition of freshwater plankton to the assemblage.

For a given species of fish, the length of the spawning season tends to become shorter at the more northerly locations within a species' geographic range, but the time of year when spawning takes place is otherwise consistent. Among species with long or year-round spawning seasons, local conditions have been observed to have a strong influence on egg production within the spawning season (Peebles 2002). Local influences include seasonally anomalous water temperature, seasonal variation in the abundance of prey, and seasonal variation in retention or transport of eggs and larvae after spawning. The latter processes (prey availability and retention and transport) are influenced by freshwater inflows to the coast.

Alteration of inflows would appear to have the lowest potential for impacting many taxa during the period from September through February, which is the period

when the fewest estuarine taxa were present. The highest potential to impact many species would appear to be from March to June, a time of year when naturally low inflows are coupled with increasing use of the estuary as nursery habitat. The potential for impact is species-specific. During fall, winter, and early spring, for example, there could be impact on red drum and menhadens because these fishes recruit to tidal river nursery habitats during fall and winter. Other species, such the bay anchovy, are present year-round (Fig. 3.6.1.2). There is, therefore, no time of year when freshwater inflow management is free from potential impact on estuarine nursery habitat.

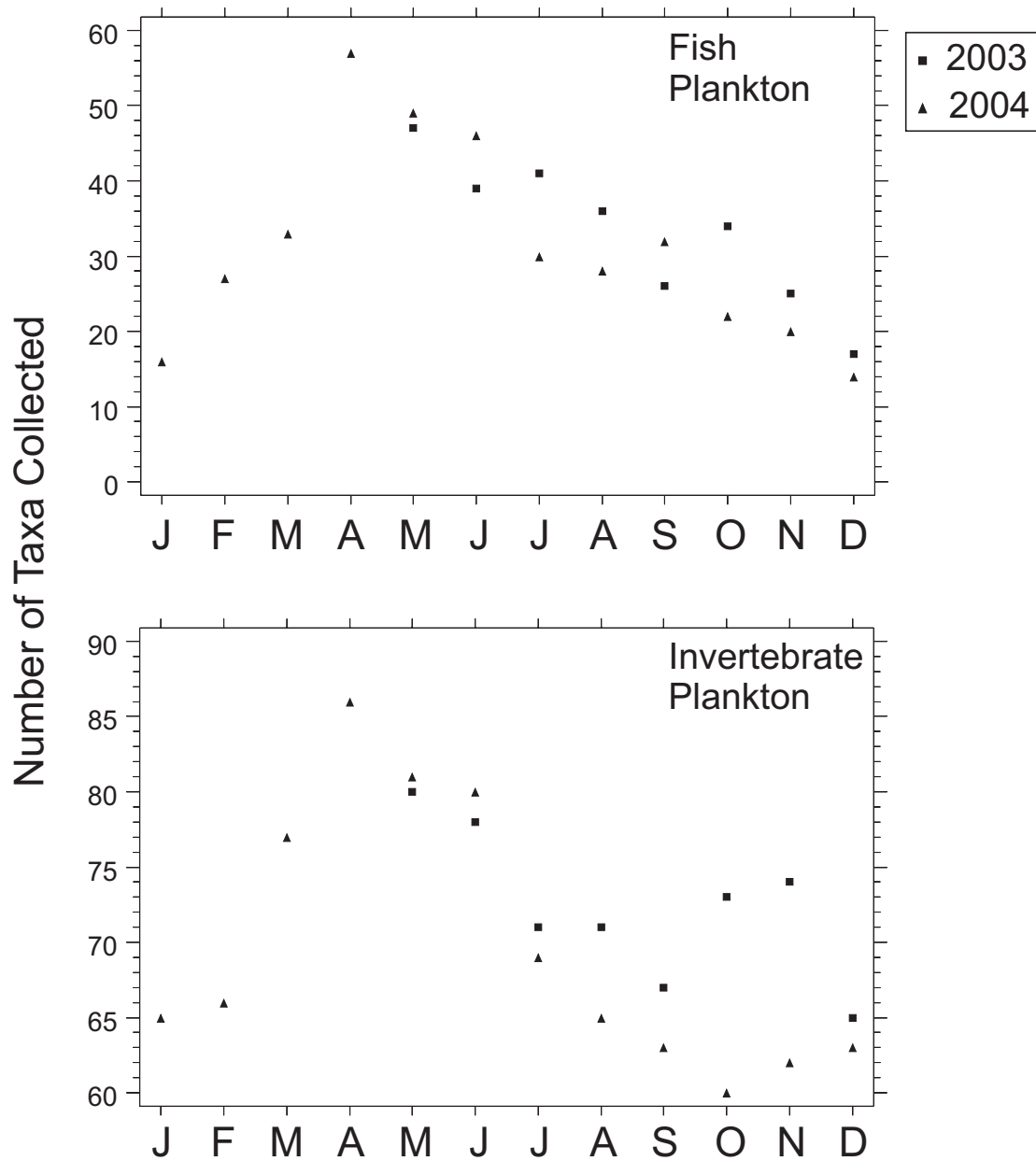


Fig. 3.6.1.1. Number of taxa collected per month by plankton net (Myakka River and Myakkahatchee Creek combined).

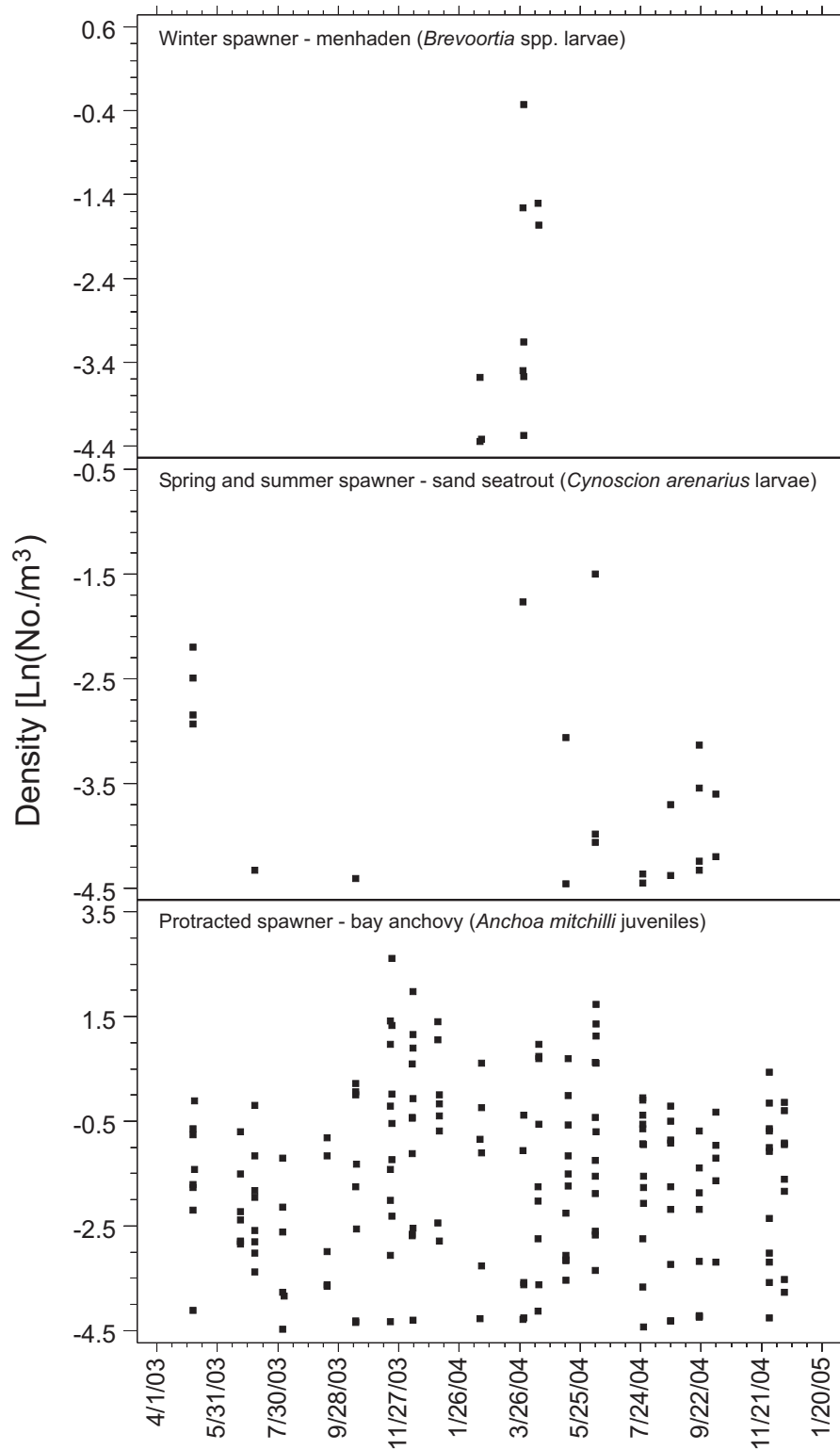
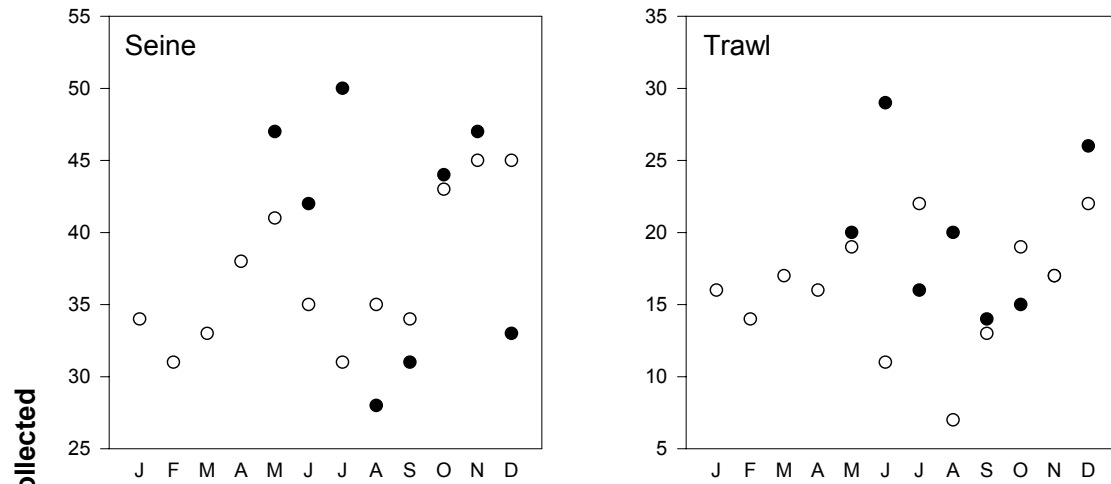


Fig. 3.6.1.2. Examples of species-specific seasonality from Myakka River plankton-net data.

3.6.2. Seine and Trawl.

Few clear seasonal patterns of taxon richness were evident in either the Myakka River or Myakkahatchee Creek. Monthly nearshore taxon richness in the Myakka River was quite variable but appeared highest from May–July and October–December. This pattern broadly agrees with previous tidal river estuary studies in the region (Alafia: Peebles 2002a; Peace River/Shell Creek: Peebles 2002b; Hillsborough: MacDonald et al. 2005). Lack of clear seasonal trends in taxon richness from the channel habitat also agrees with previous studies. The relatively short duration of sampling in Myakkahatchee Creek (15 months) hinders conclusions regarding seasonality of taxon richness. Based on these data, we tentatively conclude that the potential for impacting the greatest number of species by anthropogenic alteration of freshwater inflows in the Myakka River occurs from May–July and October–December. Overall abundances and abundances of new recruits of nekton taxa indicate extensive use of the tidal river habitat during all months, but temporal resource partitioning among species is evident. Thirty-nine taxa were deemed abundant enough in either the channel or along the shoreline (i.e., total catch of at least 100 individuals in nearshore habitats or 50 individuals in channel habitats and occurrence in $\geq 3\%$ of samples) to determine seasonality. If the three months with maximum abundance for each of these taxa are considered (Fig. 3.6.2.2), then peaks for residents occur in all months. Estuarine spawners have peaks in all months except January, and offshore spawners have peaks in all months except August and September. Many offshore spawners had peaks in abundance from mid-autumn to mid-summer, while estuarine spawners tended to peak in summer. Tidal river residents' abundance peaks included late summer–late winter and late spring/early summer periods. New recruits (i.e., the smallest two or three size classes captured by our gears) were abundant for 28 taxa, and among these, peak recruitment periods varied among life-history categories (Fig. 3.6.2.3). Recruitment peaks for offshore spawners are concentrated in late autumn and winter, whereas those for estuarine spawners and residents are concentrated in summer. This trend was also noted in the Little Manatee and Hillsborough rivers (Peebles and Flannery 1992, MacDonald et al. 2005).

Myakka River



Myakkahatchee Creek

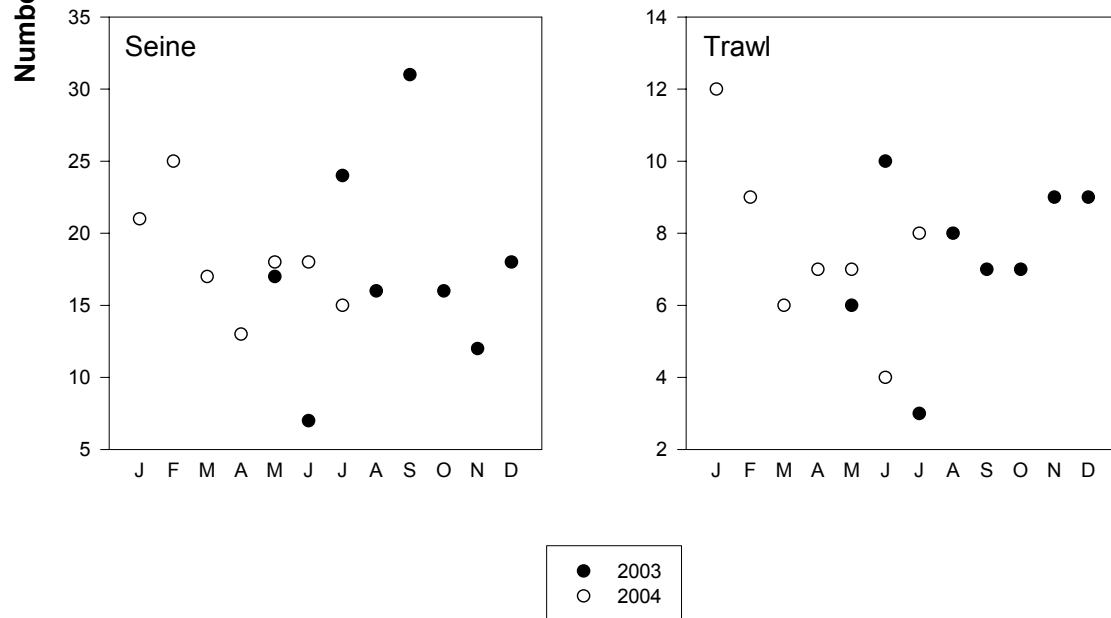


Fig. 3.6.2.1. Number of taxa collected per month by seine and trawl.

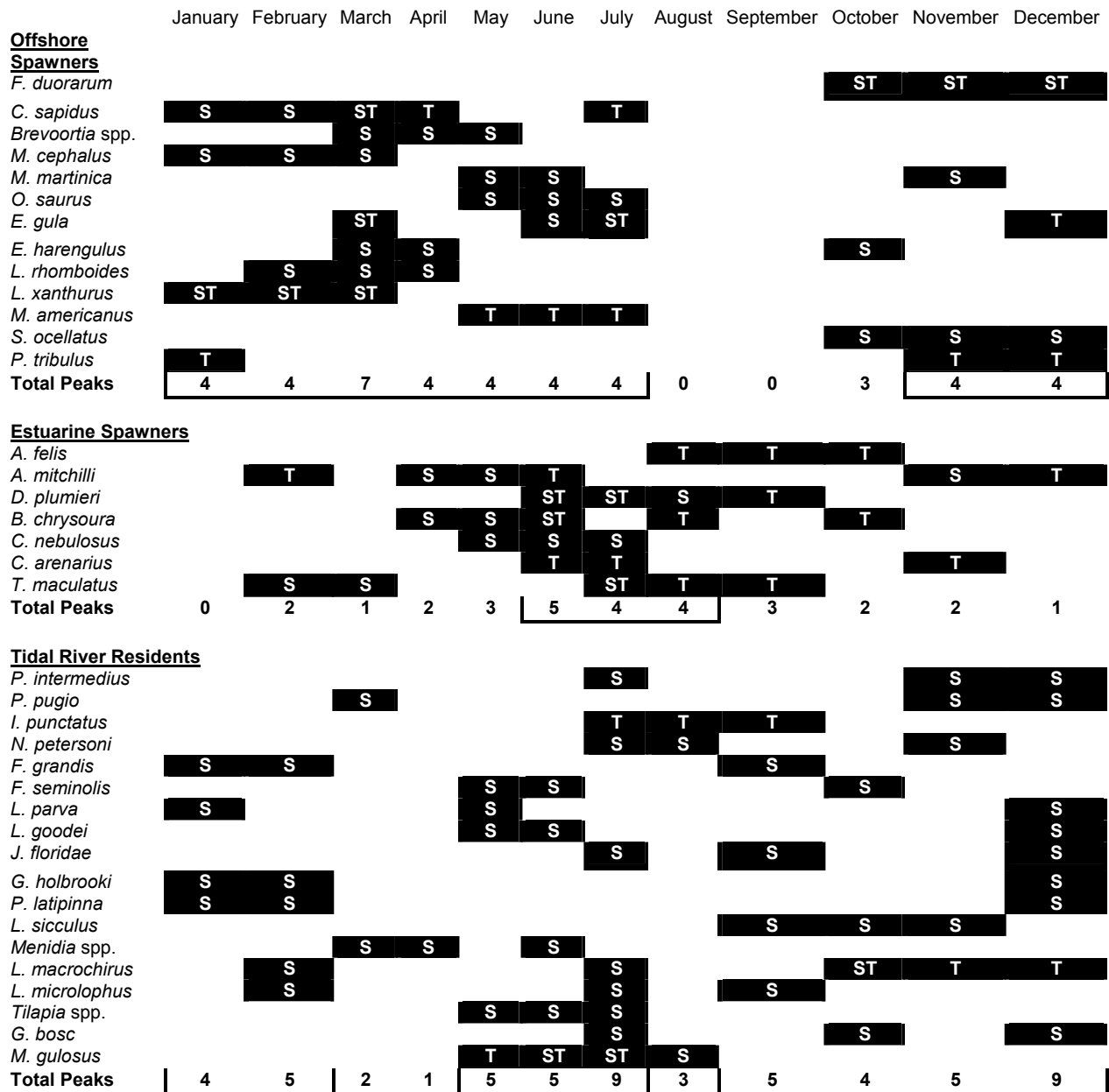


Fig. 3.6.2.2. Top three months of relative abundance for all individuals collected in seines (S) and trawls (T).

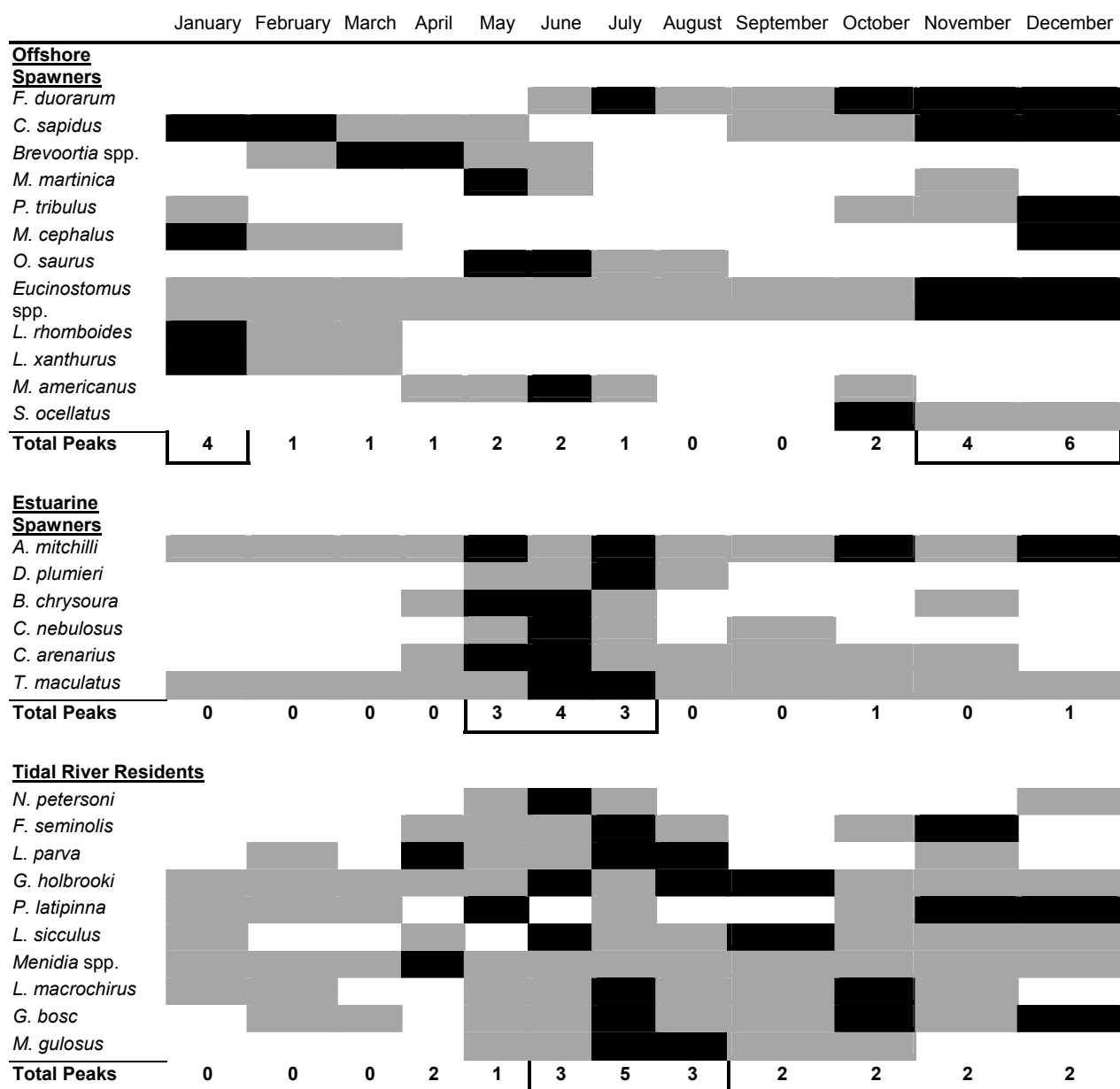


Fig. 3.6.2.3. Months of occurrence (■) and peak abundance (■) for new recruits collected by seine and trawl.

3.7

Distribution (km_u) Responses to Freshwater Inflow

3.7.1 Plankton Net.

There were 41 significant distribution responses to inflow into the tidal Myakka River. All except one (98%) were negative, indicating that the vast majority of taxa collected by plankton net moved downstream in response to increased inflow (Table 3.7.1.1, Appendix F). The single positive relationship involved postlarvae of the zoster shrimp, *Hippolyte zostericola*. Although this relationship may be spurious, postlarval *Hippolyte* primarily occur in deeper waters near the mouth of the river. Upstream movement could have been caused by strengthening of two-layered circulation by inflow, causing animals in the lower part of the water column to move farther upstream as inflows increased.

Myakkahatchee Creek exhibited only seven distribution responses, and four of these (57%) were positive. Two possible explanations for upstream movement in Myakkahatchee Creek are (1) its largely straight, dredged channel facilitated two-layered circulation and (2) downstream movement of animals within the Myakka River increased the abundance of certain taxa in the general area of Myakkahatchee Creek. The inflows into the two systems were positively correlated during the survey period (May 2003-December 2004, Ln-transformed values: $n=603$, $r=0.84$, $p<0.0001$). Comparing the trends in Appendices F and H, it appears that decapod zoea and mysis larvae moved well downstream of the mouth of Myakkahatchee Creek during elevated inflows into the Myakka River, which would render the second explanation less likely. Extensive upstream movement of a variety of taxa was also observed in the Tampa Bypass Canal, which is channelized (Peebles 2004).

Response lags in both the Myakka River and Myakkahatchee Creek were highly variable. F-tests did not detect any difference between the standard deviations of the lags when these were calculated from either non-transformed or Ln-transformed data. The Ln-transformed lags had skewness and kurtosis

coefficients that were within the bounds of a normal distribution. These conditions (normality and similar variance) allowed comparison with a t-test. Despite the very small sample size for Myakkahatchee Creek, a one-tailed t-test indicated that Ln-transformed lags were shorter in the Myakka River ($t=-1.95$, $p=0.03$). This difference may be an indication that the distribution responses in the two systems involved different processes.

Table 3.7.1.1. Plankton-net organism distribution (km_U) responses to mean freshwater inflow ($\ln F$), ranked by linear regression slope. Other regression statistics are sample size (n), intercept ($Int.$), slope probability (P) and fit (adjusted r^2 , as %). DW identifies where serial correlation is possible (x indicates $p < 0.05$ for Durbin-Watson statistic). D is the number of daily inflow values used to calculate mean freshwater inflow.

MYAKKA RIVER

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r²</i>	<i>DW</i>	<i>D</i>
Hippolyte zostericola postlarvae	zostera shrimp	10	2.194	1.112	0.018	52		16
Acartia tonsa	copepod	20	10.719	-0.673	0.020	27		3
decapod mysis	shrimp larvae	20	17.390	-1.026	0.002	43		7
ephemeropteran larvae	mayflies	20	41.093	-1.087	0.020	26		1
trichopteran larvae	caddisflies	20	42.670	-1.286	0.002	42	x	1
dipterans, chironomid larvae	midges	20	42.065	-1.436	0.005	37	x	1
decapod zoeae	crab larvae	20	21.993	-1.721	0.000	56		6
Orthocyclops modestus	copepod	16	44.260	-1.792	0.033	29		44
amphipods, caprellid	skeleton shrimps	10	18.361	-1.812	0.038	43		116
decapod megalopae	post-zoea crab larvae	19	25.194	-1.833	0.004	39		11
Sphaeroma terebrans	isopod	18	39.544	-1.856	0.002	46	x	10
odonates, anisopteran larvae	dragonflies	15	44.767	-1.988	0.018	36		1
Simocephalus vetulus	water flea	19	45.260	-2.003	0.002	46	x	44
acari	water mites	20	45.360	-2.031	0.001	44	x	2
gobiid flexion larvae	gobies	15	28.159	-2.113	0.018	36		33
Ilyocryptus sp.	water flea	13	43.822	-2.142	0.026	38		50
Osphranticum labronectum	copepod	11	47.976	-2.203	0.023	46		11
Microgobius spp. flexion larvae	gobies	17	28.864	-2.343	0.012	35		29
odonates, zygopteran larvae	damselflies	19	46.637	-2.398	0.000	73		2
Mesocyclops edax	copepod	20	44.874	-2.412	0.000	59	x	1
dipteran, Chaoborus punctipennis larvae	phantom midge	20	43.070	-2.418	0.004	37		1
amphipods, gammaridean	amphipods	20	37.473	-2.526	0.000	52		5
gastropods, prosobranch	snails	20	36.619	-2.575	0.000	58	x	44
Trinectes maculatus juveniles	hogchoker	16	40.201	-2.609	0.000	67		11
cymothoid sp. a (Lironeca) juveniles	isopod	19	27.286	-2.637	0.000	64		23
dipterans, pupae	flies, mosquitoes	20	47.964	-2.722	0.001	48		56
unidentified Americamysis juveniles	opossum shrimps, mysids	20	33.472	-2.797	0.000	81		8
Mnemiopsis mccradyi	comb jelly, ctenophore	13	28.225	-2.934	0.001	66		1
Americamysis almyra	opossum shrimp, mysid	20	36.592	-2.948	0.000	84		10
coleopterans, elmids adults	riffle beetles	12	49.989	-3.078	0.008	52		1
Anchoa mitchilli juveniles	bay anchovy	20	37.404	-3.117	0.000	92		5
Heterandria formosa adults	least killifish	10	56.004	-3.133	0.008	61		54
Taphromysis bowmani	opossum shrimp, mysid	19	49.303	-3.420	0.000	76		37
Menidia spp. juveniles	silversides	13	41.094	-3.658	0.010	47		1
Edotea triloba	isopod	20	37.271	-3.674	0.000	87		26

Table 3.7.1.1 (cont.).

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r</i> ²	<i>DW</i>	<i>D</i>
Clytia sp.	hydromedusa	11	35.378	-4.213	0.002	68		41
Trinectes maculatus postflexion larvae	hogchoker	10	44.661	-4.545	0.000	83		41
Bowmaniella dissimilis	opossum shrimp, mysid	18	41.562	-4.901	0.000	90		39
Microgobius spp. postflexion larvae	gobies	10	44.899	-4.916	0.038	44		47
Diaptomus spp.	copepods	14	60.199	-5.732	0.000	73		16
Anchoa mitchilli adults	bay anchovy	20	52.910	-6.112	0.000	70		75

MYAKKAHATCHEE CREEK

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r</i> ²	<i>DW</i>	<i>D</i>
Sphaeroma quadridentata	isopod	11	21.792	0.680	0.0059	59	x	6
pelecypods	clams, mussels, oysters	13	21.235	0.555	0.0045	54	x	66
decapod mysis	shrimp larvae	12	21.354	0.466	0.0197	43		92
decapod zoeae	crab larvae	13	22.215	0.299	0.0463	31		105
Americamysis almyra	opossum shrimp, mysid	12	24.326	-0.292	0.0007	70		43
Taphromysis bowmani	opossum shrimp, mysid	10	25.697	-0.483	0.0027	69	x	44
Anchoa mitchilli juveniles	bay anchovy	13	25.367	-0.484	0.0049	53		5

3.7.2 Seine and Trawl.

The relatively short time series (15 months in Myakkahatchee Creek, 20 months in the Myakka River) did not produce a wide variety of flow conditions over which to assess organism distribution responses; this limits the predictive ability of the observed relationships. Nearly one-half (46%) of the 90 pseudo-species/gear/river combinations (hereafter simply referred to as 'pseudo-species') evaluated for distributional responses to freshwater inflow exhibited significant responses. For the purposes of this discussion, we refer only to the best-fitting models for each of the 90 pseudo-species (i.e., statistically significant [$p < 0.05$] models with normally distributed residuals that explain the greatest proportion of the variance [highest r^2 value] for each pseudo-species) (Table 3.7.2.1). The percentage of pseudo-species showing significant relationships to inflow was somewhat similar between the Myakka River (48%) and Myakkahatchee Creek (38%). Inflow lag periods are characterized as either short (0-14 days), medium (21-91 days), or long (98-364 days). Best models are plotted in Appendix G. Over 75% of the significant responses were negative (i.e., animals moved upstream with decreasing freshwater inflow), and more than half of the best models were associated with long flow lag periods (i.e., average flow for the 98 to 364 days prior to nekton sample collection) (Fig. 3.7.2.1). Of the ten best models suggesting movement upstream with increasing inflow (i.e., a positive response to inflow), various explanations for the observed trends can be offered. In the cases of smaller bay anchovy and larger striped mojarra from Myakkahatchee Creek, the results may be spurious since the gradients of the regression slopes are very small (Figs. G12 and G24); striped mullet from the Myakka River exhibited a very steep slope which is attributable to influence of two points on the regression (Fig. G35). Several tidal river residents (i.e., eastern mosquitofish, sailfin molly, and redear sunfish) centered in the Myakka River above its confluence with Myakkahatchee Creek may have moved downstream with increasing flow; individuals near the downstream extent of these species'

distributions could have been displaced from the study area upon encountering the additional flow of Myakkahatchee Creek, thus leaving the remaining members of their populations (and hence the center of abundance) above the confluence and giving the impression of upstream movement (Figs. G16–18, G23). There is no obvious explanation for downstream movement with decreasing inflow for spot and clown goby (Figs. G31 and G36–37).

The best-fitting models among residents most commonly incorporated long flow lag periods, although there were also several medium-term lags (Fig. 3.7.2.1). Best-fitting models among estuarine-dependent estuarine spawners tended to include medium to long flow lag periods, while those of estuarine-dependent offshore spawners principally possessed long flow lags, as well as several short-term lags (Fig. 3.7.2.1). Best models explained 23 to 92% of the variability in distribution. The highest r^2 values, >50%, were found among both estuarine-dependent and resident species and incorporated flow lag periods ranging from 1 (blue crab and bay anchovy) to 364 days (pink shrimp and hogchoker) (Appendix G).

Table 3.7.2.1, Page 1 of 2

Table 3.7.2.1. Best-fit seine and trawl-based pseudo-species distributional response to continuously lagged mean freshwater inflow ($\ln(km_U)$ vs. $\ln(\text{inflow})$) for the Myakka River and Myakkahatchee Creek. Degrees of freedom (df), intercept, slope, probability that the slope is significant (P), and fit (r^2) are provided. The number of days in the continuously lagged mean inflow is represented by D . An "x" in DW indicates that the Durbin-Watson statistic was significant ($p < 0.05$), a possible indication that serial correlation was present.

Species	River Segment	Gear	Size	df	Intercept	Linear coef.	Linear P	r^2	DW	D
<i>Farfantepenaeus duorarum</i>	Myakka River	Seines	≤ 14	10	3.7854	-0.3143	0.002	63		14
<i>Farfantepenaeus duorarum</i>	Myakka River	Trawls	≥ 15	13	7.3314	-0.7942	0.026	33		364
<i>Callinectes sapidus</i>	Myakka River	Seines	≤ 34	12	3.8126	-0.3136	0.0182	38	x	7
<i>Callinectes sapidus</i>	Myakka River	Trawls	≥ 35	18	5.8089	-0.4603	0.0244	25	x	322
<i>Callinectes sapidus</i>	Myakkahatchee Creek	Seines	≥ 35	6	3.2726	-0.022	0.0188	63		1
<i>Callinectes sapidus</i>	Myakkahatchee Creek	Trawls	≥ 35	11	3.3055	-0.0287	0.0262	37		266
<i>Anchoa mitchilli</i>	Myakka River	Seines	26 to 35	17	5.0526	-0.4316	0.0017	45		91
<i>Anchoa mitchilli</i>	Myakka River	Seines	≥ 36	16	4.0801	-0.3154	0.0005	54		21
<i>Anchoa mitchilli</i>	Myakka River	Trawls	≤ 25	9	3.5711	-0.1184	0.0299	42		56
<i>Anchoa mitchilli</i>	Myakka River	Trawls	26 to 35	11	3.395	-0.1009	0.0397	33		70
<i>Anchoa mitchilli</i>	Myakka River	Trawls	≥ 36	14	4.3723	-0.3389	0.0069	42		105
<i>Anchoa mitchilli</i>	Myakkahatchee Creek	Trawls	≤ 25	9	3.1163	0.0226	0.0459	37		1
<i>Notropis petersoni</i>	Myakka River	Seines	≤ 30	12	4.3646	-0.1343	0.0008	62		154
<i>Ariopsis felis</i>	Myakka River	Trawls	All sizes	9	4.6225	-0.3105	0.0392	39		70
<i>Lucania parva</i>	Myakka River	Seines	≤ 25	10	3.9512	-0.1687	0.0371	37		7
<i>Gambusia holbrooki</i>	Myakka River	Seines	≥ 26	13	3.0601	0.0828	0.0147	38		56
<i>Poecilia latipinna</i>	Myakka River	Seines	≤ 29	9	-1.6111	0.7321	0.0082	56	x	154
<i>Poecilia latipinna</i>	Myakka River	Seines	≥ 30	11	2.1678	0.2012	0.023	39		84
<i>Poecilia latipinna</i>	Myakkahatchee Creek	Seines	≥ 30	5	3.4142	-0.051	0.0068	80		224
<i>Labidesthes sicculus</i>	Myakka River	Seines	≤ 35	14	5.355	-0.2798	0.0015	53		357

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<i>Lepomis macrochirus</i>	Myakkahatchee Creek	Trawls	≤ 35	5	7.0131	-0.7123	0.0102	76	329
<i>Lepomis marginatus</i>	Myakka River	Seines	≤ 35	8	7.8271	-0.6778	0.0051	65	301
<i>Lepomis microlophus</i>	Myakka River	Seines	≥ 41	11	2.9473	0.0861	0.0095	47	42
<i>Eugerres plumieri</i>	Myakkahatchee Creek	Seines	≥ 36	10	3.0734	0.0245	0.0273	40	14
<i>Cynoscion nebulosus</i>	Myakka River	Seines	≤ 35	8	4.8955	-0.4761	0.0036	67	105
<i>Cynoscion nebulosus</i>	Myakka River	Seines	≥ 36	9	4.2504	-0.3381	0.0338	41	98
<i>Cynoscion arenarius</i>	Myakka River	Seines	≤ 40	7	4.6692	-0.4049	0.0078	66	7
<i>Cynoscion arenarius</i>	Myakka River	Trawls	≤ 40	14	4.0072	-0.2286	0.0002	64	x 28
<i>Cynoscion arenarius</i>	Myakka River	Trawls	≥ 41	13	4.1479	-0.2936	0.0062	45	35
<i>Cynoscion arenarius</i>	Myakkahatchee Creek	Trawls	≤ 40	6	3.3064	-0.0315	0.0146	66	252
<i>Leiostomus xanthurus</i>	Myakka River	Seines	≥ 31	5	-0.8289	0.6353	0.0179	71	154
<i>Menticirrhus americanus</i>	Myakka River	Trawls	≤ 35	8	4.5939	-0.4112	0.0175	53	x 105
<i>Menticirrhus americanus</i>	Myakka River	Trawls	≥ 36	13	3.5873	-0.2451	0.0037	49	112
<i>Sciaenops ocellatus</i>	Myakka River	Seines	≤ 40	5	11.4722	-1.359	0.0257	66	182
<i>Mugil cephalus</i>	Myakka River	Seines	≤ 30	5	-16.8912	2.9298	0.0005	93	329
<i>Microgobius gulosus</i>	Myakka River	Seines	≤ 30	17	1.4875	0.2056	0.0342	24	133
<i>Microgobius gulosus</i>	Myakka River	Seines	≥ 31	16	0.8477	0.3052	0.0121	33	168
<i>Microgobius gulosus</i>	Myakkahatchee Creek	Seines	≤ 30	9	3.2589	-0.0186	0.0091	55	42
<i>Microgobius gulosus</i>	Myakkahatchee Creek	Seines	≥ 31	8	3.3206	-0.0329	0.0144	55	126
<i>Trinectes maculatus</i>	Myakka River	Trawls	≤ 25	16	3.8868	-0.0673	0.0438	23	49
<i>Trinectes maculatus</i>	Myakka River	Trawls	≥ 26	18	9.4191	-1.0402	0.0211	26	364

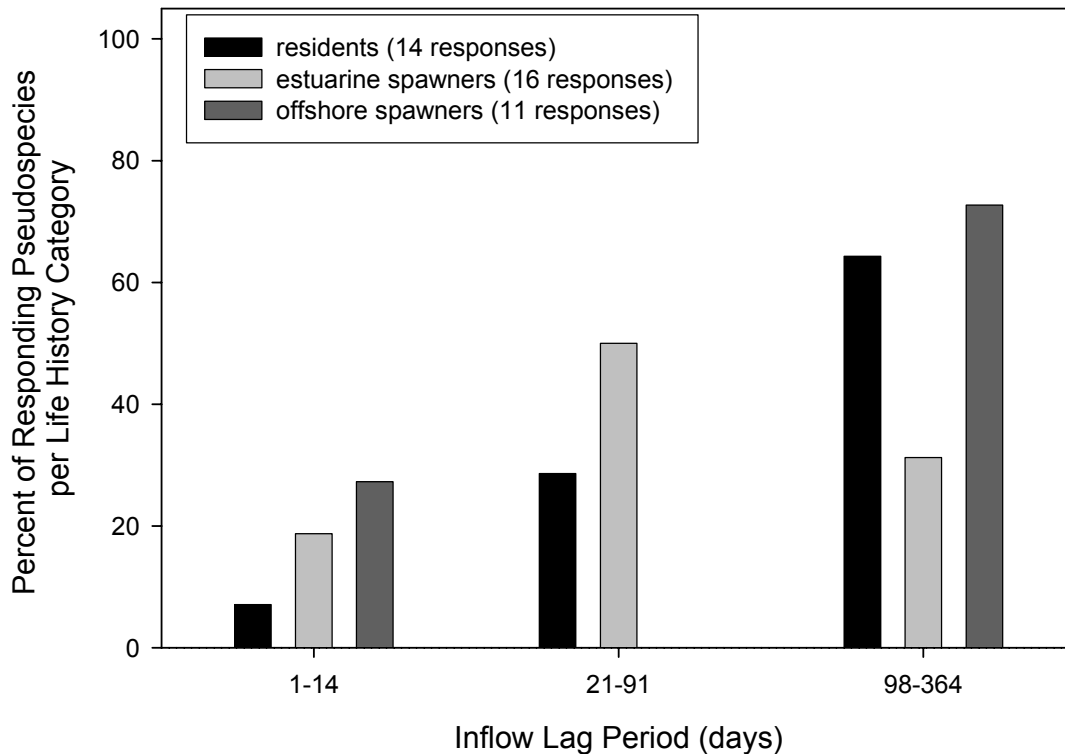


Fig. 3.7.2.1. Summary of linear regression results assessing distribution (km_U) in relation to inflow and lag period.

3.8 Abundance (N , $\bar{N}$) Responses to Freshwater Inflow

3.8.1 Plankton Net.

A linear model produced the best overall fit for this relationship when both terms were Ln-transformed. Abundance responses were found for 51 taxa in the Myakka River, with nearly half (45%) being positive, wherein abundance increased as inflow increased (Table 3.8.1.1). Of the 23 positive responses, 16 involved freshwater taxa that were introduced downstream with increasing inflows, and seven involved estuarine or estuarine-dependent taxa. The latter group consisted of bay anchovy adults, two

early stages of hogchoker, two stages of *Americamysis* mysids, juvenile silversides (*Menidia*) and an estuarine isopod, *Cyathura polita*. *Menidia* is largely an estuarine fish, but it is known to be able to complete its life cycle within fresh water as well. *Menidia*'s response time was too short (3 d) to reflect a true population response, as was that of *Cyathura* (also 3 d). Short response times by estuarine taxa may reflect behaviors that allow organisms to reposition themselves in response to increased inflow. Animals may move into the channel or, in the case of benthic forms such as *Cyathura*, may move into the water column to take advantage of the fresh water's downstream flow, causing the catch of such animals to increase quickly as a function of inflow (Robins et al. 2005). On the other hand, the responses of the bay anchovy, hogchoker and *Americamysis* had durations that were commensurate with the effects of improved reproductive output or improvement in growth and survival. Inflow explained 25-65% of the variation in these taxa. These responses are potentially meaningful to inflow management.

Most plume-associated taxa, which are typically found in higher salinity estuarine waters, moved away from the mouth of the tidal river during high-inflow periods, giving them a negative abundance correlation with inflow. This pattern of downstream shift by plume organisms during high-inflow periods was observed in the tidal Little Manatee River by Rast et al. (1991). Several peracarid crustaceans that are usually most abundant within the interior of the tidal river, such as cymothoid isopods (*Lironeca* sp.), the isopod *Edotea triloba*, the isopod *Sphaeroma quadridentata*, the mysid *Bowmaniella dissimilis*, and the mysid *Taphromysis bowmani*, also decreased in abundance during high inflow periods. Several of these appeared to leave the survey area during high-inflow periods (Appendix F).

There were four positive abundance responses to inflow into Myakkhatchee Creek (Table 3.8.1.1), all involving taxa that characteristically have not shown this type of response in other tidal rivers on Florida's west coast. Likely explanations are habitat repositioning behaviors (*S. quadridentata*) and advection of organisms in landward moving bottom water as part of two-layered estuarine circulation (zoeae and mysis). The taxon *pelecypods* contains both freshwater and estuarine species.

Table 3.8.1.1. Abundance responses to mean freshwater inflow (Ln *F*), ranked by linear regression slope. Other regression statistics are sample size (*n*), intercept (*Int.*), slope probability (*P*) and fit (adjusted *r*², as %). *DW* identifies where serial correlation is possible (x indicates *p*<0.05 for Durbin-Watson statistic). *D* is the number of daily inflow values used to calculate mean freshwater inflow.

MYAKKA RIVER

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r</i> ²	<i>DW</i>	<i>D</i>
Anchoa mitchilli adults	bay anchovy	20	8.665	1.303	0.0070	34		96
Chaoborus punctipennis larvae	phantom midge	20	9.757	1.127	0.0000	68		1
Ilyocryptus sp.	water flea	13	8.940	0.981	0.0042	54		4
ephemeropteran larvae	mayflies	20	10.664	0.975	0.0000	77		41
Gambusia holbrooki juveniles	eastern mosquitofish	14	7.085	0.959	0.0005	65		35
Mesocyclops edax	copepod	20	10.592	0.943	0.0001	58		44
dipterans, pupae	flies, mosquitoes	20	11.148	0.907	0.0001	58	x	9
Trinectes maculatus juveniles	hogchoker	16	11.058	0.815	0.0001	65		30
Trinectes maculatus postflexion larvae	hogchoker	10	9.531	0.808	0.0192	52		59
odonates, anisopteran larvae	dragonflies	15	8.420	0.769	0.0002	67		1
Diaptomus spp.	copepods	14	9.284	0.753	0.0144	40		5
Simocephalus vetulus	water flea	19	11.843	0.740	0.0061	37	x	1
Cyathura polita	isopod	17	11.032	0.734	0.0033	45		3
dipterans, ceratopogonid larvae	biting midges	13	9.104	0.707	0.0125	45	x	1
coleopterans, elmid adults	riffle beetles	12	8.424	0.696	0.0037	59		1
acar	water mites	20	10.007	0.663	0.0002	54	x	1
unidentified Americamysis juveniles	opossum shrimps, mysids	20	16.912	0.632	0.0249	25		76
odonates, zygopteran larvae	damselflies	19	9.975	0.548	0.0029	42		1
dipterans, chironomid larvae	midges	20	12.975	0.520	0.0000	65		1
Americamysis almyra	opossum shrimp, mysid	20	18.250	0.517	0.0251	25		77
Menidia spp. juveniles	silversides	13	11.391	0.459	0.0007	66		3
trichopteran larvae	caddisflies	20	11.422	0.445	0.0086	33	x	1
Osphranticum labronectum	copepod	11	9.504	0.389	0.0383	40		16
coleopterans, elmid larvae	riffle beetles	13	13.668	-0.259	0.0492	31		9
cymothoid sp. a (Lironeca) juveniles	isopod	19	20.419	-0.459	0.0055	37		33
Bowmaniella dissimilis	opossum shrimp, mysid	18	22.073	-0.516	0.0253	28		8
Sphaeroma quadridentata	isopod	20	18.021	-0.637	0.0207	26		65
pelecypods	clams, mussels, oysters	20	19.907	-0.745	0.0154	28		2
Hippolyte zostericola postlarvae	zostera shrimp	10	20.983	-0.781	0.0323	46		9
Edotea triloba	isopod	20	24.311	-0.911	0.0032	39		120
decapod mysis	shrimp larvae	20	25.293	-0.936	0.0001	59		92
Palaemonetes spp. postlarvae	grass shrimp	19	21.885	-0.952	0.0080	35		20
gobiid preflexion larvae	gobies	18	22.456	-0.990	0.0248	28	x	120
Taphromysis bowmani	opossum shrimp, mysid	19	23.889	-1.084	0.0365	23		120
Pseudodiaptomus coronatus	copepod	14	24.897	-1.154	0.0009	62		26
Acartia tonsa	copepod	20	27.717	-1.161	0.0003	53		3

Table 3.8.1.1 (cont.).

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r</i> ²	<i>DW</i>	<i>D</i>
<i>Pseudodiaptomus coronatus</i>	copepod	14	24.897	-1.154	0.0009	62		26
<i>Acartia tonsa</i>	copepod	20	27.717	-1.161	0.0003	53		3
decapod zoeae	crab larvae	20	30.887	-1.182	0.0000	64	x	101
<i>Anchoa mitchilli</i> postflexion larvae	bay anchovy	17	25.943	-1.313	0.0009	53		120
<i>Gobiosoma</i> spp. postflexion larvae	gobies	11	23.825	-1.343	0.0348	41		120
decapod megalopae	post-zoea crab larvae	19	27.907	-1.375	0.0053	38	x	120
chaetognaths, sagittid	arrow worms	17	27.468	-1.413	0.0000	69		13
<i>Evadne tergestina</i>	water flea	11	26.911	-1.693	0.0081	56	x	37
<i>Anchoa</i> spp. preflexion larvae	anchovies	13	28.822	-1.714	0.0002	74		54
amphipods, caprellid	skeleton shrimps	10	27.810	-1.801	0.0126	56		101
<i>Labidocera aestiva</i>	copepod	18	29.602	-1.804	0.0076	37		98
<i>Parasterope pollex</i>	ostracod, seed shrimp	14	29.951	-1.901	0.0013	59		120
<i>Anchoa</i> spp. flexion larvae	anchovies	16	30.138	-2.023	0.0015	52		120
cumaceans	cumaceans	20	34.579	-2.179	0.0000	64		44
fish eggs, Percomorph	sciaenid eggs (primarily)	10	42.291	-3.967	0.0039	67		93

MYAKKAHATCHEE CREEK

<i>Description</i>	<i>Common Name</i>	<i>n</i>	<i>Int.</i>	<i>Slope</i>	<i>P</i>	<i>r</i> ²	<i>DW</i>	<i>D</i>
<i>Sphaeroma quadridentata</i>	isopod	11	21.792	0.680	0.0059	59	x	6
pelecypods	clams, mussels, oysters	13	21.235	0.555	0.0045	54	x	66
decapod mysis	shrimp larvae	12	21.354	0.466	0.0197	43		92
decapod zoeae	crab larvae	13	22.215	0.299	0.0463	31		105
<i>Americamysis almyra</i>	opossum shrimp, mysid	12	24.326	-0.292	0.0007	70		43
<i>Taphromysis bowmani</i>	opossum shrimp, mysid	10	25.697	-0.483	0.0027	69	x	44
<i>Anchoa mitchilli</i> juveniles	bay anchovy	13	25.367	-0.484	0.0049	53		5

3.8.2 Seine and Trawl.

As noted for distribution responses to freshwater inflow, the relatively short time series of sampling did not give a wide variety of flows over which to assess abundance responses; results should therefore be interpreted with caution. Among the 104 pseudo-species considered in these analyses, abundances of 65% were significantly related to average inflow (Table 3.8.2.1). Percentages of pseudo-species possessing significant relationships to inflow were similar between the Myakka River (71%) and Myakkahatchee Creek (61%). The greatest proportion of variance in abundance was explained by linear models for 26 pseudo-species and by quadratic models for 42 pseudo-species. Of the 26 linear models, 65% were negative relationships, i.e., increasing abundance with decreasing inflow. Over 50% of quadratic models suggested greatest abundance at intermediate inflows ('intermediate-maximum'); the remaining quadratic models were relatively evenly divided between positive, negative, and intermediate-minimum responses. The proportion of abundance responses to inflow differed by life-history category: residents contrasted with estuarine and offshore spawners in having more positive responses than negative (Fig. 3.8.2.1). Minimum abundance at intermediate inflows was only found in a few resident and offshore-spawning pseudo-species. All best models are plotted in Appendix I.

The best models tended to incorporate longer lags for residents and either short-term or long-term lags for offshore spawners; best models were well distributed among lag periods for estuarine spawners (Fig. 3.8.2.2). Lag periods ranged from 7 to 364 days, with a peak at 168 days, for residents; 1 to 364 days, with a peak at 1 day, for estuarine spawners; and 1 to 364 days, with a peak at 1 day for offshore spawners.

The strongest abundance-inflow relationships—those where inflow explained a sizeable portion of variance ($r^2 > \sim 60\%$) in at least eight data points—among residents were for shoreline-associated species and probably indicated inflow-related changes in catchability. Increases in abundance of both size classes of Seminole killifish (Myakkahatchee Creek) and brook silverside (both tributaries) with increased inflows may have been due to immigration to the study area from upstream freshwater areas (Figs. I22–23; Figs. I32–34). High abundance of eastern mosquitofish (Figs. I30–31)

and bluegill (Fig. I35) at intermediate inflows in both tributaries may be caused by low catchability a) at low inflows due to occupation of habitats upstream of the study area and b) at high inflows due to spreading of the populations into a greater habitat area (facilitated by higher water levels) or into areas inaccessible to our sampling gears. The long lag period (161–168 days) supports the latter mechanism as opposed to simple displacement from the study area. Low abundance of larger redear sunfish (Myakka River: Fig. I38) and naked goby (Myakkahatchee Creek: Fig. I60) at intermediate inflow levels and non-linear decrease in abundance of larger clown goby with increasing flow (Myakkahatchee Creek: Fig. I64) may be examples of isolated data points unduly influencing regressions; there are no plausible biological mechanisms to explain these results.

The best-fitting relationships between estuarine spawner abundance and inflow were varied. Larger hogchoker, for example, observed an increase in abundance in response to same-day inflow in the Myakka River channel (Fig. I66). This may be due to enhanced immigration from upstream areas (see above). The apparent high shoreline abundance of larger striped mojarra at intermediate flows lagged by 210 days in the Myakka River is a good example of a single data point (zero abundance at flow of 148 cfs) exerting excessive influence on the regression (Fig. I46); removal of this point gives a negative relationship between abundance and flow that is not easily explained biologically, since this species prefers low salinities and seems unlikely to have been displaced from the system over such a long time lag. The same is true of smaller sand seatrout in the channel of Myakkahatchee Creek (Fig. I53). This size class of sand seatrout in the Myakka River channel declined linearly in response to increased inflow. Maximum abundance of bay anchovy in Myakkahatchee Creek differed according to size class and flow lag period: intermediate-sized fish (26–35 mm) were found in highest abundance at either low or high same-day flows (Fig. I14), whereas adults (>35 mm) showed the opposite pattern when long-term flow lag was considered (Fig. I17). These differences are not easily explained in biological terms.

As with residents and estuarine spawners, offshore-spawning species showed varying responses to flow. Linear increases in shoreline abundance in relation to flow in the Myakka River were evident in larger pinfish (ignoring a single high-flow datum that

appeared to overly influence the regression: Fig. I48) and larger spot (Fig. I57). Both of these responses were to flows lagged over long periods. It is tempting to attribute this to increased flow enhancing recruitment through beneficial effects on the reproductive population of these species, but since they are offshore-spawning species this seems unlikely. Tidewater mojarra from shorelines of Myakkahatchee Creek showed a non-linear decrease in abundance in tandem with increasing same-day flow (Fig. I45); this may be attributable to displacement into the Myakka River. Several offshore-spawning species had relationships with flow that suggested highest abundance at intermediate flow, including smaller blue crab (in the channel habitat of the Myakka River: Fig. I6), leatherjack (both size classes in the near-shore Myakka River: Figs. I41–42), spot (larger individuals in the channel of Myakkahatchee Creek: Fig. I58), and red drum (larger individuals in the near-shore Myakka River habitat: Fig. I59). The form of this response could be driven by chemical attraction to the Myakka River and Myakkahatchee Creek: at low flow, the presumed odor attracting nekton to these tributaries would be relatively weak; with increasing flow, the attractant signal would increase and enhance recruitment to the tributaries; at very high flows, the chemical signal would be diluted, leading to diminished abundance (MacDonald et al., 2005). The opposite pattern—that of minimal abundance at intermediate flow— was shown by larger pinfish in the shoreline habitat of Myakkahatchee Creek; as noted by MacDonald et al. (2005), this phenomenon is not readily explained in biological terms.

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Table 3.8.2.1. Best-fit seine and trawl-based pseudo-species abundance ($\bar{N}$) response to continuously lagged mean freshwater inflow ($\ln(\text{cpue})$ vs. $\ln(\text{inflow})$) for the Myakka River (MR) and Myakkahatchee Creek (MC). The type of response is either quadratic (Q) or linear (L). Degrees of freedom (df), intercept, slope (*Linear coef.*), probability that the slope is significant (*Linear P*), quadratic coefficient (*Quad. coef.*), probability that the quadratic coefficient is significant (*Quad. P*), and fit (r^2) are provided. The number of days in the continuously lagged mean inflow is represented by *D*. An "x" in *DW* indicates that the Durbin-Watson statistic was significant ($p < 0.05$), a possible indication that serial correlation was present.

Species	River Segment	Gear	Size	Months	Response	df	Intercept	Linear coef.	Linear P	Quad. coef.	Quad. P	r^2	DW	D
<i>Farfantepenaeus duorarum</i>	MR	Seines	≤ 14	Jun. to Feb.	L	14	10.055	-1.437	0.043	.	.	26	x	364
<i>Palaemonetes intermedius</i>	MR	Seines	All sizes	Mar. to Dec.	L	16	13.610	-1.940	0.031	.	.	26	x	364
<i>Palaemonetes pugio</i>	MR	Seines	All sizes	Mar. to Dec.	Q	15	-8.967	4.469	0.019	-0.425	0.013	41	x	21
<i>Palaemonetes pugio</i>	MC	Seines	All sizes	Mar. to Dec.	Q	10	-15.582	7.312	0.047	-0.792	0.044	37	x	154
<i>Callinectes sapidus</i>	MR	Seines	≥ 35	Jan. to Dec.	Q	17	-2.513	0.887	0.037	-0.073	0.038	23		119
<i>Callinectes sapidus</i>	MR	Trawls	≤ 34	Oct. to May	Q	9	-5.130	1.690	0.006	-0.135	0.006	60		140
<i>Callinectes sapidus</i>	MR	Trawls	≥ 35	Jan. to Dec.	L	18	0.576	-0.062	0.022	.	.	26		175
<i>Callinectes sapidus</i>	MC	Seines	≤ 34	Oct. to May	L	7	2.566	-0.570	0.035	.	.	49	x	7
<i>Anchoa mitchilli</i>	MR	Seines	≤ 25	Jan. to Dec.	L	18	7.379	-0.821	0.012	.	.	30	x	42
<i>Anchoa mitchilli</i>	MR	Seines	26 to 35	Jan. to Dec.	L	18	9.878	-1.160	0.001	.	.	46		1
<i>Anchoa mitchilli</i>	MR	Seines	≥ 36	Jan. to Dec.	L	18	7.956	-1.044	0.003	.	.	41		1
<i>Anchoa mitchilli</i>	MR	Trawls	≥ 36	Jan. to Dec.	L	18	2.264	-0.301	0.021	.	.	26		7
<i>Anchoa mitchilli</i>	MC	Seines	≤ 25	Jan. to Dec.	L	13	6.956	-0.919	0.044	.	.	28		35
<i>Anchoa mitchilli</i>	MC	Seines	26 to 35	Jan. to Dec.	Q	12	20.129	-8.566	0.005	0.972	0.007	52		1
<i>Anchoa mitchilli</i>	MC	Trawls	≤ 25	Jan. to Dec.	Q	12	-317.680	130.593	0.024	-13.319	0.023	39		364
<i>Anchoa mitchilli</i>	MC	Trawls	26 to 35	Jan. to Dec.	Q	12	-242.484	99.913	0.046	-10.204	0.045	32		350
<i>Anchoa mitchilli</i>	MC	Trawls	≥ 36	Jan. to Dec.	Q	12	-2.269	1.016	0.002	-0.105	0.003	60	x	112
<i>Notropis petersoni</i>	MR	Seines	≤ 30	May to Dec.	Q	13	-34.608	11.874	0.030	-0.975	0.031	31	x	168
<i>Ictalurus punctatus</i>	MR	Trawls	All sizes	Jul. to Oct.	L	6	-1.082	0.193	0.020	.	.	62		7
<i>Fundulus seminolis</i>	MR	Seines	≤ 40	May to Dec.	Q	13	-74.632	25.949	0.027	-2.196	0.024	38	x	287
<i>Fundulus seminolis</i>	MR	Seines	≥ 41	Sep. to Jul.	Q	15	-376.727	119.565	0.020	-9.437	0.019	34		343
<i>Fundulus seminolis</i>	MC	Seines	≤ 40	May to Dec.	L	9	-1.798	0.498	0.001	.	.	71		126
<i>Fundulus seminolis</i>	MC	Seines	≥ 41	Sep. to Jul.	Q	11	14.763	-7.209	0.008	0.862	0.004	85		154
<i>Lucania parva</i>	MR	Seines	≤ 25	Nov. to Aug.	Q	13	-343.207	109.789	0.003	-8.742	0.003	57		343
<i>Lucania parva</i>	MR	Seines	≥ 26	Nov. to Jul.	Q	11	-441.825	139.621	0.029	-10.999	0.029	41	x	350
<i>Lucania parva</i>	MC	Seines	≤ 25	Nov. to Aug.	L	11	15.933	-2.992	0.006	.	.	51		364
<i>Lucania parva</i>	MC	Seines	≥ 26	Nov. to Jul.	Q	9	-18.065	8.504	0.036	-0.930	0.036	40		182

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Species	River Segment	Gear	Size	Months	Response	df	Intercept	Linear coef.	Linear P	Quad. coef.	Quad. P	r ²	DW	D
<i>Gambusia holbrooki</i>	MR	Seines	≤ 25	Jan. to Dec.	L	18	-4.909	1.134	0.003	.	.	41	x	168
<i>Gambusia holbrooki</i>	MR	Seines	≥ 26	Jan. to Dec.	L	18	-4.439	0.943	0.020	.	.	26	x	168
<i>Gambusia holbrooki</i>	MC	Seines	≤ 25	Jan. to Dec.	Q	12	-43.218	19.101	0.005	-1.911	0.007	67		161
<i>Gambusia holbrooki</i>	MC	Seines	≥ 26	Jan. to Dec.	Q	12	-36.179	16.346	0.003	-1.709	0.004	56		168
<i>Labidesthes sicculus</i>	MR	Seines	≥ 36	Jun. to Jan.	L	13	-1.383	0.454	0.000	.	.	65		56
<i>Labidesthes sicculus</i>	MC	Seines	≤ 35	Jun. to Jan.	L	8	-2.245	0.709	0.002	.	.	72		77
<i>Labidesthes sicculus</i>	MC	Seines	≥ 36	Jun. to Jan.	L	8	-2.551	0.782	0.010	.	.	58		77
<i>Lepomis macrochirus</i>	MR	Seines	≥ 36	Sep. to Feb.	Q	7	-3.969	1.534	0.003	-0.126	0.004	80		21
<i>Lepomis macrochirus</i>	MC	Seines	≤ 35	Jul. to Jan.	Q	5	-183.235	82.257	0.002	-8.854	0.002	88		238
<i>Lepomis macrochirus</i>	MC	Trawls	≤ 35	Jul. to Jan.	Q	5	2.510	-1.005	0.022	0.100	0.025	69		28
<i>Lepomis microlophus</i>	MR	Seines	≥ 41	Sep. to Mar.	Q	8	399.544	-121.797	0.038	9.281	0.037	59		280
<i>Lepomis microlophus</i>	MC	Seines	≤ 40	May to Sep.	Q	5	2.583	-1.591	0.005	0.228	0.002	97		35
<i>Lepomis microlophus</i>	MC	Seines	≥ 41	Sep. to Mar.	Q	4	9.588	-3.689	0.013	0.350	0.019	93		119
<i>Oligoplites saurus</i>	MR	Seines	≤ 35	May to Aug.	Q	5	-6.159	2.819	0.013	-0.259	0.011	77		35
<i>Oligoplites saurus</i>	MR	Seines	≥ 36	May to Aug.	Q	5	-7.278	3.022	0.013	-0.273	0.012	75		1
<i>Eucinostomus gula</i>	MR	Seines	40 to 70	Dec. to Oct.	Q	15	87.054	-26.649	0.040	2.043	0.048	47		322
<i>Eucinostomus harengulus</i>	MR	Seines	≥ 71	Apr. to Dec.	L	15	2.068	-0.267	0.033	.	.	27		84
<i>Eucinostomus harengulus</i>	MC	Seines	40 to 70	Jan. to Dec.	Q	12	6.358	-2.767	0.002	0.296	0.005	65		1
<i>Eugerres plumieri</i>	MR	Seines	≥ 36	Jul. to Dec.	Q	9	-57.253	19.351	0.003	-1.587	0.003	64	x	210
<i>Eugerres plumieri</i>	MC	Seines	≥ 36	Jul. to Dec.	L	5	-0.980	0.349	0.000	.	.	97		63
<i>Lagodon rhomboides</i>	MR	Seines	≥ 36	Mar. to Jul.	Q	5	-78.168	27.735	0.001	-2.368	0.001	91	x	140
<i>Lagodon rhomboides</i>	MC	Seines	≥ 36	Mar. to Jul.	Q	5	4.650	-2.055	0.021	0.231	0.030	73		1
<i>Cynoscion nebulosus</i>	MR	Seines	≥ 36	May to Aug.	Q	5	-5.469	2.198	0.020	-0.180	0.023	71	x	14
<i>Cynoscion arenarius</i>	MR	Seines	≤ 40	May to Nov.	L	12	1.735	-0.231	0.033	.	.	33	x	203
<i>Cynoscion arenarius</i>	MR	Trawls	≤ 40	May to Nov.	L	12	5.201	-0.736	0.003	.	.	54		308
<i>Cynoscion arenarius</i>	MC	Trawls	≤ 40	May to Nov.	Q	7	-3.975	2.309	0.036	-0.269	0.027	59		77
<i>Cynoscion arenarius</i>	MC	Trawls	≥ 41	Jun. to Nov.	Q	5	-24.732	11.865	0.005	-1.340	0.005	84		252
<i>Bairdiella chrysoura</i>	MR	Trawls	≤ 35	Apr. to Jul.	L	5	1.105	-0.170	0.047	.	.	58		315
<i>Bairdiella chrysoura</i>	MR	Trawls	≥ 36	Aug. to Nov.	Q	5	21.838	-6.430	0.033	0.473	0.030	74		77
<i>Leiostomus xanthurus</i>	MR	Seines	≥ 31	Jan. to Jun.	L	6	-21.144	3.634	0.007	.	.	73		301
<i>Leiostomus xanthurus</i>	MC	Trawls	≥ 31	Jan. to Jun.	Q	5	-5.556	3.871	0.046	-0.587	0.042	61		1
<i>Sciaenops ocellatus</i>	MR	Seines	≥ 41	Nov. to Mar.	Q	4	-59.130	19.694	0.030	-1.593	0.028	77		168

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<i>Species</i>	<i>River Segment</i>	<i>Gear</i>	<i>Size</i>	<i>Months</i>	<i>Response</i>	<i>df</i>	<i>Intercept</i>	<i>Linear coef.</i>	<i>Linear P</i>	<i>Quad. coef.</i>	<i>Quad. P</i>	<i>r²</i>	<i>DW</i>	<i>D</i>
<i>Gobiosoma bosc</i>	MC	Seines	≥ 20	Jan. to Dec.	Q	12	44.974	-18.742	0.001	1.955	0.001	62		301
<i>Microgobius gulosus</i>	MR	Seines	≤ 30	May to Mar.	Q	16	5.093	-1.797	0.039	0.178	0.021	43	x	28
<i>Microgobius gulosus</i>	MR	Seines	≥ 31	Jan. to Dec.	Q	17	4.409	-1.391	0.011	0.118	0.013	32	x	28
<i>Microgobius gulosus</i>	MC	Seines	≤ 30	May to Mar.	L	12	5.622	-0.953	0.011	.	.	43		308
<i>Microgobius gulosus</i>	MC	Seines	≥ 31	Jan. to Dec.	Q	12	13.229	-5.226	0.025	0.524	0.035	59		273
<i>Trinectes maculatus</i>	MR	Trawls	≤ 25	Jan. to Dec.	Q	17	-33.348	11.603	0.003	-0.973	0.002	44	x	196
<i>Trinectes maculatus</i>	MR	Trawls	≥ 26	Jan. to Dec.	Q	17	1.880	-0.828	0.043	0.102	0.011	70		1
<i>Trinectes maculatus</i>	MC	Trawls	≤ 25	Jan. to Dec.	L	13	19.965	-3.678	0.003	.	.	50		364
<i>Trinectes maculatus</i>	MC	Trawls	≥ 26	Jan. to Dec.	L	13	13.391	-2.491	0.005	.	.	47		364

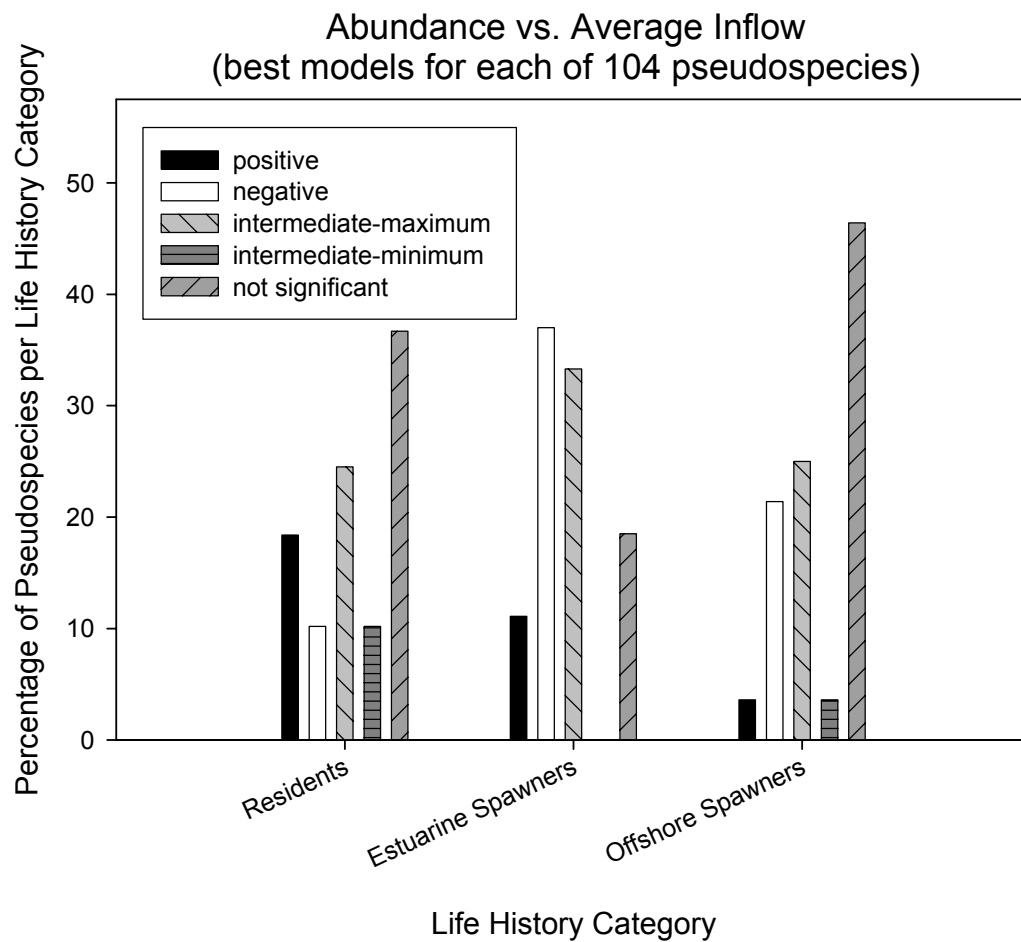


Fig. 3.8.2.1. Summary of regression results assessing abundance ($\bar{N}$) in relation to inflow. Positive and negative indicate increase and decrease in abundance with increasing inflow, respectively, while intermediate indicates maximum or minimum abundance at intermediate inflows.

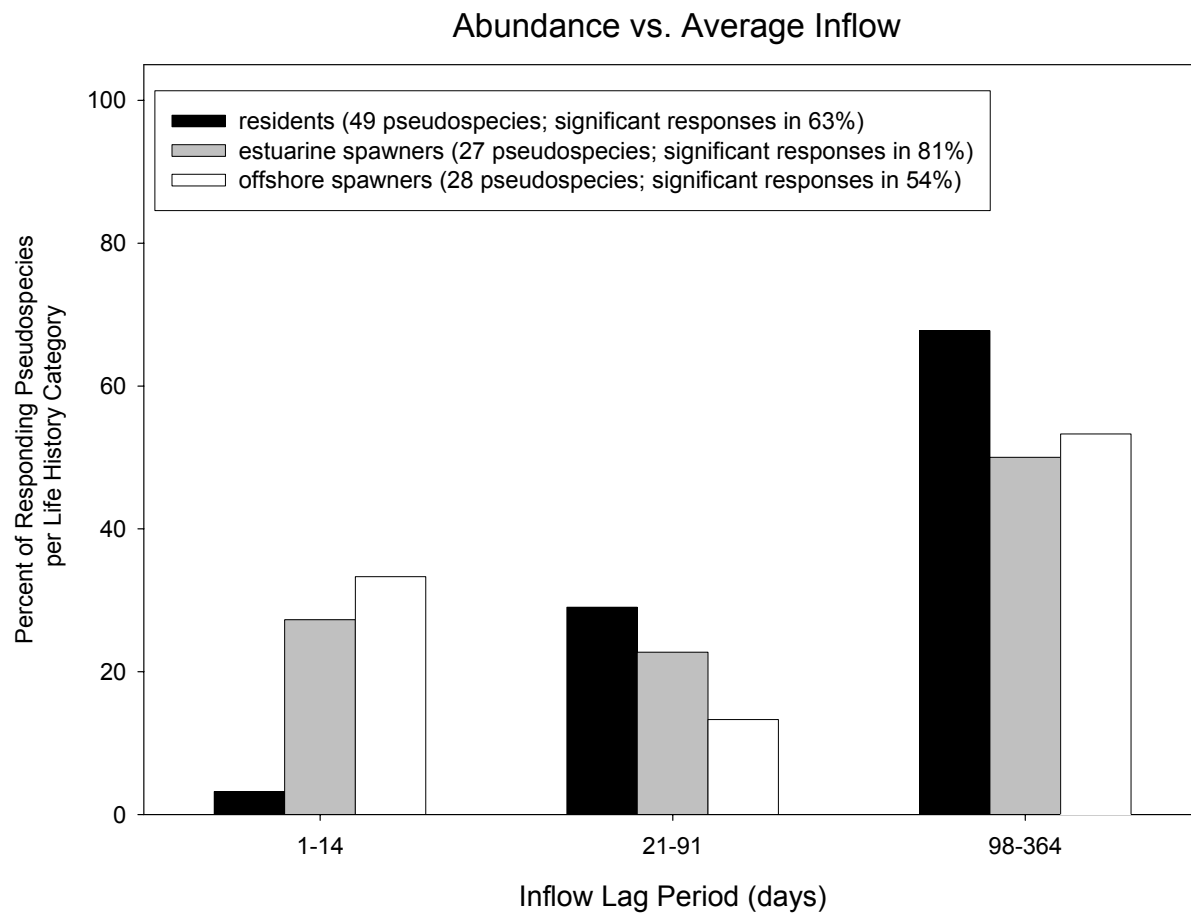


Fig. 3.8.2.2. Summary of regression results assessing abundance ($\bar{N}$) in relation to inflow and lag period.

4.0

CONCLUSIONS

4.1

Descriptive Observations

1.) **Dominant Catch.** The bay anchovy (*Anchoa mitchilli*), gobiosoma gobies (*Gobiosoma bosc* and *G. robustum*), the clown goby (*Microgobius gulosus*) and the hogchoker (*Trinectes maculatus*) comprised 91% of the larval, juvenile and adult fishes collected by the plankton net. Juvenile eastern mosquitofish (*Gambusia holbrooki*) and larval silversides (*Menidia* spp.) were also frequently collected. Juvenile brown hoplo catfish (*Hoplosternum littorale*), and introduced freshwater exotic, were the fourth most abundant juvenile fish in the plankton net catch.

Seine (shoreline) fish collections were dominated by bay anchovy (*Anchoa mitchilli*), silversides (*Menidia* spp.), eastern mosquitofish (*Gambusia holbrooki*), spot (*Leiostomus xanthurus*), eucinostomus mojarras (*Eucinostomus* spp.), and hogchoker (*Trinectes maculatus*). The trawl (channel) catch was dominated by bay anchovy, hogchoker, sand seatrout (*Cynoscion arenarius*), spot, and southern kingfish (*Menticirrhus americanus*).

Decapod zoeae, cumaceans, gammaridean amphipods, the mysid *Americamysis almyra*, the copepod *Acartia tonsa*, the appendicularian *Oikopleura dioica*, and unidentified *Amerimysis* mysid juveniles comprised 80% of the invertebrates collected by the plankton net. *A. tonsa* and *O. dioica* are river-plume taxa that invaded the tidal river during low inflow periods, whereas the abundances of all other dominant taxa were typically centered within the tidal river proper.

Invertebrates collected by seines were dominated by daggerblade grass shrimp (*Palaemonetes pugio*) and brackish grass shrimp (*P. intermedius*); invertebrate trawl catches primarily consisted of pink shrimp (*Farfantepenaeus duorarum*) and blue crab (*Callinectes sapidus*).

2.) **Use of Area as Spawning Habitat.** Spawning within or near the survey area was indicated by the presence of either eggs or newly hatched larvae.

Eggs of the bay anchovy and striped anchovy were directly identified in the samples, with bay anchovy eggs being much more abundant. Larval distributions indicated that skilletfish (*Gobiesox strumosus*), silversides (*Menidia* spp., *Membras martinica*), unspecified mojarras (gerreids), sand seatrout (*Cynoscion arenarius*), kingfishes (*Menticirrhus* spp.), blennies (blenniids), gobies (gobiids) and the hogchoker (*Trinectes maculatus*) spawned within or near the survey area. Most spawning took place near the mouth of the Myakka River. Live-bearing species such as the eastern mosquitofish (*Gambusia holbrooki*), gulf pipefish (*Syngnathus scovelli*), chain pipefish (*S. louisianae*) and lined seahorse (*Hippocampus erectus*) probably underwent parturition within the area.

3.) **Use of Area as Nursery Habitat.** Estuarine-dependent taxa that use the tidal river as a nursery area are the numerical dominants in the Myakka River: Overall, eight of the ten most abundant taxa in the river channel and five of the ten most abundant taxa in nearshore habitats can be considered estuarine-dependent. Six of the ten most abundant taxa found in channel and nearshore habitats of Myakkahatchee Creek are estuarine-dependent. Eight of the most abundant estuarine-dependent taxa in the Myakka River and Myakkahatchee Creek spawn outside Charlotte Harbor. Six of these offshore spawners are among the most economically valuable species in Florida, including menhadens (*Brevoortia* spp.), spot, striped mullet (*Mugil cephalus*), red drum (*Sciaenops ocellatus*), blue crab, and pink shrimp. The other two abundant offshore-spawning taxa include eucinostomus mojarras (*Eucinostomus* spp.) and southern kingfish (*Menticirrhus americanus*), a species of some economic importance. Four additional common estuarine-dependent species spawn within Charlotte Harbor. Two of these species have relatively minor direct economic value (i.e., hardhead catfish [*Ariopsis felis*], and sand seatrout [*Cynoscion arenarius*]), and two others are among the most abundant species in the system (i.e., hogchoker and bay anchovy). The juvenile nursery habitats for selected species were characterized from seine and trawl data in terms of preference for the shoreline

or channel, type of shoreline, physical location (distance from river mouth), and salinity.

4.) **Plankton Catch Seasonality.** More taxa were collected by plankton net during the spring and summer months than at other times of year. Alteration of inflows would appear to have the lowest potential for impacting many taxa during the period from December through February, which is the period when the fewest estuarine taxa were present. The highest potential for impacting many species would appear to be from March to June, a time of year when naturally low inflows are coupled with increasing use of the estuary as nursery habitat. The potential for impact is species-specific. During fall, winter, and early spring, for example, there could be impact on red drum and menhadens because these fishes recruit to tidal river nursery habitats during fall and winter. The larvae or early juveniles of other species, such the bay anchovy, are present year-round.

5.) **Seine and Trawl Catch Seasonality.** Based on seine and trawl data, few clear seasonal patterns of taxon richness were evident in either the Myakka River or Myakkahatchee Creek. Monthly nearshore taxon richness in the Myakka River was quite variable but appeared highest from May–July and October–December. There was a lack of clear seasonal trends in taxon richness from the channel habitat. The relatively short duration of sampling in Myakkahatchee Creek (15 mo) hinders conclusions regarding seasonality of taxon richness. Based on these data, we tentatively conclude that the potential for impacting the greatest number of species by anthropogenic alteration of freshwater inflows in the Myakka River occurs from May–July and October–December. Overall abundances and abundances of new recruits of nekton taxa indicate extensive use of the tidal river habitat during all months, but temporal resource partitioning among species is evident. Estuarine spawners have peaks in all months except January, and offshore spawners have peaks in all months except August and September. Many offshore spawners had peaks in abundance from mid-autumn to mid-summer, while estuarine spawners tended to peak in summer. Tidal river residents' abundance peaks included late summer–late winter and late spring/early summer periods. Recruitment peaks —indicated by elevated

abundance of the smallest size classes taken in seines and trawls— are concentrated in late autumn and winter for offshore spawners, whereas those for estuarine spawners and residents are concentrated in summer.

6.) **Differences in organism abundance between the Myakka River and Myakkahatchee Creek.** The catch-per-unit-effort (number of animals per 100 m²) was generally greater in the Myakka River than Myakkahatchee Creek, particularly for estuarine-dependent taxa using the area as a nursery. This was largely due to the importance of the lower Myakka River—the region below its confluence with Myakkahatchee Creek to the outflow into Charlotte Harbor—for these taxa. Division of the study area into ~5-km reaches generally shows that CPUE in Myakkahatchee Creek (river km 22.3–27.3) is very similar to the equivalent reach within the Myakka River (Appendices D and E).

4.2

Responses to Freshwater Inflow

1.) **Plankton Catch Distribution Responses.** Among organisms collected by plankton net, there were 41 significant distribution responses to inflow into the tidal Myakka River. All except one (98%) were negative, indicating that the vast majority of taxa collected by plankton net moved downstream in response to increased inflow. The single positive relationship involved postlarvae of the zostera shrimp, *Hippolyte zostericola*. Although this relationship may be spurious, postlarval *Hippolyte* primarily occur in deeper waters near the mouth of the river. Upstream movement could have been caused by strengthening of two-layered circulation by inflow, causing animals in the lower part of the water column to move farther upstream as inflows increased.

The plankton catch from Myakkahatchee Creek produced only seven distribution responses, and four of these (57%) were positive. Two possible explanations for upstream movement in Myakkahatchee Creek are (1) its largely straight, dredged channel facilitated two-layered circulation and (2) downstream movement of animals within the Myakka River increased the abundance of

certain taxa in the general area of Myakkahatchee Creek. However, decapod zoea and mysis larvae generally moved well downstream of the mouth of Myakkahatchee Creek during elevated inflows into the Myakka River, which would render the second explanation less likely.

2.) **Seine and Trawl Catch Distribution Responses.** In the case of seine and trawl data, nearly one-half (46%) of the 90 pseudo-species/gear/river combinations (hereafter simply referred to as 'pseudo-species') evaluated for distributional responses to freshwater inflow exhibited significant responses. The percentage of pseudo-species showing significant relationships to inflow was somewhat similar between the Myakka River (48%) and Myakkahatchee Creek (38%). Over 75% of the best-fitting (i.e., high r^2 values from regression models) significant responses were negative (i.e., animals moved upstream with decreasing freshwater inflow), and more than half of the best models were associated with long flow lag periods (i.e., average flow for the 98 to 364 days prior to nekton sample collection). Of the ten best-fitting models suggesting movement upstream with increasing inflow (i.e., a positive response to inflow), various explanations for the observed trends can be offered. In the cases of smaller bay anchovy and larger striped mojarra from Myakkahatchee Creek, the results may be spurious since the gradients of the regression slopes are very small; striped mullet from the Myakka River exhibited a very steep slope which is attributable to influence of two points on the regression. Several tidal river residents (i.e., eastern mosquitofish, redear sunfish [*Lepomis microlophus*], and sailfin molly [*Poecilia latipinna*]) centered in the Myakka River above its confluence with Myakkahatchee Creek may have moved downstream with increasing flow; individuals near the downstream extent of these species' distributions could have been displaced from the entire system upon encountering the additional flow of Myakkahatchee Creek, thus leaving the remaining members of their populations (and hence the center of abundance) above the confluence and giving the impression of upstream movement. There is no obvious explanation for downstream movement with decreasing inflow for spot and clown goby (*Microgobius gulosus*). The ten overall best-fitting seine or

trawl models among residents most commonly incorporated long flow lag periods, although there were also several medium-term lags. Best models among estuarine-dependent estuarine spawners tended to include medium to long flow lag periods, while those of estuarine-dependent offshore spawners principally possessed long flow lags, as well as several short-term lags. Best models explained 23 to 93% of the variability in distribution. The highest r^2 values, >50%, were found among both estuarine-dependent and resident species and incorporated flow lag periods ranging from 1 (blue crab) to 357 days (brook silverside, *Labidesthes sicculus*).

3.) **Plankton Catch Abundance Responses.** Abundance responses were found for 51 taxa in the Myakka River plankton-net collections, with nearly half (45%) being positive, wherein abundance increased as inflow increased. Of the 23 positive responses, 16 involved freshwater taxa that were introduced downstream with increasing inflows, and seven involved estuarine or estuarine-dependent taxa. The latter group consisted of bay anchovy adults, two early stages of hogchoker, two stages of *Americamysis* mysids, juvenile silversides (*Menidia*) and an estuarine isopod, *Cyathura polita*. *Menidia* is largely an estuarine fish, but it is known to be able to complete its life cycle within fresh water as well. *Menidia*'s response time was too short (3 d) to reflect a true population response, as was that of *Cyathura* (also 3 d). Short response times by estuarine taxa may reflect behaviors that allow organisms to reposition themselves in response to increased inflow. Animals may move into the channel or, in the case of benthic forms such as *Cyathura*, may move into the water column to take advantage of the fresh water's downstream flow, causing the catch of such animals to increase quickly as a function of inflow (Robins et al. 2005). On the other hand, the responses of the bay anchovy, hogchoker and *Americamysis* had durations that were commensurate with the effects of improved reproductive output or improvement in growth and survival. Inflow explained 25-65% of the variation in these taxa. These responses are potentially meaningful to inflow management.

Most plume-associated taxa, which are typically found in higher salinity estuarine waters, moved away from the mouth of the tidal river during high-inflow periods, giving them a negative abundance correlation with inflow. Several peracarid crustaceans that are usually most abundant within the interior of the tidal river, such as cymothoid isopods (*Lironeca* sp.), the isopod *Edotea triloba*, the isopod *Sphaeroma quadridentata*, the mysid *Bowmaniella dissimilis*, and the mysid *Taphromysis bowmani*, also decreased in abundance during high inflow periods. Several of these appeared to leave the survey area during high-inflow periods.

4.) **Seine and Trawl Catch Abundance Responses.** Among the 104 pseudo-species considered in the seine and trawl regression analyses, abundances of 65% were significantly related to average inflow. Percentages of pseudo-species possessing significant relationships to inflow were similar between the Myakka River (71%) and Myakkahatchee Creek (61%). The greatest proportion of variance in abundance was explained by linear models for 26 pseudo-species and by quadratic models for 42 pseudo-species. Of the 26 linear models, 65% were negative relationships, i.e., increasing abundance with decreasing inflow. Over 50% of quadratic models suggested greatest abundance at intermediate inflows ('intermediate-maximum'); the remaining quadratic models were relatively evenly divided between positive, negative, and intermediate-minimum responses. The proportion of abundance responses to inflow differed by life-history category: residents contrasted with estuarine and offshore spawners in having more positive responses than negative (Fig. 3.8.2). Minimum abundance at intermediate inflows was only found in a few resident and offshore-spawning pseudo-species. The best-fitting models tended to incorporate longer lags for residents and either short-term or long-term lags for offshore spawners; best models were well distributed among lag periods for estuarine spawners. Lag periods ranged from 7 to 364 days, with a peak at 168 days, for residents; 1 to 364 days, with a peak at 1 day, for estuarine spawners; and 1 to 364 days, with a peak at 1 day for offshore spawners. The strongest abundance-inflow relationships among residents—those where inflow explained a sizeable

portion of variance ($r^2 > \sim 60\%$) in at least eight data points— were for shoreline-associated species and probably indicated inflow-related changes in catchability. Increases in abundance of both size classes of Seminole killifish (*Fundulus seminolis*; Myakkahatchee Creek) and brook silverside (both tributaries) with increased inflows may have been due to immigration to the study area from upstream freshwater areas. High abundance of eastern mosquitofish and bluegill (*Lepomis macrochirus*) at intermediate inflows in both tributaries may be caused by low catchability a) at low inflows due to occupation of habitats upstream of the study area and b) at high inflows due to spreading of the populations into a greater habitat area (facilitated by higher water levels) or into areas inaccessible to our sampling gears. The best-fitting relationships between estuarine spawner abundance and inflow were varied. Larger hogchoker, for example, observed an increase in abundance in response to same-day inflow in the Myakka River channel. This may be due to enhanced immigration from upstream areas (see above). The apparent high shoreline abundance of larger striped mojarra (*Eugerres plumieri*) at intermediate flows lagged by 210 days in the Myakka River is a good example of a single data point (zero abundance at flow of 148 cfs) exerting excessive influence on the regression; removal of this point gives a negative relationship between abundance and flow that is not easily explained biologically, since this species prefers low salinities and seems unlikely to have been displaced from the system over such a long time lag. The same is true of smaller sand seatrout in the channel of Myakkahatchee Creek. This size class of sand seatrout in the Myakka River channel declined linearly in response to increased inflow. Maximum abundance of bay anchovy in Myakkahatchee Creek differed according to size class and flow lag period: intermediate-sized fish (26–35 mm) were found in highest abundance at either low or high same-day flows, whereas adults (>35 mm) showed the opposite pattern when long-term flow lag was considered. These differences are not easily explained in biological terms. As with residents and estuarine spawners, offshore-spawning species showed varying responses to flow. Linear increases in shoreline abundance in relation to flow in the Myakka River were evident in larger pinfish and larger spot. Both of

these responses were to flows lagged over long periods. It is tempting to attribute this to increased flow enhancing recruitment through beneficial effects on the reproductive population of these species, but since they are offshore-spawning species this seems unlikely. Tidewater mojarra from shorelines of Myakkahatchee Creek showed a non-linear decrease in abundance in tandem with increasing same-day flow; this may be attributable to displacement into the Myakka River. Several offshore-spawning species had relationships with flow that suggested highest abundance at intermediate flow, including smaller blue crab, leatherjack, spot, and red drum. The form of this response could be driven by chemical attraction to the Myakka River and Myakkahatchee Creek: at low flow, the presumed odor attracting nekton to these tributaries would be relatively weak; with increasing flow, the attractant signal would increase and enhance recruitment to the tributaries; at very high flows, the chemical signal would be diluted, leading to diminished abundance.

- Aldredge, A.L. and J.M. King. 1985. The distance demersal zooplankton migrate above the benthos: implications for predation. *Mar. Biol.* 84:253-260.
- Browder, J.A.. 1985. Relationship between pink shrimp production on the Tortugas grounds and water flow patterns in the Florida Everglades. *Bull. Mar. Sci.* 37:839-856.
- Christensen, V.. 1998. Fishery-induced changes in a marine ecosystem: insight from models of the Gulf of Thailand. *J. Fish Biol.* 53 (Supplement A):128-142.
- Colton, J.B., K.A. Honey, and R.F. Temple. 1961. The effectiveness of sampling methods used to study the distribution of larval herring in the Gulf of Maine. *J. du Conseil* 26:180-190.
- Dahlberg, M. D. 1970. Atlantic and Gulf of Mexico menhadens, genus *Brevoortia* (Pisces: Clupeidae). *Bulletin of the Florida Museum of Natural History* 15(3), 91-162.
- Day, J.W., C.A.S. Hall, W.M. Kemp, and A. Yáñez-Arancibia. 1989. *Estuarine Ecology*. John Wiley and Sons, New York.
- Drinkwater, K.F. 1986. On the role of freshwater outflow on coastal marine ecosystems - a workshop summary. Pages 429-438. *in* S. Skreslet editor, *The Role of Freshwater Outflow in Coastal Marine Ecosystems*. Springer-Verlag, Berlin.
- Duggins, C. F., Jr., Karlin, A. A., Relyea, K., and Yerger, R. W. 1986. Systematics of the key silverside, *Menidia conchorum*, with comments on other *Menidia* species (Pisces: Atherinidae). *Tulane Studies in Zoology and Botany* 25(2), 133-150.
- Echelle, A. A. and Echelle, A. F. 1997. Patterns of abundance and distribution among members of a unisexual-bisexual complex of fishes (Atherinidae: *Menidia*). *Copeia* 2, 249-259.
- Fore, P.L. and K.N. Baxter. 1972. Diel fluctuations in the catch of larval gulf menhaden, *Brevoortia patronus*, at Galveston entrance, Texas. *Trans. Am. Fish. Soc.* 101:729-732.
- Grimes, C.B.. 2001. Fishery production and the Mississippi River discharge. *Fisheries* 26:17-26.
- Haney, J.F.. 1988. Diel patterns of zooplankton behavior. *Bull. Mar. Sci.* 43:583-603.
- Hobson, E.S. and Chess J R. 1976. Trophic interactions among fishes and zooplankters near shore at Santa Catalina Island, California. *Fish. Bull.* 74:567-598.

- Imperial, M.T., D. Robadue, and T.M. Hennessey. 1992. An evolutionary perspective on the development and assessment of the National Estuary Program. *Coastal Management* 20:311-341.
- Jones, P W, Martin, F D, and Hardy, J D. 1978. Development of Fishes of the Mid-Atlantic Bight - an atlas of egg, larval, and juvenile stages, Vol 1, Acipenseridae through Ictaluridae. U.S. Fish Wildl. Serv. Biol. Rep. FWS/OBS-78/12.
- King, B.D.. 1971. Study of migratory patterns of fish and shellfish through a natural pass. Texas Parks and Wildlife Dept. Tech. Ser. 9:1-54.
- Lyczkowski-Shultz, J. and J.P.J. Steen. 1991. Diel vertical distribution of red drum *Sciaenops ocellatus* larvae in the north central Gulf of Mexico. *Fish. Bull.* 89:631-641.
- MacDonald, T C, Peebles, E B, Greenwood, M F D, Matheson, R E, Jr., and McMichael, R H, Jr. 2005. Freshwater inflow effects on fishes and invertebrates in the Hillsborough River estuary. Report prepared by the Florida Marine Research Institute for the Southwest Florida Water Management District.
- Mann, K.H. and J.R.N. Lazier. 1996. *Dynamics of Marine Ecosystems*. Blackwell Science, Cambridge, Massachusetts.
- McCleave, J.D. and R.C. Kleckner. 1982. Selective tidal stream transport in the estuarine migration of glass eels of the American eel (*Anguilla rostrata*). *J. du Conseil* 40:262-271.
- Mees, J., A. Dewicke, and O. Hamerlynck. 1993. Seasonal composition and spatial distribution of hyperbenthic communities along estuarine gradients in the Westerschelde. *Neth. J. Aquat. Ecol.* 27:359-376.
- Merriner, J.V., W.H. Kreite, and G.C. Grant. 1976. Seasonality, abundance, and diversity of fishes in the Piankatank River, Virginia (1970-1971). *Chesapeake Sci.* 17:238-245.
- Morgan, S.G. 1995. Life and death in the plankton: larval mortality and adaptation. *in* L. McEdward editor., *Ecology of Marine Invertebrate Larvae*. CRC Press, Boca Raton, Florida.
- Morgan, S.G. 1995. The timing of larval release. *in* L. McEdward editor., *Ecology of Marine Invertebrate Larvae*. CRC Press, Boca Raton, Florida.
- Nelson, G. A. and Leffler, D. 2001. Abundance, Spatial Distribution, and Mortality of Young-of-the-Year Spotted Seatrout (*Cynoscion nebulosus*) Along the Gulf Coast of Florida. *Gulf of Mexico Science* 19(1), 30-42.
- Okey, T A and Pauly D. 1999. A mass-balanced model of trophic flows in Prince William Sound: decompartmentalizing ecosystem knowledge. *Ecosystem Approaches for*

- Fisheries Management, Alaska Sea Grant College Program, AK-SG-99-01:621-634.
- Olmi, E.J. III. 1994. Vertical migration of blue crab *Callinectes sapidus* megalopae: implications for transport in estuaries. Mar. Ecol. Prog. Ser. 113:39-54.
- Peebles, E B. 2004. An analysis of fish and invertebrate data related to the establishment of minimum flows for the Tampa Bypass Canal. Report prepared by the University of South Florida College of Marine Science for the Southwest Florida Water Management District.
- Peebles, E B. 2005. An analysis of freshwater inflow effects on the early stages of fish and their invertebrate prey in the Alafia River estuary. Report prepared by the University of South Florida College of Marine Science for the Southwest Florida Water Management District.
- Peebles, E.B..1987. Early life history of the sand seatrout, *Cynoscion arenarius*, in southwest Florida. M.S. thesis, University of South Florida. Tampa, Florida.
- Peebles, E.B..1996. Ontogenetic habitat and diet selection in estuarine-dependent fishes: comparisons of observed patterns with model predictions. Ph.D. dissertation, University of South Florida. Tampa, Florida.
- Peebles, E.B.. 2002. Temporal resolution of biological and physical influences on bay anchovy *Anchoa mitchilli* egg abundance near a river-plume frontal zone. Mar. Ecol. Prog. Ser. 237:257-269.
- Peebles, E.B. and M.S. Flannery. 1992. Fish nursery use of the Little Manatee River estuary (Florida): Relationships with freshwater discharge. Southwest Florida Water Management District, Brooksville, Florida.
- Rast, J P, Flock, M E, and Sutton, T T Hopkins T L. 1991. The zooplankton of the Little Manatee River estuary. Brooksville, Florida, Report prepared by the University of South Florida Department of Marine Science for the Southwest Florida Water Management District.
- Robins, J.B., I.A. Halliday, J. Staunton-Smith, D.G. Mayer, and M.J. Sellin. 2005. Freshwater flow requirements of estuarine fisheries in tropical Australia: a review of the state of knowledge and application of a suggested approach. Mar. Freshw. Res. 56:343-360.
- Rozas, L. P. and Minello, T. J. 1997. Estimating densities of small fishes and decapod crustaceans in shallow estuarine habitats: A review of sampling design with focus on gear selection. Estuaries 20(1), 199-213.
- Sinha, M., M.K. Mukhopadhyay, P.M. Mitra, M.M. Bagchi, and H.C. Karamkar. 1996. Impact of Farakka barrage on the hydrology and fishery of Hooghly estuary. Estuaries 19:710-722.

- Sutcliffe, W.H., Jr.. 1973. Correlations between seasonal river discharge and local landings of American lobster (*Homarus americanus*) and Atlantic herring (*Hippoglossus hippoglossus*). J. Fish. Res. Bd. Can. 30:
- Sutcliffe, W.H., Jr.. 1972. Some relations of land drainage, nutrients, particulate material, and fish catch in two eastern Canadian bays. J. Fish. Res. Bd. Can. 29:357-362.
- Temple, R.F. and C.C. Fisher. 1965. Vertical distribution of the planktonic stages of penaeid shrimp. Pub. Inst. of Mar, Sci., Univ. Texas 10:59-67.
- Wilkins, E.P.H. and R.M. Lewis. 1971. Abundance and distribution of young Atlantic menhaden, *Brevoortia tyrannus*, in the White Oak River estuary, North Carolina. Fish. Bull. 69:783-789.
- Williams, A.B. and K.H. Bynum. 1972. A ten-year study of meroplankton in North Carolina estuaries: amphipods. Chesapeake Sci. 13:175-192.
- Winner, B L and McMichael, R H, Jr. 1997. Evaluation of a new type of box splitter designed for subsampling estuarine ichthyofauna. Trans. Am. Fish. Soc. 126(6), 1041-1047.

Appendix A:
Plankton data summary tables

Table A1, page 1 of 6.

Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
foraminiferans	foraminiferans	3	2	7.4	21.4	0.07	35.3
Liriope tetraphylla	hydromedusa	13	3	7.6	20.9	0.31	124.6
Clytia sp.	hydromedusa	197	30	12.3	15.6	4.11	324.9
medusa sp. a	hydromedusa	1	1	5.5	8.9	0.02	14.7
medusa sp. b	hydromedusa	42	7	7.2	24.5	0.99	241.8
medusa sp. d	hydromedusa	74	6	25.3	7.4	1.45	445.0
Mnemiopsis mccradyi	comb jelly, ctenophore	25099	42	16.0	19.2	598.17	259704.5
Beroe ovata	sea walnut, ctenophore	357	5	14.8	13.4	6.87	4497.5
turbellarians	flatworms	14	7	15.9	14.0	0.30	119.0
nemerteans	ribbon worms	1	1	37.8	0.1	0.02	15.4
nematodes	roundworms, threadworms	2	2	14.8	4.2	0.04	15.0
polychaetes	sand worms, tube worms	4080	171	9.6	12.6	82.90	10703.9
oligochaetes	freshwater worms	97	29	30.7	0.9	1.94	213.9
hirudinoideans	leeches	63	35	20.4	4.5	1.22	78.6
cladocerans, unidentified	water fleas	42	3	37.7	0.2	0.78	501.9
cladocerans, Daphnia spp.	water fleas	199	10	37.0	0.3	3.64	1535.2
Simocephalus vetulus	water flea	11430	113	34.2	0.3	213.24	33741.2
Ceriodaphnia sp.	water flea	5	4	26.0	0.1	0.10	28.7
Bunops sp.	water flea	33	12	31.9	0.1	0.66	74.5
Grimaldina brazzai	water flea	100	20	32.3	0.1	1.95	447.3
Ilyocryptus sp.	water flea	1540	64	30.4	0.1	29.64	2025.1
Sida crystallina	water flea	821	51	30.6	0.3	17.08	1821.3
Latona setifera	water flea	67	11	32.9	0.2	1.28	425.9
Penilia avirostris	water flea	121	11	5.9	22.8	2.98	597.8
Pseudosida bidentata	water flea	4	2	24.7	0.1	0.08	31.1
Latonopsis fasciculata	water flea	1266	44	34.7	0.1	24.47	3943.2
Euryalona occidentalis	water flea	6	5	33.2	0.1	0.12	26.3
Leydigia sp.	water flea	28	8	34.9	0.1	0.53	89.6
Moinadaphnia macleayi	water flea	3	1	29.6	0.2	0.06	40.3
Evadne tergestina	water flea	3581	29	11.0	22.4	93.98	56978.0
decapod zoeae	crab larvae	377312	202	14.5	13.7	7826.67	307800.9
decapod mysis	shrimp larvae	7251	154	13.4	15.9	155.75	18172.3
decapod megalopae	post-zoea crab larvae	23553	151	20.7	8.2	461.39	41828.5
shrimps, unidentified postlarvae	shrimps	696	5	5.8	21.5	16.43	7775.4
penaeid postlarvae	penaeid shrimps	95	6	8.5	25.2	2.70	941.8
penaeid metamorphs	penaeid shrimps	7	5	5.7	13.2	0.15	43.7
Farfantepenaeus duorarum juveniles	pink shrimp	43	13	10.9	8.9	0.76	130.4
Farfantepenaeus duorarum adults	pink shrimp	3	2	11.5	15.9	0.06	29.9
Lucifer faxoni juveniles and adults	shrimp	34	15	16.0	16.0	0.67	107.1
Leptochela serratorbita postlarvae	combclaw shrimp	5	2	5.1	21.8	0.11	58.0
Palaemonetes spp. postlarvae	grass shrimp	864	88	14.5	15.8	18.25	1286.8
Palaemonetes paludosus juveniles	grass shrimp	1	1	18.8	0.2	0.02	12.0
Palaemonetes pugio juveniles	daggerblade grass shrimp	112	41	21.5	2.9	2.33	296.7
Palaemonetes pugio adults	daggerblade grass shrimp	26	16	24.6	1.5	0.56	99.3
Palaemonetes vulgaris juveniles	grass shrimp	3	1	5.5	19.9	0.07	46.6
Periclimenes spp. postlarvae	shrimps	1	1	3.7	25.5	0.02	13.7
alphaeid postlarvae	snapping shrimps	1008	26	6.9	22.6	22.42	4520.1
alphaeid juveniles	snapping shrimps	2	1	5.5	2.6	0.04	25.1
Leptalpheus forceps juveniles	snapping shrimp	2	2	4.6	6.3	0.04	12.1
Hippolyte zostericola postlarvae	zostera shrimp	276	25	6.2	22.9	6.16	933.0
Hippolyte zostericola juveniles	zostera shrimp	4	1	8.8	10.7	0.07	46.5
Ogyrides alphaerostris juveniles and adults	estuarine longeye shrimp	35	9	6.3	18.0	0.69	142.2
Ambidexter symmetricus postlarvae	shrimp	277	16	5.2	24.3	5.96	1441.5
Ambidexter symmetricus juveniles	shrimp	11	5	5.4	20.1	0.24	72.5
Ambidexter symmetricus adults	shrimp	3	1	5.5	7.9	0.06	41.4
astacidean juveniles	crayfish	1	1	40.2	0.1	0.02	13.6
callianassid postlarvae	ghost shrimps	1	1	11.4	20.9	0.02	16.9
Callianassa spp. juveniles	ghost shrimps	8	2	6.4	23.0	0.18	91.1
Upogebia spp. postlarvae	mud shrimps	10	4	6.4	23.2	0.24	80.4
Euceramus praelongus megalops larvae	olivepit porcelain crab	24	1	5.5	22.2	0.62	427.3
Petrolisthes armatus juveniles	porcelain crab	2	1	16.6	20.8	0.05	35.1

Table A1, page 2 of 6.

Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Callinectes sapidus juveniles	blue crab	52	27	16.2	8.4	1.04	96.2
portunid juveniles	swimming crabs	2	2	4.6	10.8	0.04	13.3
Rhithropanopeus harrisi juveniles	Harris mud crab	9	4	19.2	1.7	0.43	153.8
unidentified Americamysis juveniles	opossum shrimps, mysids	44828	187	22.0	4.4	938.05	88638.9
Americamysis almyra	opossum shrimp, mysid	97603	202	22.1	4.3	1977.81	59051.5
Americamysis bahia	opossum shrimp, mysid	1936	21	11.0	8.8	35.45	8043.5
Americamysis stucki	opossum shrimp, mysid	1672	20	5.1	23.3	32.93	14530.0
Bowmaniella dissimilis	opossum shrimp, mysid	13734	116	20.1	8.7	272.00	24902.0
Spelaeomysis sp.	opossum shrimp, mysid	9	2	15.6	10.8	0.21	80.4
Taphromysis bowmani	opossum shrimp, mysid	23586	94	32.4	0.6	459.60	47134.9
cumaceans	cumaceans	244605	143	10.4	18.9	5210.12	271274.0
Sinelobus stanfordi	tanaid	18	12	15.7	10.6	0.37	62.8
Apseudes sp.	tanaid	7	2	19.1	7.7	0.13	78.6
Hargeria rapax	tanaid	9	3	21.8	7.1	0.20	80.4
isopod sp. a	isopod	1	1	5.5	22.2	0.03	17.8
Cyathura polita	isopod	360	51	20.2	1.2	9.21	2214.4
Xenanthura brevitelson	isopod	9	5	8.0	9.4	0.17	51.5
Munna reynoldsi	isopod	6106	58	10.9	18.1	115.88	49471.0
Probopyrus sp. (attached)	isopod	5	5	25.0	1.6	0.10	13.5
Anopsilana jonesi	isopod	1	1	20.7	7.7	0.02	12.6
cymothoid sp. a (Lironeca) juveniles	isopod	1082	117	16.0	12.8	21.87	1440.1
Cassinidea ovalis	isopod	12	8	16.4	13.0	0.24	52.7
Harrieta faxoni	isopod	2	2	29.3	3.9	0.04	12.7
Sphaeroma quadridentata	isopod	1881	82	32.2	4.0	35.56	8928.1
Sphaeroma terebrans	isopod	310	57	30.5	4.0	5.89	1227.6
Sphaeroma walkeri	isopod	6	3	26.0	2.2	0.11	50.1
Edotea triloba	isopod	12598	123	22.0	7.6	256.57	48294.7
Erichsonella attenuata	isopod	54	12	7.5	17.2	1.12	209.1
Erichsonella filiforme	isopod	3	3	6.1	23.9	0.05	13.6
amphipods, gammaridean	amphipods	100618	273	24.3	5.7	2030.04	242479.8
amphipods, caprellid	skeleton shrimps	732	29	9.0	22.4	14.73	3688.7
cirriped nauplius stage	barnacles	32419	54	6.6	22.4	770.17	75717.7
branchiurans, Argulus spp.	fish lice	193	85	15.9	11.3	3.94	123.6
unidentified harpacticoids	copepods	29	8	11.7	8.2	0.78	215.3
Alteutha sp.	copepod	2	2	12.3	12.5	0.04	13.7
Oncaea spp.	copepods	1	1	16.6	11.1	0.02	14.5
siphonostomatids	parasitic copepods	7	1	5.5	22.2	0.18	124.6
unidentified freshwater cyclopoids	copepods	45	21	28.6	0.6	0.87	160.4
Cyclops spp.	copepods	48	3	29.6	0.2	1.07	708.3
Macrocyclops albidus	copepods	514	50	35.9	0.2	10.16	3305.5
Mesocyclops edax	copepod	2446	133	29.1	0.3	50.27	2432.8
Oithona spp.	copepods	6723	26	6.5	20.7	159.56	34261.4
Orthocyclops modestus	copepod	281	58	32.0	0.3	5.51	814.2
Saphirella spp.	copepods	9	2	4.9	2.8	0.16	84.4
paracalanids	copepods	8	5	11.7	19.2	0.16	42.3
Acartia tonsa	copepod	77072	116	8.3	21.1	1777.04	124610.1
Calanopia americana	copepod	12	3	34.9	2.0	0.24	133.9
Centropages hamatus	copepod	11	2	10.8	18.7	0.24	130.8
Centropages velificatus	copepod	6	2	3.7	22.4	0.14	81.3
Diaptomus spp.	copepods	1103	33	32.2	0.3	19.83	5564.2
Eurytemora affinis	copepod	1	1	11.4	15.9	0.02	14.2
Labidocera aestiva	copepod	10661	69	6.5	22.1	226.98	29876.5
Osphranticum labronectum	copepod	40	19	32.9	0.2	0.76	119.0
Pseudodiaptomus coronatus	copepod	2977	76	9.3	19.6	66.02	6603.3
Temora turbinata	copepod	58	15	5.6	20.4	1.26	133.4
Euconchoecia chierchiaie	ostracod, seed shrimp	6	2	10.5	22.4	0.18	66.4
Sarsiella zostericola	ostracod, seed shrimp	11	5	15.0	18.0	0.25	51.2
Parasterope pollex	ostracod, seed shrimp	2294	44	6.7	22.0	53.59	13054.8
ostracods, podocopid	ostracods, seed shrimps	505	81	27.3	4.5	10.08	1007.4
collembolas, podurid	springtails	22	10	31.2	0.1	0.50	90.8
ephemeropteran larvae	mayflies	7367	137	35.6	0.1	142.63	24193.1

Table A1, page 3 of 6.

Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
odonates, anisopteran larvae	dragonflies	85	36	29.9	0.2	1.61	136.7
odonates, zygopteran larvae	damselflies	139	58	31.5	0.2	2.66	86.4
hemipterans, belostomatid adults	giant water bugs	6	3	35.2	0.1	0.16	69.6
hemipterans, corixid juveniles	water boatmen	15	9	29.3	0.2	0.30	46.2
hemipterans, corixid adults	water boatmen	75	28	30.5	1.2	1.44	123.2
hemipterans, gerrid adults	water striders	19	12	29.3	1.2	0.35	45.6
hemipterans, naucorid adults	creeching water bugs	5	3	33.7	0.1	0.10	33.1
hemipterans, nepid adults	water scorpions	3	3	29.6	0.5	0.06	13.3
hemipterans, notonectid adults	backswimmers	2	2	32.1	0.1	0.03	12.7
hemipterans, pleid adults	pygmy backswimmers	13	10	29.0	0.1	0.25	33.1
megalopterans, corydalid larvae	dobsonflies	1	1	37.8	0.1	0.02	12.7
neuropterans, Climacia spp. larvae	spongillafles	66	27	36.8	0.1	1.22	99.8
coleopterans, chrysomelid larvae	beetles	1	1	40.2	0.2	0.02	13.5
coleopterans, curculionid adults	beetles	9	8	17.1	9.0	0.17	24.5
coleopterans, dytiscid larvae	predaceous diving beetles	36	11	35.8	0.1	0.70	112.3
coleopterans, noterid adults	burrowing water beetles	64	27	31.2	0.6	1.21	113.9
coleopterans, dryopid larvae	long-toed water beetles	13	3	39.8	0.1	0.24	127.2
coleopterans, elmidae larvae	riffle beetles	79	23	39.0	0.2	1.51	168.1
coleopterans, elmidae adults	riffle beetles	38	20	26.7	0.6	0.71	88.6
coleopterans, lutrochid larvae	beetles	6	4	36.8	0.1	0.12	27.2
coleopterans, gyrinid larvae	whirligig beetles	85	31	36.8	0.1	1.62	173.5
coleopterans, gyrinid adults	whirligig beetles	95	9	33.0	0.3	2.81	1541.3
coleopterans, halipid larvae	crawling water beetles	24	4	36.8	0.2	0.41	123.2
coleopterans, noterid larvae	burrowing water beetles	43	7	38.3	0.2	0.75	212.7
coleopterans, dytiscid adults	predaceous diving beetles	21	11	29.4	2.1	0.44	90.8
coleopterans, scirtid larvae	marsh beetles	36	7	39.9	0.2	0.69	214.1
coleopterans, scirtid adults	marsh beetles	1	1	40.2	0.3	0.02	12.9
dipterans, pupae	flies, mosquitoes	2355	150	30.6	0.6	47.45	1908.2
dipterans, ceratopogonid larvae	biting midges	73	32	28.8	0.9	1.38	90.3
dipteran, Chaoborus punctipennis larvae	phantom midge	2487	144	23.0	0.3	51.74	2891.0
dipterans, chironomid larvae	midges	1841	132	33.5	0.3	37.61	1623.6
dipterans, ephydrid larvae	shore flies	1	1	26.8	0.1	0.02	14.3
dipterans, stratiomyid larvae	soldier flies	10	6	21.9	0.1	0.19	48.2
dipterans, sciomyzid larvae	marsh flies	30	11	36.9	1.2	0.57	127.2
dipterans, syrphid larvae	hoverflies	1	1	26.8	0.1	0.02	14.3
dipterans, tabanid larvae	deer flies	1	1	37.8	0.1	0.02	15.4
trichopteran larvae	caddisflies	645	75	35.6	0.2	12.15	1590.1
lepidopterans, pyralid larvae	aquatic caterpillars	10	5	36.8	1.0	0.18	63.6
Limulus polyphemus larvae	horseshoe crab	3	1	5.5	7.9	0.06	41.4
acarid	water mites	325	83	33.3	0.2	6.16	251.8
gastropods, prosobranch	snails	7557	152	22.8	3.7	151.16	43643.6
gastropods, opisthobranch	sea slugs	79	18	16.1	13.0	1.66	470.8
pelecypods	clams, mussels, oysters	4762	97	26.4	5.0	103.74	21068.5
Lolliguncula brevis juveniles	bay squid	8	3	7.4	23.5	0.14	69.8
brachiopod, Glottidia pyramidata larvae	lamp shell	1804	5	4.4	22.5	44.28	18511.3
chaetognaths, sagittid	arrow worms	16513	72	6.5	22.8	355.55	37178.1
ascidiacean larvae	tunicate larvae	4	1	3.7	25.5	0.08	54.7
appendicularian, Oikopleura dioica	larvacean	63166	56	7.2	21.2	1523.67	160302.6
Branchiostoma floridae	lancelet	1	1	5.5	7.9	0.02	13.8
Lepisosteus sp. postflexion larvae	gar	1	1	29.6	2.1	0.02	15.5
Lepisosteus sp. juveniles	gar	3	3	25.7	2.5	0.05	12.5
Elops saurus postflexion larvae	ladyfish	18	7	35.6	0.4	0.43	147.0
Elops saurus juveniles	ladyfish	4	3	30.7	2.2	0.08	25.8
Myrophis punctatus juveniles	speckled worm eel	6	6	11.7	5.9	0.13	16.9
clupeid preflexion larvae	herrings	3	1	5.5	26.6	0.08	55.8
Brevoortia spp. postflexion larvae	menhaden	58	5	23.8	3.2	1.21	724.2
Brevoortia spp. metamorphs	menhaden	45	6	21.7	5.9	0.98	221.8
Dorosoma spp. preflexion larvae	shads	3	3	39.4	0.2	0.06	13.8
Anchoa spp. preflexion larvae	anchovies	5219	52	6.9	22.6	121.57	23512.3
Anchoa spp. flexion larvae	anchovies	1498	65	8.2	20.1	34.48	5750.5
Anchoa hepsetus eggs	striped anchovy	10	2	4.9	23.3	0.19	114.8

Table A1, page 4 of 6.

Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Anchoa hepsetus postflexion larvae	striped anchovy	2	2	9.5	19.1	0.04	14.8
Anchoa hepsetus juveniles	striped anchovy	1	1	8.8	20.2	0.02	15.8
Anchoa mitchilli eggs	bay anchovy	34109	39	8.3	21.1	750.91	68363.8
Anchoa mitchilli postflexion larvae	bay anchovy	898	99	12.4	14.7	18.70	1824.5
Anchoa mitchilli juveniles	bay anchovy	8843	174	24.1	4.5	172.60	13548.6
Anchoa mitchilli adults	bay anchovy	603	89	14.6	8.8	12.25	1692.4
Notropis spp. preflexion larvae	minnows	3	2	32.2	0.2	0.06	28.1
Notropis spp. juveniles	minnows	2	2	39.0	0.2	0.04	13.3
Notropis petersoni adults	coastal shiner	1	1	29.6	0.1	0.02	12.5
Erimyzon sucetta juveniles	lake chubsucker	3	3	33.2	0.1	0.06	15.0
Ameiurus catus juveniles	white catfish	9	8	31.9	0.1	0.17	25.0
Ameiurus natalis juveniles	yellow bullhead	6	4	35.3	0.1	0.12	39.1
Noturus gyrinus juveniles	tadpole madtom	17	6	37.2	0.1	0.34	140.3
Ictalurus punctatus juveniles	channel catfish	7	5	26.4	4.3	0.15	47.5
Arius felis juveniles	hardhead catfish	1	1	8.8	0.7	0.02	13.2
Bagre marinus juveniles	gafftopsail sea catfish	1	1	11.4	0.2	0.02	12.9
Liposarcus spp. juveniles	suckermouth catfish	6	5	33.5	0.1	0.11	29.7
Hoplosternum littorale preflexion larvae	brown hoplo catfish	3	2	23.9	0.1	0.06	31.1
Hoplosternum littorale flexion larvae	brown hoplo catfish	18	5	30.8	0.1	0.40	202.0
Hoplosternum littorale postflexion larvae	brown hoplo catfish	9	4	35.0	0.1	0.18	37.4
Hoplosternum littorale juveniles	brown hoplo catfish	138	15	33.7	0.1	2.60	449.2
Gobiesox strumosus preflexion larvae	skilletfish	53	17	13.7	16.5	1.15	112.6
Gobiesox strumosus flexion larvae	skilletfish	20	9	18.2	13.1	0.43	110.9
Gobiesox strumosus postflexion larvae	skilletfish	12	4	22.9	9.6	0.25	95.8
Gobiesox strumosus juveniles	skilletfish	12	3	18.8	10.6	0.26	80.4
Hyporhamphus unifasciatus preflexion larvae	silverstripe halfbeak	2	2	39.0	0.2	0.04	13.8
Hyporhamphus unifasciatus flexion larvae	silverstripe halfbeak	2	2	33.7	0.3	0.04	13.8
Strongylura spp. postflexion larvae	needlefishes	5	1	29.6	2.1	0.11	77.4
Strongylura spp. adults	needlefishes	1	1	11.4	8.8	0.02	10.7
Strongylura marina juveniles	Atlantic needlefish	4	2	20.7	13.1	0.08	42.3
Strongylura notata adults	redfin needlefish	1	1	11.4	8.8	0.02	10.7
Cyprinodon variegatus postflexion larvae	sheepshead minnow	2	2	37.8	0.1	0.04	15.4
Cyprinodon variegatus juveniles	sheepshead minnow	1	1	40.2	0.1	0.02	13.3
Jordanella floridae adults	flagfish	2	1	40.2	0.1	0.07	46.4
Fundulus spp. postflexion larvae	killifishes	1	1	14.6	0.1	0.02	12.3
Fundulus spp. juveniles	killifishes	3	2	15.6	0.1	0.06	23.4
Fundulus seminolis postflexion larvae	Seminole killifish	2	1	32.1	0.1	0.03	22.1
Fundulus grandis juveniles	gulf killifish	3	2	35.8	0.1	0.05	23.5
Lucania goodei juveniles	bluefin killifish	6	4	23.3	0.1	0.18	61.5
Lucania goodei adults	bluefin killifish	5	4	38.1	0.1	0.09	25.0
Lucania parva postflexion larvae	rainwater killifish	1	1	40.2	0.2	0.02	12.6
Lucania parva juveniles	rainwater killifish	10	5	27.5	7.2	0.19	64.0
Lucania parva adults	rainwater killifish	2	2	35.0	3.1	0.04	12.7
Gambusia holbrooki juveniles	eastern mosquitofish	159	46	31.0	0.2	3.04	309.5
Gambusia holbrooki adults	eastern mosquitofish	31	15	33.7	0.1	0.58	62.6
Heterandria formosa juveniles	least killifish	17	9	29.9	0.1	0.33	90.8
Heterandria formosa adults	least killifish	54	23	32.0	0.1	1.02	94.6
Poecilia latipinna juveniles	sailfin molly	1	1	29.6	0.1	0.02	12.4
Menidia spp. preflexion larvae	silversides	116	34	25.8	2.4	2.18	338.4
Menidia spp. flexion larvae	silversides	5	3	17.6	9.6	0.11	32.2
Menidia spp. juveniles	silversides	33	20	25.0	5.1	0.64	65.5
Menidia beryllina juveniles	inland silverside	4	2	21.7	12.5	0.08	42.3
Membras martinica preflexion larvae	rough silverside	20	12	11.8	13.5	0.40	69.8
Membras martinica flexion larvae	rough silverside	4	2	6.6	19.3	0.08	32.2
Membras martinica postflexion larvae	rough silverside	3	3	9.2	13.0	0.06	13.9
Membras martinica juveniles	rough silverside	37	15	20.8	11.4	0.73	78.6
Membras martinica adults	rough silverside	1	1	3.7	24.3	0.02	14.8
Labidesthes sicculus preflexion larvae	brook silverside	7	3	32.0	0.1	0.15	59.5
Labidesthes sicculus juveniles	brook silverside	13	8	37.6	0.2	0.25	53.6
Labidesthes sicculus adults	brook silverside	1	1	40.2	0.2	0.02	13.5
fish eggs, percomorph	sciaenid eggs (primarily)	50897	41	8.6	22.6	1198.77	246383.1

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Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Hippocampus erectus juveniles	lined seahorse	11	8	8.6	22.0	0.23	34.9
Syngnathus louisianae juveniles	chain pipefish	11	7	14.1	16.2	0.22	42.3
Syngnathus scovelli juveniles	gulf pipefish	19	13	7.3	16.3	0.36	39.6
Prionotus tribulus postflexion larvae	bighead searobin	1	1	8.8	14.8	0.02	12.2
Prionotus tribulus juveniles	bighead searobin	3	3	4.9	21.3	0.06	15.5
Elassoma evergladei juveniles	Everglades pygmy sunfish	4	3	27.3	0.1	0.07	21.3
Elassoma evergladei adults	Everglades pygmy sunfish	3	3	37.1	0.1	0.07	23.2
Elassoma okefenokee juveniles	Okefenokee pygmy sunfish	1	1	18.8	0.2	0.02	12.0
Enneacanthus gloriosus juveniles	bluespotted sunfish	6	6	30.0	1.3	0.13	23.2
Lepomis spp. preflexion larvae	sunfishes	12	3	39.4	0.2	0.24	137.9
Lepomis spp. flexion larvae	sunfishes	3	2	32.6	0.2	0.06	30.8
Lepomis spp. postflexion larvae	sunfishes	1	1	40.2	0.1	0.02	14.2
Lepomis spp. juveniles	sunfishes	15	12	33.5	0.1	0.29	49.7
Lepomis auritus flexion larvae	redbreast sunfish	3	2	29.6	1.0	0.06	25.1
Lepomis macrochirus juveniles	bluegill	1	1	40.2	0.1	0.02	12.5
Lepomis punctatus juveniles	spotted sunfish	1	1	37.8	0.2	0.02	11.2
Micropterus salmoides flexion larvae	largemouth bass	15	7	37.8	0.2	0.29	103.7
Micropterus salmoides postflexion larvae	largemouth bass	2	2	40.2	0.2	0.04	12.6
Micropterus salmoides juveniles	largemouth bass	3	3	29.5	0.9	0.06	15.5
Etheostoma fusiforme preflexion larvae	swamp darter	6	2	38.3	0.2	0.12	69.0
Etheostoma fusiforme flexion larvae	swamp darter	1	1	37.8	0.2	0.02	12.9
Chloroscombrus chrysurus postflexion larvae	Atlantic bumper	1	1	3.7	10.6	0.02	14.6
Oligoplites saurus flexion larvae	leatherjack	13	4	16.4	16.2	0.30	82.7
Oligoplites saurus postflexion larvae	leatherjack	3	1	3.7	26.5	0.08	51.6
Oligoplites saurus juveniles	leatherjack	1	1	14.6	15.5	0.02	16.5
Lutjanus griseus juveniles	gray snapper	3	1	11.4	0.7	0.06	40.8
gerreid preflexion larvae	mojaras	82	10	6.1	22.7	2.00	406.7
gerreid flexion larvae	mojaras	19	3	7.7	21.3	0.45	130.8
Eugerres plumieri flexion larvae	striped mojarra	2	1	20.7	17.0	0.04	26.3
Eugerres plumieri postflexion larvae	striped mojarra	1	1	3.7	23.5	0.02	11.6
Eucinostomus spp. postflexion larvae	mojaras	2	2	28.7	6.2	0.04	12.9
Eucinostomus spp. juveniles	mojaras	2	1	16.6	9.4	0.04	25.9
Eucinostomus gula juveniles	silver jenny	2	1	8.8	10.7	0.03	23.3
Lagodon rhomboides juveniles	pinfish	2	2	14.6	7.9	0.04	14.1
Bairdiella chrysoura preflexion larvae	silver perch	15	2	4.5	26.5	0.39	154.9
Bairdiella chrysoura flexion larvae	silver perch	9	5	8.7	22.4	0.20	34.9
Cynoscion arenarius preflexion larvae	sand seatrout	41	8	6.0	22.8	0.95	223.8
Cynoscion arenarius flexion larvae	sand seatrout	12	5	10.3	16.2	0.29	82.7
Cynoscion arenarius postflexion larvae	sand seatrout	5	3	8.3	6.9	0.11	43.5
Cynoscion arenarius juveniles	sand seatrout	8	6	8.8	3.2	0.15	27.2
Cynoscion nebulosus preflexion larvae	spotted seatrout	16	3	5.5	25.9	0.41	206.5
Cynoscion nebulosus flexion larvae	spotted seatrout	9	3	9.9	20.1	0.22	82.7
Menticirrhus spp. preflexion larvae	kingfishes	48	9	5.2	21.9	1.12	292.6
Menticirrhus spp. flexion larvae	kingfishes	28	6	8.9	18.6	0.65	148.8
Menticirrhus spp. postflexion larvae	kingfishes	2	1	3.7	10.6	0.04	29.1
Menticirrhus americanus juveniles	southern kingfish	2	2	12.3	5.4	0.04	13.1
Sciaenops ocellatus postflexion larvae	red drum	1	1	5.5	15.3	0.02	13.1
Tilapia spp. juveniles	tilapias	1	1	16.6	0.1	0.02	12.7
Mugil cephalus juveniles	striped mullet	4	2	23.9	4.1	0.07	36.3
blenniid preflexion larvae	blennies	19	9	8.7	20.3	0.38	69.8
Chasmodes saburrae postflexion larvae	Florida blenny	3	2	17.2	17.5	0.07	28.6
Chasmodes saburrae juveniles	Florida blenny	1	1	23.8	10.7	0.02	13.7
Hypsoblennius spp. postflexion larvae	blennies	3	1	5.5	21.1	0.07	51.2
Lupinoblennius nicholsi flexion larvae	highfin blenny	2	2	4.6	22.2	0.04	13.7
Lupinoblennius nicholsi postflexion larvae	highfin blenny	1	1	11.4	20.9	0.02	16.9
gobiid preflexion larvae	gobies	477	90	18.6	10.5	9.52	471.6
gobiid flexion larvae	gobies	179	50	16.5	11.8	3.71	278.0
Bathygobius soporator preflexion larvae	frillfin goby	47	13	5.9	23.8	1.11	241.0
Bathygobius soporator flexion larvae	frillfin goby	4	2	15.8	17.7	0.09	31.7
Gobionellus spp. postflexion larvae	gobies	6	1	18.8	8.0	0.11	78.6
Gobiosoma spp. postflexion larvae	gobies	107	30	15.9	14.0	2.12	151.8

Table A1, page 6 of 6.

Plankton-net catch statistics for the Myakka River

(May 2003 through December 2004, n=280)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Gobiosoma bosc juveniles	naked goby	96	12	28.9	9.5	1.81	447.8
Gobiosoma bosc adults	naked goby	2	2	22.4	0.1	0.10	54.1
Gobiosoma robustum juveniles	code goby	56	8	28.9	8.5	1.07	562.6
Microgobius spp. flexion larvae	gobies	288	54	15.9	12.2	5.94	434.3
Microgobius spp. postflexion larvae	gobies	58	23	15.3	9.4	1.12	101.9
Microgobius gulosus juveniles	clown goby	50	22	17.7	2.0	0.94	104.3
Microgobius gulosus adults	clown goby	5	4	12.5	1.5	0.12	30.8
Microgobius thalassinus adults	green goby	5	4	14.7	2.2	0.15	54.1
Trinectes maculatus preflexion larvae	hogchoker	58	20	8.1	21.5	1.25	162.7
Trinectes maculatus flexion larvae	hogchoker	27	11	8.9	17.5	0.59	103.3
Trinectes maculatus postflexion larvae	hogchoker	44	21	20.2	3.5	0.89	154.8
Trinectes maculatus juveniles	hogchoker	528	95	26.2	0.8	10.16	468.9
Trinectes maculatus adults	hogchoker	60	24	25.6	1.3	1.17	210.5
Sphoeroides nephelus juveniles	southern puffer	1	1	14.6	15.5	0.02	16.5
Chilomycterus shoepfi juveniles	striped burrfish	1	1	8.8	23.5	0.02	11.6
unidentified preflexion larvae	fish	2	2	33.8	1.1	0.04	13.2
unidentified postflexion larvae	fish	4	3	33.2	0.1	0.08	27.2
anuran larvae	tadpoles	63	22	26.2	0.3	1.47	215.3

Table A2, page 1 of 3.

Plankton-net catch statistics for Myakkahatchee Creek

(May 2003 through June 2004, n=56)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Craspedacusta sowerbii	hydromedusa	88	2	23.1	5.5	1.64	887.94
Liriope tetraphylla	hydromedusa	2	1	24.3	2.4	0.04	27.20
Clytia sp.	hydromedusa	35	5	24.2	3.5	0.69	268.23
medusa sp. c	hydromedusa	455	2	25.0	12.3	9.69	5407.98
medusa sp. a	hydromedusa	45	3	22.7	14.1	0.98	506.66
medusa sp. d	hydromedusa	4	1	22.2	14.7	0.08	57.90
Mnemiopsis mccradyi	comb jelly, ctenophore	6894	6	23.1	12.3	140.66	61173.52
turbellarians	flatworms	3	2	23.6	11.5	0.06	28.07
polychaetes	sand worms, tube worms	248	41	23.4	3.1	6.54	920.23
oligochaetes	freshwater worms	14	5	24.2	2.9	0.60	263.16
hirudinoideans	leeches	27	15	23.0	1.2	0.88	306.74
cladocerans, Daphnia spp.	water fleas	1	1	23.3	0.2	0.02	13.16
Simocephalus vetulus	water flea	219	21	24.2	0.2	5.86	855.28
Ceriodaphnia sp.	water flea	4	1	25.1	0.1	0.26	175.53
Grimaldina brazzai	water flea	4	1	25.1	0.1	0.26	175.53
Ilyocryptus sp.	water flea	288	15	23.9	0.2	5.67	1172.37
Sida crystallina	water flea	41	13	24.3	0.3	1.03	307.17
Latonopsis fasciculata	water flea	2	2	24.7	0.2	0.04	13.04
Euryalona occidentalis	water flea	1	1	25.1	0.2	0.02	12.56
Leydigia sp.	water flea	3	3	24.8	0.8	0.06	13.95
decapod zoeae	crab larvae	87989	44	23.5	9.4	1886.99	319082.55
decapod mysis	shrimp larvae	1997	37	23.0	10.7	41.96	8627.73
decapod megalopae	post-zoea crab larvae	6806	25	23.2	10.7	139.43	21603.33
Palaemonetes spp. postlarvae	grass shrimp	123	17	23.4	10.6	2.63	639.35
Palaemonetes pugio juveniles	daggerblade grass shrimp	13	6	23.3	2.7	0.32	65.79
Palaemonetes pugio adults	daggerblade grass shrimp	15	9	23.0	4.6	0.28	52.66
Ambidexter symmetricus postlarvae	shrimp	2	1	25.1	12.0	0.04	29.39
Callinectes sapidus juveniles	blue crab	1	1	22.2	13.3	0.02	14.31
xanthid juveniles	mud crabs	14	1	22.2	5.3	0.28	188.36
Rhithropanopeus harrisi juveniles	Harris mud crab	5	1	22.2	0.2	0.09	61.58
unidentified Americamysis juveniles	opossum shrimps, mysids	6701	40	23.1	5.9	129.33	16583.25
Americamysis almyra	opossum shrimp, mysid	19383	44	23.3	5.2	380.68	35948.60
Bowmaniella dissimilis	opossum shrimp, mysid	1380	22	23.2	9.1	27.25	3150.76
Taphromysis bowmani	opossum shrimp, mysid	3052	21	24.2	12.5	63.04	38869.15
cumaceans	cumaceans	6235	30	25.0	11.9	133.56	88614.51
isopod sp. a	isopod	1	1	23.3	1.6	0.02	12.79
Cyathura polita	isopod	33	13	23.5	6.4	0.65	81.59
Xenanthura brevitelson	isopod	1	1	22.2	3.2	0.02	13.85
Munna reynoldsi	isopod	17	9	22.9	0.8	0.33	40.57
Probopyrus sp. (attached)	isopod	2	1	23.3	0.2	0.04	26.32
Anopsilana jonesi	isopod	3	2	22.9	10.3	0.06	27.10
cymothoid sp. a (Lironeca) juveniles	isopod	490	32	23.9	8.1	10.47	901.64
Cassidinidea ovalis	isopod	2	2	22.8	2.3	0.04	13.95
Sphaeroma quadridentata	isopod	84	24	24.0	4.6	1.62	167.09
Sphaeroma terebrans	isopod	62	22	23.3	7.1	1.27	342.67
Edotea triloba	isopod	10616	34	23.7	5.0	209.52	23670.42
amphipods, gammaridean	amphipods	20151	54	23.7	6.7	404.10	45733.37
cirriped nauplius stage	barnacles	3	1	25.1	0.6	0.06	41.84
branchiurans, Argulus spp.	fish lice	47	30	23.5	5.8	0.92	107.63
unidentified harpacticoids	copepods	14	3	24.9	1.0	0.24	130.67
Alteutha sp.	copepod	1	1	24.3	0.2	0.02	13.04
siphonostomatids	parasitic copepods	1	1	22.2	5.3	0.02	13.45
unidentified freshwater cyclopoids	copepods	11	5	24.0	3.0	0.19	43.28
Macrocyclus albidus	copepods	54	7	23.4	0.2	0.99	273.81
Mesocyclops edax	copepod	10489	36	24.4	0.3	205.94	47257.51
Orthocyclops modestus	copepod	20	9	24.4	0.3	0.35	71.28
Acartia tonsa	copepod	76	16	23.3	4.7	1.51	430.53
Diaptomus spp.	copepods	6	4	23.2	0.2	0.12	40.57
Labidocera aestiva	copepod	23	3	24.0	12.3	0.54	262.30
Osphranticum labronectum	copepod	1	1	24.3	0.2	0.02	11.38
Pseudodiaptomus coronatus	copepod	11	7	23.7	3.9	0.21	54.45

Table A2, page 2 of 3.

Plankton-net catch statistics for Myakkahatchee Creek

(May 2003 through June 2004, n=56)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
ostracods, podocopid	ostracods, seed shrimps	200	34	23.4	0.9	9.23	3107.01
collembolas, podurid	springtails	6	2	23.3	11.9	0.14	81.59
ephemeropteran larvae	mayflies	1793	22	23.9	0.2	37.44	4694.76
odonates, anisopteran larvae	dragonflies	34	12	24.4	0.1	1.51	526.33
odonates, zygopteran larvae	damselflies	48	16	23.5	0.1	1.93	423.68
hemipterans, belostomatid adults	giant water bugs	2	2	23.3	0.2	0.03	13.04
hemipterans, corixid juveniles	water boatmen	5	2	22.3	0.1	0.47	306.74
hemipterans, corixid adults	water boatmen	8	7	24.4	0.6	0.15	25.11
hemipterans, gerrid adults	water striders	4	4	24.5	0.2	0.07	12.99
hemipterans, naucorid adults	creeping water bugs	3	2	23.6	0.2	0.05	24.40
hemipterans, nepid adults	water scorpions	1	1	22.2	0.2	0.02	10.82
hemipterans, pleid adults	pygmy backswimmers	1	1	25.1	0.2	0.02	11.32
coleopterans, curculionid adults	beetles	2	2	22.8	0.2	0.03	12.20
coleopterans, noterid adults	burrowing water beetles	36	12	23.2	1.7	1.03	306.74
coleopterans, elmidae larvae	riffle beetles	33	8	24.3	0.2	0.60	135.82
coleopterans, elmidae adults	riffle beetles	30	13	24.2	0.2	0.56	66.58
coleopterans, gyrinid larvae	whirligig beetles	2	1	24.3	0.2	0.03	22.76
coleopterans, halipid adults	crawling water beetles	3	1	22.2	0.2	0.05	36.95
coleopterans, dytiscid adults	predaceous diving beetles	5	2	25.1	0.2	0.09	50.25
coleopterans, scirtid larvae	marsh beetles	1	1	25.1	0.5	0.02	13.71
dipterans, pupae	flies, mosquitoes	802	43	23.8	0.8	21.94	3813.14
dipterans, ceratopogonid larvae	biting midges	16	8	24.1	7.5	0.34	131.15
dipteran, Chaoborus punctipennis larvae	phantom midge	2945	29	24.0	0.2	87.15	9603.47
dipterans, chironomid larvae	midges	639	41	24.2	1.7	17.68	3866.93
dipterans, stratiomyid larvae	soldier flies	4	2	24.5	10.7	0.08	42.11
dipterans, sciomyzid larvae	marsh flies	2	2	25.1	0.4	0.04	13.71
dipterans, tipulid larvae	crane flies	5	1	23.3	13.8	0.12	81.59
trichopteran larvae	caddisflies	210	15	24.3	0.2	4.10	545.94
lepidopterans, pyralid larvae	aquatic caterpillars	3	2	23.9	0.3	0.06	26.32
acarid	water mites	70	16	24.0	0.2	2.08	423.68
gastropods, prosobranch	snails	1575	48	23.0	3.2	45.18	6735.72
gastropods, opisthobranch	sea slugs	33	4	22.5	6.7	0.63	341.38
pelecypods	clams, mussels, oysters	725	27	23.5	2.1	17.75	2942.75
chaetognaths, sagittid	arrow worms	15	6	23.3	5.1	0.30	81.67
Lepisosteus sp. juveniles	gar	34	2	24.8	1.3	0.60	249.46
Elops saurus postflexion larvae	ladyfish	1	1	24.3	4.7	0.02	13.15
Elops saurus juveniles	ladyfish	1	1	25.1	0.6	0.02	13.95
Brevoortia spp. postflexion larvae	menhaden	14	6	23.3	2.6	0.28	69.27
Brevoortia spp. metamorphs	menhaden	16	7	24.3	2.6	0.32	55.78
Brevoortia smithi juveniles	yellowfin menhaden	2	2	23.6	3.1	0.04	13.45
Dorosoma petenense juveniles	threadfin shad	1	1	25.1	0.2	0.02	11.32
Anchoa spp. preflexion larvae	anchovies	28	7	23.7	11.7	0.57	224.60
Anchoa spp. flexion larvae	anchovies	212	16	24.0	9.0	4.58	1032.79
Anchoa mitchilli eggs	bay anchovy	116	2	23.4	1.5	2.36	1478.61
Anchoa mitchilli postflexion larvae	bay anchovy	228	16	24.3	5.7	4.79	976.65
Anchoa mitchilli juveniles	bay anchovy	10519	46	24.0	5.3	205.93	20588.54
Anchoa mitchilli adults	bay anchovy	26	14	23.9	2.1	0.49	86.73
Ameiurus catus juveniles	white catfish	2	1	24.3	0.2	0.03	22.76
Liposarcus spp. juveniles	suckermouth catfish	4	3	24.3	0.2	0.07	22.76
Hoplosternum littorale flexion larvae	brown hoplo catfish	1	1	23.3	0.2	0.02	12.20
Hoplosternum littorale juveniles	brown hoplo catfish	1	1	23.3	0.2	0.02	12.20
Gobiosoma strumosus preflexion larvae	skilletfish	10	3	22.4	5.3	0.20	78.78
Gobiosoma strumosus flexion larvae	skilletfish	34	5	22.5	6.7	0.65	328.25
Gobiosoma strumosus postflexion larvae	skilletfish	7	3	23.1	9.2	0.14	54.21
Jordanella floridae juveniles	flagfish	3	2	24.8	0.2	0.05	25.13
Fundulus spp. juveniles	killifishes	2	1	24.3	0.2	0.03	22.76
Fundulus grandis juveniles	gulf killifish	1	1	25.1	0.2	0.02	11.32
Lucania goodei postflexion larvae	bluefin killifish	1	1	24.3	0.1	0.10	65.79
Lucania goodei juveniles	bluefin killifish	6	5	23.9	0.1	0.34	131.58
Lucania goodei adults	bluefin killifish	2	2	24.2	0.2	0.03	12.20
Lucania parva juveniles	rainwater killifish	1	1	25.1	0.5	0.02	11.88

Table A2, page 3 of 3.

Plankton-net catch statistics for Myakkahatchee Creek

(May 2003 through June 2004, n=56)

Taxon	Common Name	Number Collected	Collection Frequency	Kmu (km)	Su (psu)	Mean CPUE (No./10 ³ m ³)	Max CPUE (No./10 ³ m ³)
Lucania parva adults	rainwater killifish	2	2	23.5	0.5	0.12	70.61
Gambusia holbrooki juveniles	eastern mosquitofish	14	10	24.0	0.2	0.33	65.79
Gambusia holbrooki adults	eastern mosquitofish	5	5	23.8	0.9	0.09	13.85
Heterandria formosa juveniles	least killifish	2	1	24.3	13.7	0.04	28.07
Heterandria formosa adults	least killifish	7	5	24.1	0.2	0.12	24.40
Menidia spp. preflexion larvae	silversides	10	7	23.5	2.9	0.19	35.64
Menidia spp. juveniles	silversides	5	5	23.5	5.0	0.09	13.55
Membras martinica juveniles	rough silverside	1	1	22.2	4.9	0.02	13.17
Labidesthes sicculus juveniles	brook silverside	4	3	23.7	8.5	0.09	32.64
fish eggs, percomorph	sciaenid eggs (primarily)	6	3	24.5	9.8	0.12	58.78
Syngnathus louisianae juveniles	chain pipefish	9	2	24.4	11.0	0.21	131.15
Syngnathus scovelli juveniles	gulf pipefish	1	1	24.3	1.4	0.02	13.61
Elassoma evergladei juveniles	Everglades pygmy sunfish	1	1	22.2	0.2	0.02	12.32
Elassoma evergladei adults	Everglades pygmy sunfish	2	1	24.3	0.1	0.19	131.58
Lepomis macrochirus juveniles	bluegill	3	3	24.0	0.2	0.05	12.99
Bairdiella chrysoura flexion larvae	silver perch	1	1	22.2	7.0	0.02	13.13
Cynoscion arenarius preflexion larvae	sand seatrout	11	1	22.2	14.7	0.23	159.24
Menticirrhus spp. postflexion larvae	kingfishes	1	1	23.3	5.1	0.02	12.68
gobiid preflexion larvae	gobies	357	32	23.6	8.6	7.36	898.38
gobiid flexion larvae	gobies	168	19	23.9	10.2	3.61	522.16
Bathygobius soporator flexion larvae	frillfin goby	2	1	22.2	13.3	0.04	28.63
Gobiosoma spp. postflexion larvae	gobies	1554	16	23.9	12.9	35.36	7147.55
Gobiosoma bosc juveniles	naked goby	3	1	22.2	0.2	0.06	40.57
Gobiosoma robustum juveniles	code goby	4	3	24.3	7.7	0.09	35.81
Microgobius spp. flexion larvae	gobies	70	21	23.2	7.9	1.43	217.14
Microgobius spp. postflexion larvae	gobies	66	9	23.3	13.0	1.52	685.34
Microgobius gulosus juveniles	clown goby	4	4	23.2	7.9	0.08	13.33
Microgobius thalassinus adults	green goby	1	1	23.3	0.2	0.02	13.57
Trinectes maculatus preflexion larvae	hogchoker	1	1	22.2	7.0	0.02	13.13
Trinectes maculatus flexion larvae	hogchoker	4	3	22.2	10.6	0.08	28.95
Trinectes maculatus postflexion larvae	hogchoker	7	4	23.0	6.6	0.14	28.95
Trinectes maculatus juveniles	hogchoker	73	21	24.2	2.5	1.38	262.94
unidentified postflexion larvae	fish	3	1	23.3	2.4	0.06	39.98
anuran larvae	tadpoles	1	1	24.3	0.2	0.02	12.40

Table A3. Page 1 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
foraminiferans	foraminiferans			2							
Liriope tetraphylla	hydromedusa					13					
Clytia sp.	hydromedusa				3	71	57	28	7	1	6
medusa sp. a	hydromedusa									1	
medusa sp. b	hydromedusa				9	2	31				
medusa sp. d	hydromedusa						26	2			
Mnemiopsis mccradyi	comb jelly, ctenophore	2	41	31	1364	4718	15406	2454		41	
Beroe ovata	sea walnut, ctenophore		8	6							
turbellarians	flatworms	1	8	1							
nemerteans	ribbon worms						1				
nematodes	roundworms, threadworms										2
polychaetes	sand worms, tube worms	18	234	115	54	540	412	209	251	1172	505
oligochaetes	freshwater worms	1	16	1		4	3	13	43	11	1
hirudinoideans	leeches	1	4	1	8	12	12	7	1	3	2
cladocerans, unidentified	water fleas		2			40					
cladocerans, Daphnia spp.	water fleas	2	1		4	187		3	2		
Simoecephalus vetulus	water flea	39	60	23	207	8950	421	628	724	116	240
Ceriodaphnia sp.	water flea	1							4		
Bunops sp.	water flea								20	8	5
Grimaldina brazzai	water flea							3	84	9	4
Ilyocryptus sp.	water flea				3	3	26	717	755	19	14
Sida crystallina	water flea	1	97	33	229	368	33	42	14	3	1
Latona setifera	water flea	1		6	41	12	4			1	
Penilia avirostris	water flea			75	1	4	38	3			
Pseudosida bidentata	water flea								4		
Latonopsis fasciculata	water flea				7			478	689	56	36
Euryalona occidentalis	water flea		1						2	1	2
Leydigia sp.	water flea				5			13	1	3	6
Moinadaphnia macleayii	water flea							3			
Evadne tergestina	water flea	19	102	73		3307	39	4			14
decapod zoeae	crab larvae	10446	36185	20165	34213	138916	72113	34963	5607	1662	7698
decapod mysis	shrimp larvae	190	276	403	628	3980	762	88	57	77	91
decapod megalopae	post-zoea crab larvae		52	151	5152	3001	7843	6734	161	18	217
shrimps, unidentified postlarvae	shrimps					696					
penaeid postlarvae	penaeid shrimps						93			2	
penaeid metamorphs	penaeid shrimps									3	1
Farfantepenaeus duorarum juveniles	pink shrimp							33	1	4	1
Farfantepenaeus duorarum adults	pink shrimp										1
Lucifer faxoni juveniles and adults	shrimp	4		2	2	1				1	1
Leptochela serratorbita postlarvae	combcrawl shrimp										
Palaemonetes spp. postlarvae	grass shrimp	2	12	13	197	247	61	17	9	7	2
Palaemonetes paludosus juveniles	grass shrimp								1		

Table A3. Page 2 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
Palaemonetes pugio juveniles	daggerblade grass shrimp		1			9	21	36	8	20	10
Palaemonetes pugio adults	daggerblade grass shrimp					1	3	9	1		
Palaemonetes vulgaris juveniles	grass shrimp										
Periclimenes spp. postlarvae	shrimps										
alpheid postlarvae	snapping shrimps			104	391	333	171		1	1	
alpheid juveniles	snapping shrimps								2		
Leptalpheus forceps juveniles	snapping shrimp							1	1		
Hippolyte zostericola postlarvae	zostera shrimp	1		26	135	18	58	10			
Hippolyte zostericola juveniles	zostera shrimp							4			
Ogyrides alphaerostis juveniles and adults	estuarine longeye shrimp				8	5	21				
Ambidexter symmetricus postlarvae	shrimp				186	16	71				
Ambidexter symmetricus juveniles	shrimp			3	1		1				1
Ambidexter symmetricus adults	shrimp						3				
astacidean juveniles	crayfish									1	
callianassid postlarvae	ghost shrimps				1						
Callianassa spp. juveniles	ghost shrimps				8						
Upogebia spp. postlarvae	mud shrimps				5	1	3				
Euceramus praelongus megalops larvae	olivepit porcelain crab					24					
Petrolisthes armatus juveniles	porcelain crab						2				
Callinectes sapidus juveniles	blue crab	1	6		7		1				18
portunid juveniles	swimming crabs									2	
Rhithropanopeus harrisi juveniles	Harris mud crab						9				
unidentified Americamysis juveniles	opossum shrimps, mysids	72	257	577	8928	3055	393	6015	2541	885	3355
Americamysis almyra	opossum shrimp, mysid	1177	1538	2409	15191	7787	4785	13056	3231	1692	8847
Americamysis bahia	opossum shrimp, mysid			4	149	74		72	899		734
Americamysis stucki	opossum shrimp, mysid		5	3	1362	232	8	5			23
Bowmaniella dissimilis	opossum shrimp, mysid	757	381	68	842	930	1189	389	2		1135
Spelaeomysis sp.	opossum shrimp, mysid						3	6			
Taphromysis bowmani	opossum shrimp, mysid	104	1104	448	3301	1170	6949	5793	80	54	734
cumaceans	cumaceans	15039	25169	10132	20025	25049	20251	79	64	12	872
Sinelobus stanfordi	tanaid						3	1	3	2	5
Apseudes sp.	tanaid					7					
Hargeria rapax	tanaid				8				1		
isopod sp. a	isopod					1					
Cyathura polita	isopod		2	33	9	26	166	43	67	1	4
Xenanthura brevitelson	isopod									9	
Munna reynoldsi	isopod	2		24	4495	1516	20	8	1	7	24
Probopyrus sp. (attached)	isopod						1	1	1		
Anopsilana jonesi	isopod										
cymothoid sp. a (Lironeca) juveniles	isopod	32	7	73	199	157	95	83	13	6	39
Cassidinidea ovalis	isopod	1				1	4	1			1
Harrieta faxonii	isopod									1	

Table A3. Page 3 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
Sphaeroma quadridentata	isopod	17	2	13	7	450	1242	60	42	10	7
Sphaeroma terebrans	isopod		2	9	1	36	197	16	11	15	20
Sphaeroma walkeri	isopod					5					1
Edotea triloba	isopod	36	789	1337	3629	1778	2525	106	107	20	48
Erichsonella attenuata	isopod				27	4	19	3			
Erichsonella filiforme	isopod					2					
amphipods, gammaridean	amphipods	371	3138	7375	22422	7943	31290	8876	3084	1930	5538
amphipods, caprellid	skeleton shrimps		7	25	164	485	33	15			1
cirriped nauplius stage	barnacles	34	7768	12451	20	3401	6411	3			35
branchiurans, Argulus spp.	fish lice	2	3	26	22	47	9	15	8	13	13
unidentified harpacticoids	copepods		9	3	1		7		9		
Alteutha sp.	copepod										1
Oncaea spp.	copepods	1									
siphonostomatids	parasitic copepods					7					
unidentified freshwater cyclopoids	copepods		1	3		6	4	7	20		1
Cyclops spp.	copepods	1			46			1			
Macrocyclus albidus	copepods	9	273	1	16		20	51	51	68	25
Mesocyclops edax	copepod	142	37	337	327	257	158	266	419	228	199
Oithona spp.	copepods	21	55	6453	1	25				2	131
Orthocyclops modestus	copepod	9	38	2	131	22	11	27	23	10	3
Saphirella spp.	copepods							9			
paracalanids	copepods					5					
Acartia tonsa	copepod	1362	13704	13506	3934	23360	11027	55	553	38	1988
Calanopia americana	copepod										
Centropages hamatus	copepod			2		9					
Centropages velificatus	copepod					5		1			
Diaptomus spp.	copepods	20				1055	1	9	5	4	2
Eurytemora affinis	copepod										
Labidocera aestiva	copepod	2	28	832	3727	5836	59	1	6	7	38
Osphranticum labronectum	copepod	1	3	2	1	3		21	5	1	
Pseudodiaptomus coronatus	copepod	41	353	100	42	502	179	20			16
Temora turbinata	copepod			14		1	12				19
Euconchoecia chierchiaie	ostracod, seed shrimp					3	3				
Sarsiella zostericola	ostracod, seed shrimp			3	2	2	4				
Parasterope pollex	ostracod, seed shrimp	4	53	5	220	502	1173	304			2
ostracods, podocopid	ostracods, seed shrimps	3	14	3	83	31	124	39	82	22	21
collembolas, podurid	springtails	2					12		8		
ephemeropteran larvae	mayflies	153	40	78	756	168	198	776	937	2590	1455
odonates, anisopteran larvae	dragonflies				5	3	20	15	26	6	5
odonates, zygopteran larvae	damselflies	2	2	1	13	8	27	11	10	21	24
hemipterans, belostomatid adults	giant water bugs						3		3		
hemipterans, corixid juveniles	water boatmen				3		2	6	1		2

Table A3. Page 4 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
hemipterans, corixid adults	water boatmen	1		2		6	4	24	23	5	4
hemipterans, gerrid adults	water striders				2	7	4	6			
hemipterans, naucorid adults	creeping water bugs						4		1		
hemipterans, nepid adults	water scorpions				1	1		1			
hemipterans, notonectid adults	backswimmers							1	1		
hemipterans, pleid adults	pygmy backswimmers							1	6	3	2
megalopterans, corydalid larvae	dobsonflies									1	
neuropterans, Climacia spp. larvae	spongillafies		2	3	8	9		20	13	8	3
coleopterans, chrysomelid larvae	beetles										
coleopterans, curculionid adults	beetles	2					1	1		1	
coleopterans, dytiscid larvae	predaceous diving beetles						7	7	22		
coleopterans, noterid adults	burrowing water beetles						12	30	10	9	2
coleopterans, dryopid larvae	long-toed water beetles			1							
coleopterans, elmidae larvae	riffle beetles		4	18		16	7	4	3	3	6
coleopterans, elmidae adults	riffle beetles	1		1	1	3	14	7		7	3
coleopterans, lutrochid larvae	beetles									4	1
coleopterans, gyrrinid larvae	whirligig beetles		3	5	15	6	1	5	23	20	7
coleopterans, gyrrinid adults	whirligig beetles		1	1	1		17		2		1
coleopterans, halipid larvae	crawling water beetles							21	3		
coleopterans, noterid larvae	burrowing water beetles	2			3			35	3		
coleopterans, dytiscid adults	predaceous diving beetles					2	12	3	2		
coleopterans, scirtid larvae	marsh beetles		1	16							1
coleopterans, scirtid adults	marsh beetles					1					
dipterans, pupae	flies, mosquitoes	28	45	38	82	335	296	358	463	431	240
dipterans, ceratopogonid larvae	biting midges		3	6		16	18	6	12	4	6
dipterans, Chaoborus punctipennis larvae	phantom midge	30	15	13	93	50	891	270	660	241	170
dipterans, chironomid larvae	midges	91	189	88	46	152	156	282	328	175	80
dipterans, ephydrid larvae	shore flies						1				
dipterans, stratiomyid larvae	soldier flies	1				1	8				
dipterans, sciomyzid larvae	marsh flies	1							1	1	
dipterans, syrphid larvae	hoverflies						1				
dipterans, tabanid larvae	deer flies						1				
trichopteran larvae	caddisflies	7	4	4	24	63	39	115	25	139	197
lepidopterans, pyralid larvae	aquatic caterpillars					1	1				
Limulus polyphemus larvae	horseshoe crab						3				
acarid	water mites	14	11	22	45	44	30	28	58	29	37
gastropods, prosobranch	snails	17	777	15	4208	496	223	838	665	67	184
gastropods, opisthobranch	sea slugs		2		46	15	3				
pelecypods	clams, mussels, oysters	15	392	7	3197	67	4	72	21	22	32
Lolliguncula brevis juveniles	bay squid				1	6					
brachiopod, Glottidia pyramidata larvae	lamp shell				12	1792					
chaetognaths, sagittid	arrow worms	70	1223	863	3254	6471	2307	17		4	163

Table A3. Page 5 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
ascidiacean larvae	tunicate larvae										
appendicularian, Oikopleura dioica	larvacean	952	11284	19681	45	18990	6430				1319
Branchiostoma floridae	lancelet						1				
Lepisosteus sp. postflexion larvae	gar					1					
Lepisosteus sp. juveniles	gar					3					
Elops saurus postflexion larvae	ladyfish			1							
Elops saurus juveniles	ladyfish		3								
Myrophis punctatus juveniles	speckled worm eel				1		1	1	1	1	1
clupeid preflexion larvae	herrings						3				
Brevoortia spp. postflexion larvae	menhaden		2	56							
Brevoortia spp. metamorphs	menhaden		2	17	26						
Dorosoma spp. preflexion larvae	shads	1	2								
Anchoa spp. preflexion larvae	anchovies		78	727	213	2404	1735	14	2	3	43
Anchoa spp. flexion larvae	anchovies			176	97	849	229	110	18	4	8
Anchoa hepsetus eggs	striped anchovy			1	9						
Anchoa hepsetus postflexion larvae	striped anchovy			1	1						
Anchoa hepsetus juveniles	striped anchovy					1					
Anchoa mitchilli eggs	bay anchovy	33	11110	7745	9453	4890			1		1
Anchoa mitchilli postflexion larvae	bay anchovy			34	74	293	142	189	13	26	23
Anchoa mitchilli juveniles	bay anchovy	733	239	77	553	515	1442	533	243	143	412
Anchoa mitchilli adults	bay anchovy	2	6	5	51	4	24	60	33	19	159
Notropis spp. preflexion larvae	minnows			2		1					
Notropis spp. juveniles	minnows		1		1						
Notropis petersoni adults	coastal shiner									1	
Erimyzon sucetta juveniles	lake chubsucker						1				2
Ameiurus catus juveniles	white catfish				1		1	2	2	2	
Ameiurus natalis juveniles	yellow bullhead								4	2	
Noturus gyrinus juveniles	tadpole madtom							2	11	4	
Ictalurus punctatus juveniles	channel catfish				3					3	1
Arius felis juveniles	hardhead catfish							1			
Bagre marinus juveniles	gafftopsail sea catfish								1		
Liposarcus spp. juveniles	suckermouth catfish							2	4		
Hoplosternum littorale preflexion larvae	brown hoplo catfish						1		2		
Hoplosternum littorale flexion larvae	brown hoplo catfish						1	1	16		
Hoplosternum littorale postflexion larvae	brown hoplo catfish							3	6		
Hoplosternum littorale juveniles	brown hoplo catfish							100	38		
Gobiesox strumosus preflexion larvae	skilletfish	3	7	8	14		8				
Gobiesox strumosus flexion larvae	skilletfish				10	2	4				
Gobiesox strumosus postflexion larvae	skilletfish				3	8					
Gobiesox strumosus juveniles	skilletfish				7	5					
Hyporhamphus unifasciatus preflexion larvae	silverstripe halfbeak	1				1					
Hyporhamphus unifasciatus flexion larvae	silverstripe halfbeak	1			1						

Table A3. Page 6 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
Strongylura spp. postflexion larvae	needlefishes					5					
Strongylura spp. adults	needlefishes							1			
Strongylura marina juveniles	Atlantic needlefish					3					
Strongylura notata adults	redfin needlefish							1			
Cyprinodon variegatus postflexion larvae	sheepshead minnow						1			1	
Cyprinodon variegatus juveniles	sheepshead minnow									1	
Jordanella floridae adults	flagfish						2				
Fundulus spp. postflexion larvae	killifishes						1				
Fundulus spp. juveniles	killifishes						3				
Fundulus seminolis postflexion larvae	Seminole killifish								2		
Fundulus grandis juveniles	gulf killifish							3			
Lucania goodei juveniles	bluefin killifish				1		5				
Lucania goodei adults	bluefin killifish							2		3	
Lucania parva postflexion larvae	rainwater killifish					1					
Lucania parva juveniles	rainwater killifish				3		6				1
Lucania parva adults	rainwater killifish						1				1
Gambusia holbrooki juveniles	eastern mosquitofish				1	2	2	16	40	73	21
Gambusia holbrooki adults	eastern mosquitofish							6	8	14	3
Heterandria formosa juveniles	least killifish						11	2	1	1	1
Heterandria formosa adults	least killifish				2		4	24	9	11	4
Poecilia latipinna juveniles	sailfin molly							1			
Menidia spp. preflexion larvae	silversides	29	12	5	7	46	3	1	2	3	3
Menidia spp. flexion larvae	silversides				2		2	1			
Menidia spp. juveniles	silversides					9	6	2	4	2	3
Menidia beryllina juveniles	inland silverside					4					
Membras martinica preflexion larvae	rough silverside			6		7		1		2	3
Membras martinica flexion larvae	rough silverside				2						2
Membras martinica postflexion larvae	rough silverside						1	1			1
Membras martinica juveniles	rough silverside			1		19	7		2		
Membras martinica adults	rough silverside		1								
Labidesthes sicculus preflexion larvae	brook silverside								6	1	
Labidesthes sicculus juveniles	brook silverside		1	1	4		4			1	2
Labidesthes sicculus adults	brook silverside										
fish eggs, percomorph	sciaenid eggs (primarily)	65	4	704	11864	24164	14085	1			1
Hippocampus erectus juveniles	lined seahorse		3		3	5					
Syngnathus louisianae juveniles	chain pipefish			1		5	2	3			
Syngnathus scovelli juveniles	gulf pipefish	1	3			1	2	1			
Prionotus tribulus postflexion larvae	bighead searobin										1
Prionotus tribulus juveniles	bighead searobin										
Elassoma evergladei juveniles	Everglades pygmy sunfish								3	1	
Elassoma evergladei adults	Everglades pygmy sunfish						3				
Elassoma okefenokee juveniles	Okefenokee pygmy sunfish								1		

Table A3. Page 7 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
Enneacanthus gloriosus juveniles	bluespotted sunfish						5				1
Lepomis spp. preflexion larvae	sunfishes	10				2					
Lepomis spp. flexion larvae	sunfishes				3						
Lepomis spp. postflexion larvae	sunfishes								1		
Lepomis spp. juveniles	sunfishes				1		3	6	3		2
Lepomis auritus flexion larvae	redbreast sunfish					3					
Lepomis macrochirus juveniles	bluegill							1			
Lepomis punctatus juveniles	spotted sunfish							1			
Micropterus salmoides flexion larvae	largemouth bass				3	10			2		
Micropterus salmoides postflexion larvae	largemouth bass				1	1					
Micropterus salmoides juveniles	largemouth bass				1	1		1			
Etheostoma fusiforme preflexion larvae	swamp darter	5			1						
Etheostoma fusiforme flexion larvae	swamp darter		1								
Chloroscombrus chrysurus postflexion larvae	Atlantic bumper									1	
Oligoplites saurus flexion larvae	leatherjack					8	5				
Oligoplites saurus postflexion larvae	leatherjack						3				
Oligoplites saurus juveniles	leatherjack					1					
Lutjanus griseus juveniles	gray snapper										3
gerreid preflexion larvae	mojaras					54	27				
gerreid flexion larvae	mojaras					16	3				
Eugerres plumieri flexion larvae	striped mojarra						2				
Eugerres plumieri postflexion larvae	striped mojarra					1					
Eucinostomus spp. postflexion larvae	mojarra										
Eucinostomus spp. juveniles	mojarra										
Eucinostomus gula juveniles	silver jenny							2			
Lagodon rhomboides juveniles	pinfish	1					1				
Bairdiella chrysoura preflexion larvae	silver perch						15				
Bairdiella chrysoura flexion larvae	silver perch				3	5	1				
Cynoscion arenarius preflexion larvae	sand seatrout			10		16	14				1
Cynoscion arenarius flexion larvae	sand seatrout					8	1			3	
Cynoscion arenarius postflexion larvae	sand seatrout									4	1
Cynoscion arenarius juveniles	sand seatrout							3	3		2
Cynoscion nebulosus preflexion larvae	spotted seatrout					1	15				
Cynoscion nebulosus flexion larvae	spotted seatrout				1	5	3				
Menticirrhus spp. preflexion larvae	kingfishes					15	18				15
Menticirrhus spp. flexion larvae	kingfishes				2	20					6
Menticirrhus spp. postflexion larvae	kingfishes									2	
Menticirrhus americanus juveniles	southern kingfish					1			1		
Sciaenops ocellatus postflexion larvae	red drum										1
Tilapia spp. juveniles	tilapia						1				
Mugil cephalus juveniles	striped mullet	3			1						
blenniid preflexion larvae	blennies	1		5	4	6			1		2

Table A3. Page 8 of 8.

Myakka River plankton net catch by month (May 2003 to December 2004).

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (48)	Feb (48)	Mar (48)	Apr (60)	May (60)	Jun (60)	Jul (60)	Aug (60)	Sep (60)	Oct (60)
Chasmodes saburrae postflexion larvae	Florida blenny				1	2					
Chasmodes saburrae juveniles	Florida blenny					1					
Hypsoblennius spp. postflexion larvae	blennies			3							
Lupinoblennius nicholsi flexion larvae	highfin blenny				1						
Lupinoblennius nicholsi postflexion larvae	highfin blenny				1						
gobiid preflexion larvae	gobies		15	36	37	215	75	23	34	3	23
gobiid flexion larvae	gobies				35	44	54	20	10	1	5
Bathygobius soporator preflexion larvae	frillfin goby		8	8	4	9	18				
Bathygobius soporator flexion larvae	frillfin goby					2	2				
Gobionellus spp. postflexion larvae	gobies					6					
Gobiosoma spp. postflexion larvae	gobies			2	2	25	55	15	2		2
Gobiosoma bosc juveniles	naked goby				1	1	86	6	1	1	
Gobiosoma bosc adults	naked goby					1	1				
Gobiosoma robustum juveniles	code goby					9	43		2	1	1
Microgobius spp. flexion larvae	gobies		2	5	43	122	38	19	11	5	27
Microgobius spp. postflexion larvae	gobies			1	5	8	6	28			4
Microgobius gulosus juveniles	clown goby					1	5	35	6		

Table A4. Page 1 of 4.

Myakkahatchee Creek plankton net catch by month (May 2003 to June 2004).

Number of monthly samples is indicated in parentheses.

Description	Common Name	Jan (4)	Feb (4)	Mar (4)	Apr (4)	May (8)	Jun (8)	Jul (4)	Aug (4)	Sep (4)	Oct (4)
Craspedacusta sowerbii	hydromedusa				88						
Liriope tetraphylla	hydromedusa			2							
Clytia sp.	hydromedusa				28	2					
medusa sp. c	hydromedusa						455				
medusa sp. a	hydromedusa					8	37				
medusa sp. d	hydromedusa						4				
Mnemiopsis mccladyi	comb jelly, ctenophore				1	6712	181				
turbellarians	flatworms				1		2				
polychaetes	sand worms, tube worms	2	14	3		27	56	38	51	17	4
oligochaetes	freshwater worms	3					9		1		
hirudinoideans	leeches	6	3	2		6	4	4			
cladocerans, Daphnia spp.	water fleas									1	
Simocephalus vetulus	water flea		2	2		2	26	28	117	18	22
Ceriodaphnia sp.	water flea						4				
Grimaldina brazzai	water flea						4				
Ilyocryptus sp.	water flea						10	203	36	29	10
Sida crystallina	water flea			5			7	23	3	1	2
Latonopsis fasciculata	water flea								1	1	
Euryalona occidentalis	water flea								1		
Leydigia sp.	water flea		1	1						1	
decapod zoeae	crab larvae	977	4676	6656	11908	39104	20748	11	2	3	5
decapod mysis	shrimp larvae	51	11	26	188	748	903	6	4		
decapod megalopae	post-zoea crab larvae		93	51	2414	1008	3214				
Palaemonetes spp. postlarvae	grass shrimp	1		2	18	82	5	1		1	
Palaemonetes pugio juveniles	daggerblade grass shrimp						3	6		2	
Palaemonetes pugio adults	daggerblade grass shrimp					2		1		2	
Ambidexter symmetricus postlarvae	shrimp						2				
Callinectes sapidus juveniles	blue crab					1					
xanthid juveniles	mud crabs					14					
Rhithropanopeus harrisii juveniles	Harris mud crab								5		
unidentified Americamysis juveniles	opossum shrimps, mysids	230	287	772	2676	524	564				158
Americamysis almyra	opossum shrimp, mysid	1298	639	4566	4091	2944	712	9	4		912
Bowmaniella dissimilis	opossum shrimp, mysid	4	37	1	174	246	190				
Taphromysis bowmani	opossum shrimp, mysid		21	1	73		2783	2	3		92
cumaceans	cumaceans	14	36	5	11	26	6061	1			3
isopod sp. a	isopod	1									
Cyathura polita	isopod		1		3	9	10	3	4	3	
Xenanthura brevitelson	isopod			1							
Munna reynoldsi	isopod		1	3	1				3	5	4
Probopyrus sp. (attached)	isopod									2	
Anopsilana jonesi	isopod				1	2					
cymothoid sp. a (Lironeca) juveniles	isopod	3	11	22	123	106	105				

Table A4. Page 2 of 4.

Myakkahatchee Creek plankton net catch by month (May 2003 to June 2004).

Number of monthly samples is indicated in parentheses.

Description	Common Name	Jan (4)	Feb (4)	Mar (4)	Apr (4)	May (8)	Jun (8)	Jul (4)	Aug (4)	Sep (4)	Oct (4)
Cassidinidea ovalis	isopod		1	1							
Sphaeroma quadridentata	isopod	16		5	11	7	5	5	3		2
Sphaeroma terebrans	isopod	3	5	3	4	2	21	9	7	2	1
Edotea triloba	isopod	93	2790	545	3465	1125	398				
amphipods, gammaridean	amphipods	293	2544	507	1266	4846	5188	124	67	18	508
cirriped nauplius stage	barnacles		3								
branchiurans, Argulus spp.	fish lice	3	1	2	3	17	6	4	1	1	2
unidentified harpacticoids	copepods					14					
Alteutha sp.	copepod									1	
siphonostomatids	parasitic copepods					1					
unidentified freshwater cyclopoids	copepods			1			2	8			
Macrocyclus albidus	copepods		1					17		36	
Mesocyclops edax	copepod	41	26	19	4	94	156	293	1678	969	7208
Orthocyclops modestus	copepod					6		6	6	1	1
Acartia tonsa	copepod		21	1	9	34	5		1		
Diaptomus spp.	copepods								1	5	
Labidocera aestiva	copepod					23					
Osphranticum labronectum	copepod							1			
Pseudodiaptomus coronatus	copepod		5		1	1					
ostracods, podocypid	ostracods, seed shrimps	4	1	3	13	33	67	10	25	6	8
collembolas, podurid	springtails						5		1		
ephemeropteran larvae	mayflies			3		6	57	729	764	181	52
odonates, anisopteran larvae	dragonflies						14	11	3		6
odonates, zygopteran larvae	damselflies						14	14	4		7
hemipterans, belostomatid adults	giant water bugs							1		1	
hemipterans, corixid juveniles	water boatmen						4				1
hemipterans, corixid adults	water boatmen			1	1			1	2		3
hemipterans, gerrid adults	water striders							3			1
hemipterans, naucorid adults	creeping water bugs							3			
hemipterans, nepid adults	water scorpions							1			
hemipterans, pleid adults	pygmy backswimmers							1			
coleopterans, curculionid adults	beetles							2			
coleopterans, noterid adults	burrowing water beetles						9	21	2	2	2
coleopterans, elmud larvae	rifle beetles							14	5	6	8
coleopterans, elmud adults	rifle beetles					1		5	5	11	8
coleopterans, gyrenid larvae	whirligig beetles							2			
coleopterans, haliplid adults	crawling water beetles								3		
coleopterans, dytiscid adults	predaceous diving beetles	1							4		
coleopterans, scirtid larvae	marsh beetles	1									
dipterans, pupae	flies, mosquitoes	3	4	44	46	49	99	171	110	70	187
dipterans, ceratopogonid larvae	biting midges			1		11			3	1	
dipteran, Chaoborus punctipennis larvae	phantom midge	8	3	2		41	448	164	475	439	1365

Table A4. Page 3 of 4.

Myakkahatchee Creek plankton net catch by month (May 2003 to June 2004).

Number of monthly samples is indicated in parentheses.

Description	Common Name	Jan (4)	Feb (4)	Mar (4)	Apr (4)	May (8)	Jun (8)	Jul (4)	Aug (4)	Sep (4)	Oct (4)
dipterans, chironomid larvae	midges	286	7	8	3	20	137	54	26	61	19
dipterans, stratiomyid larvae	soldier flies			1			3				
dipterans, sciomyzid larvae	marsh flies	1									1
dipterans, tipulid larvae	crane flies						5				
trichopteran larvae	caddisflies						4	25	89	84	8
lepidopterans, pyralid larvae	aquatic caterpillars									2	1
acar	water mites		2			5	10	23	19	8	3
gastropods, prosobranch	snails	102	93	29	527	420	203	14	127	14	34
gastropods, opisthobranch	sea slugs				32						
pelecypods	clams, mussels, oysters	8	2	8	1	178	52	1	2	311	14
chaetognaths, sagittid	arrow worms		6		1	4				3	
Lepisosteus sp. juveniles	gar					34					
Elops saurus postflexion larvae	ladyfish										
Elops saurus juveniles	ladyfish		1								
Brevoortia spp. postflexion larvae	menhaden		4	9	1						
Brevoortia spp. metamorphs	menhaden		5	2	9						
Brevoortia smithi juveniles	yellowfin menhaden					2					
Dorosoma petenense juveniles	threadfin shad							1			
Anchoa spp. preflexion larvae	anchovies			3	3	2	20				
Anchoa spp. flexion larvae	anchovies			58	30	89	34				
Anchoa mitchilli eggs	bay anchovy		116								
Anchoa mitchilli postflexion larvae	bay anchovy			129	18	65					6
Anchoa mitchilli juveniles	bay anchovy	930	1528	532	322	2537	1732	48	7	4	235
Anchoa mitchilli adults	bay anchovy	1	2		2				3		12
Ameiurus catus juveniles	white catfish							2			
Liposarcus spp. juveniles	suckermouth catfish							3	1		
Hoplosternum littorale flexion larvae	brown hoplo catfish							1			
Hoplosternum littorale juveniles	brown hoplo catfish							1			
Gobiesox strumosus preflexion larvae	skilletfish			4	6						
Gobiesox strumosus flexion larvae	skilletfish		1	2	29	2					
Gobiesox strumosus postflexion larvae	skilletfish				3	4					
Jordanella floridae juveniles	flagfish								3		
Fundulus spp. juveniles	killifishes							2			
Fundulus grandis juveniles	gulf killifish							1			
Lucania goodei postflexion larvae	bluefin killifish						1				
Lucania goodei juveniles	bluefin killifish						3	3			
Lucania goodei adults	bluefin killifish							2			
Lucania parva juveniles	rainwater killifish					1					
Lucania parva adults	rainwater killifish				1		1				
Gambusia holbrooki juveniles	eastern mosquitofish					1	1	6	2	2	2
Gambusia holbrooki adults	eastern mosquitofish			1				3		1	
Heterandria formosa juveniles	least killifish						2				

Table A4. Page 4 of 4.

Myakkahatchee Creek plankton net catch by month (May 2003 to June 2004).

Number of monthly samples is indicated in parentheses.

Description	Common Name	Jan (4)	Feb (4)	Mar (4)	Apr (4)	May (8)	Jun (8)	Jul (4)	Aug (4)	Sep (4)	Oct (4)
Heterandria formosa adults	least killifish							6	1		
Menidia spp. preflexion larvae	silversides	3	1		1	3					
Menidia spp. juveniles	silversides					2		1			
Membras martinica juveniles	rough silverside										
Labidesthes sicculus juveniles	brook silverside			2			2				
fish eggs, percomorph	sciaenid eggs (primarily)				1	1	4				
Syngnathus louisianae juveniles	chain pipefish		1			8					
Syngnathus scovelli juveniles	gulf pipefish		1								
Elassoma evergladei juveniles	Everglades pygmy sunfish								1		
Elassoma evergladei adults	Everglades pygmy sunfish						2				
Lepomis macrochirus juveniles	bluegill							1	1		1
Bairdiella chrysoura flexion larvae	silver perch				1						
Cynoscion arenarius preflexion larvae	sand seatrout						11				
Menticirrhus spp. postflexion larvae	kingfishes				1						
gobiid preflexion larvae	gobies	1	7	50	107	53	127		1		1
gobiid flexion larvae	gobies		1	8	34	42	79				
Bathygobius soporator flexion larvae	frillfin goby					2					
Gobiosoma spp. postflexion larvae	gobies			1	39	562	948				
Gobiosoma bosc juveniles	naked goby									3	
Gobiosoma robustum juveniles	code goby					3		1			
Microgobius spp. flexion larvae	gobies		1	8	11	24	20				4
Microgobius spp. postflexion larvae	gobies			1	3	8	51		1		
Microgobius gulosus juveniles	clown goby										
Microgobius thalassinus adults	green goby								1		
Trinectes maculatus preflexion larvae	hogchoker				1						
Trinectes maculatus flexion larvae	hogchoker				1	1	2				
Trinectes maculatus postflexion larvae	hogchoker			1	2	2	2				
Trinectes maculatus juveniles	hogchoker		6			3	3	4	18	9	6
unidentified postflexion larvae	fish			3							
anuran larvae	tadpoles								1		

Table A5, page 1 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

Description	Common Name	Location (km from mouth)													
		3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
foraminiferans	foraminiferans	0.24	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liriope tetraphylla	hydromedusa	0.00	2.19	0.56	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clytia sp.	hydromedusa	8.37	6.99	7.92	7.05	3.03	0.69	5.02	3.80	4.83	0.91	0.69	0.00	0.00	0.00
medusa sp. a	hydromedusa	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
medusa sp. b	hydromedusa	5.41	4.51	0.00	0.00	0.00	0.45	0.24	0.00	1.21	0.00	0.00	0.00	0.00	0.00
medusa sp. d	hydromedusa	0.00	0.00	0.00	0.38	0.00	0.00	0.00	1.81	7.81	2.33	5.05	0.00	0.00	0.00
Mnemiopsis mccradyi	comb jelly, ctenophore	324.22	166.04	18.83	562.37	68.67	5011.64	305.03	212.98	508.23	0.00	0.00	0.00	0.00	0.00
Beroe ovata	sea walnut, ctenophore	0.00	0.00	0.00	0.27	79.41	0.00	1.22	1.58	0.00	0.00	0.00	0.00	0.00	0.00
turbellarians	flatworms	0.00	0.00	0.26	0.25	0.26	2.31	0.25	0.23	0.00	0.00	0.00	0.00	0.00	0.00
nemerteans	ribbon worms	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00
nematodes	roundworms, threadworms	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
polychaetes	sand worms, tube worms	210.16	305.38	189.70	60.52	80.84	34.22	32.11	24.06	2.81	10.54	18.60	5.63	8.81	11.45
oligochaetes	freshwater worms	0.00	0.00	0.00	0.00	0.25	0.23	0.23	1.13	3.75	1.74	5.73	3.89	2.06	4.24
hirudinoideans	leeches	0.38	0.00	0.44	1.53	0.94	1.36	2.81	1.62	1.17	2.13	1.79	0.22	0.22	0.00
cladocerans, unidentified	water fleas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	8.80	0.23
cladocerans, Daphnia spp.	water fleas	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.21	0.00	0.00	1.52	13.93	0.22	27.62
Simocephalus vetulus	water flea	0.00	0.24	2.81	3.65	6.37	6.63	14.09	44.92	26.42	111.10	425.33	691.42	713.20	512.68
Ceriodaphnia sp.	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.24	0.00	0.50	0.00	0.00	0.22	0.00
Bunops sp.	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.45	1.68	0.76	0.55	0.76	0.98	2.46
Grimaldina brazzai	water flea	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.21	5.17	1.21	3.42	3.64	1.48	7.85
llyocryptus sp.	water flea	0.00	0.00	15.48	4.72	5.76	11.81	6.08	8.52	40.89	39.39	33.40	55.64	60.05	73.90
Sida crystallina	water flea	0.00	0.00	0.00	0.42	1.52	0.21	0.47	6.49	5.57	28.97	71.75	61.58	19.35	8.68
Latona setifera	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	3.56	8.37	0.68	2.49
Penilia avirostris	water flea	8.34	19.57	6.81	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pseudosida bidentata	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.55	0.00	0.00	0.00
Latonopsis fasciculata	water flea	0.00	0.00	1.21	0.23	3.73	3.16	3.66	3.44	23.42	1.63	39.10	33.88	61.67	118.53
Euryalona occidentalis	water flea	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.93
Leydigia sp.	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	1.99	0.44	2.02	1.63
Moinadaphnia macleayii	water flea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00
Evadne tergestina	water flea	33.82	40.93	26.58	1004.98	19.20	1.29	0.74	0.00	0.00	0.00	0.26	0.00	0.00	0.00
decapod zoeae	crab larvae	8036.12	12018.27	10295.31	15373.52	11632.81	4377.27	9798.54	7965.87	3450.33	4582.11	3477.26	2415.60	484.88	12.19
decapod mysis	shrimp larvae	167.68	143.11	219.03	327.66	416.74	70.58	219.72	246.78	34.43	19.21	0.22	0.46	1.97	1.43
decapod megalopae	post-zoea crab larvae	200.27	85.30	510.61	621.95	477.24	355.95	545.03	167.69	120.19	496.41	1470.23	449.96	34.22	1.64
shrimps, unidentified postlarvae	shrimps	136.41	8.43	21.41	15.81	15.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
penaeid postlarvae	penaeid shrimps	3.88	10.37	1.66	16.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
penaeid metamorphs	penaeid shrimps	1.02	0.25	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farfantepenaeus duorarum juveniles	pink shrimp	0.70	0.68	2.76	2.00	2.29	0.50	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Farfantepenaeus duorarum adults	pink shrimp	0.21	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lucifer faxoni juveniles and adults	shrimp	1.39	2.89	0.98	0.00	0.26	0.00	0.00	0.00	0.00	0.23	0.00	0.00	1.88	0.47
Leptochela serratorbita postlarvae	combclaw shrimp	0.25	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Palaemonetes spp. postlarvae	grass shrimp	17.67	17.00	33.79	27.84	27.31	14.98	19.28	37.42	13.98	7.53	1.23	0.00	0.23	0.70
Palaemonetes paludosus juveniles	grass shrimp	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Palaemonetes pugio juveniles	daggerblade grass shrimp	0.00	1.09	0.00	0.69	1.27	0.23	2.61	14.24	2.36	2.73	1.36	0.23	0.74	0.41
Palaemonetes pugio adults	daggerblade grass shrimp	0.00	0.00	0.00	0.21	0.22	0.00	1.74	1.07	0.46	0.65	1.74	0.00	0.41	0.25
Palaemonetes vulgaris juveniles	grass shrimp	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Periclimenes spp. postlarvae	shrimps	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
alphaeid postlarvae	snapping shrimps	90.02	53.31	90.31	25.72	8.20	0.69	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.23
alphaeid juveniles	snapping shrimps	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leptalpheus forceps juveniles	snapping shrimp	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A5, page 2 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

		Location (km from mouth)													
Description	Common Name	3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
Hippolyte zostericola postlarvae	zostera shrimp	27.72	19.51	22.66	3.75	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hippolyte zostericola juveniles	zostera shrimp	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ogyrides alphaerostris juveniles and adults	estuarine longeye shrimp	2.50	3.25	2.08	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambidexter symmetricus postlarvae	shrimp	44.43	13.45	9.97	2.29	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambidexter symmetricus juveniles	shrimp	0.21	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambidexter symmetricus adults	shrimp	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
astacidean juveniles	crayfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
callianassid postlarvae	ghost shrimps	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Callianassa spp. juveniles	ghost shrimps	0.00	1.60	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upogebia spp. postlarvae	mud shrimps	1.21	0.21	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eucерamus praelongus megalops larvae	olivepit porcelain crab	0.00	7.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petrolisthes armatus juveniles	porcelain crab	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Callinectes sapidus juveniles	blue crab	0.30	1.04	1.68	1.24	0.77	1.15	3.09	0.91	1.45	0.68	0.00	0.24	0.00	0.00
portunid juveniles	swimming crabs	0.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rhithropanopeus harrisii juveniles	Harris mud crab	0.00	0.00	0.33	0.00	0.00	0.00	2.70	1.90	0.00	0.25	0.00	0.00	0.00	0.00
unidentified Americamysis juveniles	opossum shrimps, mysids	243.29	303.46	661.71	515.88	852.80	501.45	621.97	1188.30	1891.08	2002.62	799.28	1661.63	12.67	0.46
Americamysis almyra	opossum shrimp, mysid	243.56	507.67	798.55	530.09	1893.45	1670.20	2381.77	3440.33	3818.59	3559.00	3059.34	1557.27	249.21	24.67
Americamysis bahia	opossum shrimp, mysid	54.15	53.81	64.45	110.09	0.26	141.11	1.26	0.21	0.00	0.00	0.00	0.00	0.00	0.00
Americamysis stucki	opossum shrimp, mysid	265.45	58.26	43.60	27.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bowmaniella dissimilis	opossum shrimp, mysid	32.62	54.52	109.03	338.32	124.54	216.09	422.50	748.81	492.66	604.61	91.94	27.62	0.68	0.00
Spelaeomysis sp.	opossum shrimp, mysid	0.00	0.00	0.00	1.10	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Taphromysis bowmani	opossum shrimp, mysid	0.00	0.00	45.91	11.19	67.41	42.24	18.18	4.70	79.69	1151.31	850.62	1080.90	1437.60	725.41
cumaceans	cumaceans	9787.20	8866.95	12902.68	16502.71	6651.05	5164.41	1023.66	75.17	8.99	3.89	4.49	3.71	16.37	1510.09
Sinelobus stanfordi	anaid	0.64	0.23	0.00	1.30	0.00	0.00	0.43	1.10	0.23	0.23	0.00	0.26	0.00	0.00
Apseudes sp.	anaid	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.21	0.00	0.00	0.00	0.00	0.00	0.00
Hargeria rapax	anaid	0.00	0.00	0.00	0.20	0.00	0.00	1.41	0.00	0.00	0.00	0.81	0.00	0.00	0.00
isopod sp. a	isopod	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyathura polita	isopod	0.00	0.27	0.44	8.00	4.31	6.96	47.50	11.53	13.81	11.31	6.15	0.20	0.00	0.00
Xenanthura brevitelson	isopod	0.45	0.23	1.16	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Munna reynoldsi	isopod	871.68	146.44	1.22	5.72	1.05	0.71	0.72	1.39	5.31	32.06	197.56	122.89	2.91	0.88
Probopyrus sp. (attached)	isopod	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.47	0.23	0.24	0.00	0.00	0.00
Anopsilana jonesi	isopod	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00
cymothoid sp. a (Lironeca) juveniles	isopod	14.29	10.04	14.61	28.72	30.14	56.16	51.04	31.30	16.42	8.61	0.69	0.44	0.00	0.00
Cassidinidea ovalis	isopod	0.76	0.00	0.21	0.00	0.00	0.00	0.00	1.41	0.24	0.00	0.27	0.00	0.00	0.00
Harrieta faxoni	isopod	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.22	0.00
Sphaeroma quadridentata	isopod	0.00	0.00	0.00	0.00	0.00	1.29	0.47	4.68	11.26	22.19	91.57	207.55	69.81	17.85
Sphaeroma terebrans	isopod	0.00	0.00	0.20	2.66	0.26	0.67	1.86	4.13	2.19	3.33	12.01	28.60	10.02	4.78
Sphaeroma walkeri	isopod	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.21	0.88	0.00	0.00	0.00
Edotea trioba	isopod	8.36	9.68	32.28	22.67	123.27	284.98	176.72	440.74	1636.35	309.41	25.57	8.34	0.23	0.23
Erichsonella attenuata	isopod	1.75	6.11	3.90	0.30	0.72	0.45	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Erichsonella filiforme	isopod	0.20	0.21	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
amphipods, gammaridean	amphipods	605.78	825.22	951.88	1104.11	846.75	589.27	2432.42	1475.79	2261.16	2586.30	6425.41	1908.85	1598.73	748.78
amphipods, caprellid	skeleton shrimps	19.71	24.08	78.87	33.39	19.06	0.91	0.00	0.50	0.00	0.23	0.00	0.00	0.00	0.00
cirriped nauplius stage	barnacles	3334.70	2757.67	1765.36	803.97	566.45	12.01	1.23	0.00	0.00	0.00	0.00	0.46	0.00	0.23
branchiurans, Argulus spp.	fish lice	4.28	4.09	9.45	6.67	4.90	2.70	2.56	1.82	0.24	2.53	2.18	2.22	1.58	2.03
unidentified harpacticoids	copepods	2.52	0.90	1.70	0.23	0.00	0.00	3.78	0.00	0.00	0.28	0.00	0.00	0.00	0.00
Alteutha sp.	copepod	0.00	0.23	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oncaea spp.	copepods	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
siphonostomatids	parasitic copepods	0.00	2.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A5, page 3 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

		Location (km from mouth)													
Description	Common Name	3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
unidentified freshwater cyclopoids	copepods	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	3.78	1.84	1.50	1.00	1.20	0.87
Cyclops spp.	copepods	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.88	0.00	0.00	0.00
Macrocyclus albidus	copepods	0.00	0.00	0.46	0.21	0.48	0.88	1.80	0.40	8.83	9.27	5.97	8.11	11.72	73.71
Mesocyclops edax	copepod	0.42	0.00	4.30	1.72	7.47	43.83	35.05	60.78	40.24	52.13	85.46	107.82	74.76	89.20
Oithona spp.	copepods	610.13	571.48	481.04	245.90	1.76	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orthocyclops modestus	copepod	0.00	0.00	0.24	0.42	0.65	0.00	0.46	0.21	2.53	16.55	12.97	6.29	15.97	9.85
Saphirella spp.	copepods	1.48	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
paracalanids	copepods	0.65	0.00	0.26	0.00	0.25	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acartia tonsa	copepod	4854.99	4398.93	4916.93	3902.30	3062.84	167.33	12.63	0.67	2.36	2.50	0.27	0.92	1.14	0.70
Calanopia americana	copepod	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	0.23
Centropages hamatus	copepod	0.00	0.00	0.62	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Centropages velificatus	copepod	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diaptomus spp.	copepods	0.00	0.68	0.72	0.44	0.23	0.21	0.23	0.70	0.93	7.72	97.62	78.52	11.16	38.84
Eurytemora affinis	copepod	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Labidocera aestiva	copepod	1102.21	696.67	503.29	307.64	84.87	14.77	0.00	8.54	0.48	1.81	0.00	0.00	2.05	1.41
Osphranticum labronectum	copepod	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	2.09	0.64	0.44	1.27	1.73	2.71
Pseudodiaptomus coronatus	copepod	58.62	172.15	179.83	323.36	32.40	17.10	5.54	2.07	0.70	0.44	0.00	0.00	0.00	0.00
Temora turbinata	copepod	7.56	4.53	1.16	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Euconchoecia chierchiae	ostracod, seed shrimp	0.00	0.94	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sarsiella zostericola	ostracod, seed shrimp	0.00	0.90	0.00	0.59	0.51	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00
Parasterope pollex	ostracod, seed shrimp	51.51	387.69	135.72	60.46	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00
ostracods, podocopid	ostracods, seed shrimps	3.13	0.50	1.05	5.59	2.12	4.82	1.38	8.48	4.44	25.55	33.04	9.01	11.42	10.40
collembolas, podurid	springtails	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.44	0.72	1.09	1.79	0.27	1.22
ephemeropteran larvae	mayflies	0.63	0.00	2.11	5.10	7.84	6.35	19.68	20.76	63.26	90.16	146.60	230.17	304.41	814.53
odonates, anisopteran larvae	dragonflies	0.19	0.00	1.46	1.07	0.86	0.00	1.17	0.65	0.47	0.26	1.53	2.00	5.10	4.53
odonates, zygopteran larvae	damselflies	0.19	0.00	0.41	1.48	1.09	0.50	0.21	0.44	2.32	3.35	1.54	5.67	7.91	6.86
hemipterans, belostomatid adults	giant water bugs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.26	0.00	1.22
hemipterans, corixid juveniles	water boatmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.69	1.75	0.53	0.23	0.00
hemipterans, corixid adults	water boatmen	0.19	0.00	0.20	0.00	0.00	0.23	0.23	1.25	2.60	1.47	1.20	4.35	4.06	1.50
hemipterans, gerrid adults	water striders	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.04	0.00	0.00	0.76	1.29	0.89	0.00
hemipterans, naucorid adults	creeping water bugs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.19	0.00	0.41
hemipterans, nepid adults	water scorpions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.21	0.00	0.00	0.23	0.00
hemipterans, notonectid adults	backswimmers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00
hemipterans, pleid adults	pygmy backswimmers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.48	0.26	0.48	1.59	0.00	0.00
megalopterans, corydalid larvae	dobsonflies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00
neuropterans, Climacia spp. larvae	spongillafflies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.47	2.88	7.48	3.55
coleopterans, chrysomelid larvae	beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
coleopterans, curculionid adults	beetles	0.24	0.00	0.00	0.47	0.22	0.43	0.00	0.20	0.00	0.00	0.22	0.21	0.00	0.00
coleopterans, dytiscid larvae	predaceous diving beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	2.99	2.65	2.40
coleopterans, noterid adults	burrowing water beetles	0.00	0.00	0.20	0.00	0.00	0.00	0.21	0.44	2.61	1.07	1.53	4.46	1.03	2.99
coleopterans, dryopid larvae	long-toed water beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	2.47
coleopterans, elmid larvae	rifle beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.47	0.00	5.43	12.05
coleopterans, elmid adults	rifle beetles	0.00	0.48	1.23	0.21	0.65	0.00	0.22	0.47	0.23	0.00	0.25	1.78	1.11	1.91
coleopterans, lutrochid larvae	beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.47	0.48
coleopterans, gyrinid larvae	whirligig beetles	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.24	0.46	1.09	0.25	2.07	6.19	8.88
coleopterans, gyrinid adults	whirligig beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	27.85	5.21	0.32
coleopterans, halipid larvae	crawling water beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.50	0.00	0.00	2.16	2.08
coleopterans, noterid larvae	burrowing water beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	4.41	3.78
coleopterans, dytiscid adults	predaceous diving beetles	0.23	0.00	0.23	0.20	0.00	0.00	0.00	0.00	0.00	1.41	0.22	1.59	0.27	1.06

Table A5, page 4 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

Description	Common Name	Location (km from mouth)													
		3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
coleopterans, scirtid larvae	marsh beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	7.12
coleopterans, scirtid adults	marsh beetles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
dipterans, pupae	flies, mosquitoes	0.41	2.85	19.21	3.78	31.69	23.87	17.04	39.38	22.34	15.29	65.91	68.87	118.47	140.33
dipterans, ceratopogonid larvae	biting midges	0.00	0.00	0.20	1.68	1.01	0.65	0.94	0.44	0.70	1.00	1.79	2.08	1.56	4.48
dipteran, Chaoborus punctipennis larvae	phantom midge	9.23	11.71	28.98	50.09	49.87	57.07	64.87	65.69	45.17	32.36	45.65	62.24	44.01	54.00
dipterans, chironomid larvae	midges	0.86	0.44	1.50	2.85	1.35	5.64	5.79	24.17	7.72	28.07	81.87	57.96	101.71	131.34
dipterans, ephydrid larvae	shore flies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
dipterans, stratiomyid larvae	soldier flies	0.00	0.00	0.20	0.84	0.22	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.76	0.00
dipterans, sciomyzid larvae	marsh flies	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.26	0.91	4.74
dipterans, syrphid larvae	hoverflies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
dipterans, tabanid larvae	deer flies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00
trichopteran larvae	caddisflies	0.00	0.00	0.00	0.21	0.43	1.34	0.45	1.12	6.42	6.37	13.43	17.26	51.44	47.29
lepidopterans, pyralid larvae	aquatic caterpillars	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	1.80
Limulus polyphemus larvae	horseshoe crab	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
acar	water mites	0.19	0.00	0.82	1.06	0.87	2.47	1.31	1.71	3.47	2.93	7.86	9.65	18.52	23.01
gastropods, prosobranch	snails	58.88	13.78	23.13	8.62	19.48	47.58	86.10	263.23	806.53	379.80	79.35	12.31	7.29	7.83
gastropods, opisthobranch	sea slugs	0.82	2.76	1.89	3.35	1.20	0.50	0.22	0.47	8.73	0.00	0.00	0.00	0.00	0.00
pelecypods	clams, mussels, oysters	2.57	2.51	1.97	48.75	5.35	15.22	373.39	46.47	1.88	20.70	260.42	351.16	96.46	18.07
Lolliguncula brevis juveniles	bay squid	0.48	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
brachiopod, Glottidia pyramidata larvae	lamp shell	327.45	203.02	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
chaetognaths, sagittid	arrow worms	1851.27	722.89	1003.79	631.45	44.40	1.36	3.90	1.63	0.00	1.61	0.81	0.46	2.56	0.47
ascidiacean larvae	tunicate larvae	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
appendicularian, Oikopleura dioica	larvacean	5106.81	6249.11	2664.61	2803.27	730.78	362.54	366.49	0.00	0.00	0.00	0.00	0.23	0.00	0.23
Branchiostoma floridae	lancelet	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lepisosteus sp. postflexion larvae	gar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00
Lepisosteus sp. juveniles	gar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21	0.22	0.00	0.00	0.00
Elops saurus postflexion larvae	ladyfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.94	0.00	0.78	2.58
Elops saurus juveniles	ladyfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.45	0.00
Myrophis punctatus juveniles	speckled worm eel	0.00	0.24	0.23	0.55	0.26	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
clupeid preflexion larvae	herrings	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brevoortia spp. postflexion larvae	menhaden	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.53	12.71	0.24	0.49	0.00	0.00	0.00
Brevoortia spp. metamorphs	menhaden	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.81	3.98	0.00	0.00	0.00	0.00	0.00
Dorosoma spp. preflexion larvae	shads	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.47
Anchoa spp. preflexion larvae	anchovies	738.44	123.78	284.54	187.77	81.51	32.16	4.39	4.30	1.23	0.45	0.27	0.00	0.00	0.00
Anchoa spp. flexion larvae	anchovies	80.82	156.75	80.97	40.77	26.43	2.02	0.73	12.23	4.68	2.11	4.42	0.98	0.46	0.41
Anchoa hepsetus eggs	striped anchovy	2.01	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchoa hepsetus postflexion larvae	striped anchovy	0.22	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchoa hepsetus juveniles	striped anchovy	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchoa mitchilli eggs	bay anchovy	1794.47	1968.16	2558.21	1400.10	1188.71	86.21	0.45	3.42	0.00	1.61	7.91	1.66	0.00	0.00
Anchoa mitchilli postflexion larvae	bay anchovy	35.62	19.63	54.90	40.76	21.02	9.38	6.19	4.26	7.31	9.02	10.11	4.86	0.69	0.66
Anchoa mitchilli juveniles	bay anchovy	15.47	12.12	60.99	48.86	66.60	101.96	237.62	232.71	273.78	440.73	361.03	132.08	10.13	77.09
Anchoa mitchilli adults	bay anchovy	6.55	9.55	8.26	40.30	18.69	38.63	8.20	2.75	4.49	1.82	4.03	0.42	2.81	0.47
Notropis spp. preflexion larvae	minnows	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.23	0.00
Notropis spp. juveniles	minnows	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23
Notropis petersoni adults	coastal shiner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00
Erismyzon sucetta juveniles	lake chubsucker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.23
Ameiurus catus juveniles	white catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.67	0.64	0.46	0.00
Ameiurus natalis juveniles	yellow bullhead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	1.15	0.00
Noturus gyrinus juveniles	tadpole madtom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.48	2.46	0.95

Table A5, page 5 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

		Location (km from mouth)													
Description	Common Name	3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
Ictalurus punctatus juveniles	channel catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.22	0.00	0.46	0.00
Arius felis juveniles	hardhead catfish	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bagre marinus juveniles	gaftopsail sea catfish	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liposarcus spp. juveniles	suckermouth catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.72	0.43	0.00
Hoplosternum littorale preflexion larvae	brown hoplo catfish	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00
Hoplosternum littorale flexion larvae	brown hoplo catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	3.54	0.52	0.27	0.25
Hoplosternum littorale postflexion larvae	brown hoplo catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.52	0.00	1.09
Hoplosternum littorale juveniles	brown hoplo catfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.47	2.67	7.90	6.05	3.62	9.59
Gobiesox strumosus preflexion larvae	skilletfish	0.48	0.00	2.86	3.02	3.25	0.56	2.95	0.46	0.25	0.00	0.00	0.00	0.00	0.00
Gobiesox strumosus flexion larvae	skilletfish	0.00	0.27	0.80	0.00	0.00	0.00	0.49	3.09	0.48	0.00	0.00	0.00	0.00	0.00
Gobiesox strumosus postflexion larvae	skilletfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.68	0.23	0.00	0.00	0.00	0.00
Gobiesox strumosus juveniles	skilletfish	0.00	0.00	0.00	0.00	0.00	1.16	1.41	0.00	0.50	0.00	0.00	0.00	0.00	0.00
Hyporhamphus unifasciatus preflexion larvae	silverstripe halfbeak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.24
Hyporhamphus unifasciatus flexion larvae	silverstripe halfbeak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.24
Strongylura spp. postflexion larvae	needlefishes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.00	0.00	0.00
Strongylura spp. adults	needlefishes	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strongylura marina juveniles	Atlantic needlefish	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Strongylura notata adults	redfin needlefish	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyprinodon variegatus postflexion larvae	sheepshead minnow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00
Cyprinodon variegatus juveniles	sheepshead minnow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Jordanella floridae adults	flagfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Fundulus spp. postflexion larvae	killifishes	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fundulus spp. juveniles	killifishes	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Fundulus seminolis postflexion larvae	Seminole killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00
Fundulus grandis juveniles	gulf killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.41	0.00
Lucania goodei juveniles	bluefin killifish	0.00	0.00	0.00	0.00	0.43	0.00	1.08	0.00	0.00	0.00	0.27	0.00	0.00	0.41
Lucania goodei adults	bluefin killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.91
Lucania parva postflexion larvae	rainwater killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Lucania parva juveniles	rainwater killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	1.83	0.00	0.00	0.22	0.00
Lucania parva adults	rainwater killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00
Gambusia holbrooki juveniles	eastern mosquitofish	0.00	0.00	0.20	0.00	0.00	0.00	0.69	2.44	3.01	7.86	2.32	9.63	3.12	7.17
Gambusia holbrooki adults	eastern mosquitofish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.93	3.01	0.90	1.42
Heterandria formosa juveniles	least killifish	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.20	0.47	0.18	0.80	1.59	0.00	0.45
Heterandria formosa adults	least killifish	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.84	1.92	1.36	3.70	2.27	1.72
Poecilia latipinna juveniles	sailfin molly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00
Menidia spp. preflexion larvae	silversides	0.19	0.00	0.00	0.48	0.26	0.49	2.80	2.76	4.94	4.19	6.48	2.12	0.50	0.93
Menidia spp. flexion larvae	silversides	0.00	0.22	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00
Menidia spp. juveniles	silversides	0.26	0.24	0.23	0.00	0.21	1.14	0.45	0.67	0.00	1.60	0.69	0.68	0.79	0.70
Menidia beryllina juveniles	inland silverside	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.27	0.00	0.00	0.00
Membras martinica preflexion larvae	rough silverside	0.71	0.00	1.84	0.82	0.21	0.28	0.71	0.00	0.00	0.00	0.27	0.00	0.00	0.00
Membras martinica flexion larvae	rough silverside	0.43	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membras martinica postflexion larvae	rough silverside	0.42	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membras martinica juveniles	rough silverside	0.43	0.27	0.00	0.50	0.00	0.45	1.24	1.86	1.69	1.60	0.69	0.00	0.00	0.00
Membras martinica adults	rough silverside	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Labidesthes sicculus preflexion larvae	brook silverside	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	1.04	0.49	0.00
Labidesthes sicculus juveniles	brook silverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.23	1.36	1.16
Labidesthes sicculus adults	brook silverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
fish eggs, percomorph	sciaenid eggs (primarily)	1496.24	1320.87	8513.99	2756.28	154.24	26.92	111.64	1.62	0.00	0.23	0.25	0.45	0.64	1.88
Hippocampus erectus juveniles	lined seahorse	0.00	0.83	1.16	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A5, page 6 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

Description	Common Name	Location (km from mouth)													
		3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
Syngnathus louisianae juveniles	chain pipefish	0.29	0.68	0.00	0.26	0.00	0.00	0.74	0.49	0.00	0.22	0.00	0.00	0.00	0.00
Syngnathus scovelli juveniles	gulf pipefish	0.66	0.00	0.88	0.00	0.44	1.37	0.73	0.00	0.00	0.23	0.00	0.00	0.00	0.00
Prionotus tribulus postflexion larvae	bighead searobin	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Prionotus tribulus juveniles	bighead searobin	0.25	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elassoma evergladei juveniles	Everglades pygmy sunfish	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.37	0.00	0.00	0.00	0.00	0.24
Elassoma evergladei adults	Everglades pygmy sunfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.27	0.41
Elassoma okefenokee juveniles	Okefenokee pygmy sunfish	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enneacanthus gloriosus juveniles	bluespotted sunfish	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.19	0.27	0.23	0.41
Lepomis spp. preflexion larvae	sunfishes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.22	2.42
Lepomis spp. flexion larvae	sunfishes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.22
Lepomis spp. postflexion larvae	sunfishes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Lepomis spp. juveniles	sunfishes	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.23	1.26	0.00	0.69	1.10
Lepomis auritus flexion larvae	redbreast sunfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00
Lepomis macrochirus juveniles	bluegill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Lepomis punctatus juveniles	spotted sunfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Micropterus salmoides flexion larvae	largemouth bass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	2.28	0.91
Micropterus salmoides postflexion larvae	largemouth bass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
Micropterus salmoides juveniles	largemouth bass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.27	0.22	0.00	0.00
Etheostoma fusiforme preflexion larvae	swamp darter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	1.21
Etheostoma fusiforme flexion larvae	swamp darter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00
Chloroscombrus chrysurus postflexion larvae	Atlantic bumper	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oligoplites saurus flexion larvae	leatherjack	0.00	0.94	0.00	0.00	1.45	0.00	0.00	0.00	0.48	0.00	0.69	0.00	0.00	0.00
Oligoplites saurus postflexion larvae	leatherjack	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oligoplites saurus juveniles	leatherjack	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lutjanus griseus juveniles	gray snapper	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gerreid preflexion larvae	mojaras	14.38	4.10	1.11	1.02	3.12	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gerreid flexion larvae	mojaras	0.91	2.19	0.00	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eugerres plumieri flexion larvae	striped mojarra	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Eugerres plumieri postflexion larvae	striped mojarra	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eucinostomus spp. postflexion larvae	mojarras	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Eucinostomus spp. juveniles	mojarras	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eucinostomus gula juveniles	silver jenny	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lagodon rhomboides juveniles	pinfish	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bairdiella chrysoura preflexion larvae	silver perch	2.72	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bairdiella chrysoura flexion larvae	silver perch	0.00	0.33	1.73	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion arenarius preflexion larvae	sand seatrout	4.13	4.14	2.16	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion arenarius flexion larvae	sand seatrout	0.30	0.94	0.51	0.00	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion arenarius postflexion larvae	sand seatrout	0.26	0.00	0.76	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion arenarius juveniles	sand seatrout	0.43	0.22	0.44	0.48	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion nebulosus preflexion larvae	spotted seatrout	3.62	0.21	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cynoscion nebulosus flexion larvae	spotted seatrout	0.91	0.27	0.00	0.00	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Menticirrhus spp. preflexion larvae	kingfishes	6.19	5.84	0.64	0.47	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Menticirrhus spp. flexion larvae	kingfishes	0.64	3.41	1.11	0.00	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Menticirrhus spp. postflexion larvae	kingfishes	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Menticirrhus americanus juveniles	southern kingfish	0.00	0.22	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sciaenops ocellatus postflexion larvae	red drum	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tilapia spp. juveniles	tilapias	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mugil cephalus juveniles	striped mullet	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00
blenniid preflexion larvae	blennies	1.12	1.17	1.22	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00

Table A5, page 7 of 7. Location specific plankton-net catch in the Myakka River.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

Description	Common Name	Location (km from mouth)													
		3.7	5.5	8.8	11.4	14.6	16.6	18.8	20.7	23.8	26.8	29.6	32.1	37.8	40.2
Chasmodes saburrae postflexion larvae	Florida blenny	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Chasmodes saburrae juveniles	Florida blenny	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
Hypsoblennius spp. postflexion larvae	blennies	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lupinoblennius nicholsi flexion larvae	highfin blenny	0.22	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lupinoblennius nicholsi postflexion larvae	highfin blenny	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gobiid preflexion larvae	gobies	6.24	1.92	13.95	9.26	7.58	7.37	21.64	11.63	10.84	7.02	8.70	5.64	0.68	1.77
gobiid flexion larvae	gobies	0.81	4.52	9.88	3.06	3.66	1.97	5.11	6.21	1.17	2.73	2.55	2.04	0.23	0.62
Bathygobius soporator preflexion larvae	frillfin goby	4.95	4.50	3.66	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bathygobius soporator flexion larvae	frillfin goby	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
Gobionellus spp. postflexion larvae	gobies	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gobiosoma spp. postflexion larvae	gobies	1.89	3.65	3.43	3.63	0.26	2.15	0.97	1.62	3.13	2.26	0.69	1.31	0.43	0.00
Gobiosoma bosc juveniles	naked goby	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.24	0.48	8.34	7.36	4.36	0.65	0.00
Gobiosoma bosc adults	naked goby	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.22	0.00	0.00	0.00
Gobiosoma robustum juveniles	code goby	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.45	0.19	1.15	10.41	0.45	0.00	0.00
Microgobius spp. flexion larvae	gobies	2.50	2.04	11.22	12.31	8.10	3.01	12.12	8.43	4.17	4.85	2.04	0.45	0.00	0.00
Microgobius spp. postflexion larvae	gobies	0.21	0.54	2.60	3.23	0.42	2.48	1.17	1.40	0.25	0.45	0.00	0.00	0.43	0.24
Microgobius gulosus juveniles	clown goby	0.00	0.00	1.08	0.82	1.35	1.79	2.76	2.28	0.23	0.23	0.68	0.00	0.00	0.00
Microgobius gulosus adults	clown goby	0.00	0.24	0.41	0.21	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Microgobius thalassinus adults	green goby	0.00	0.48	0.20	0.00	0.22	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Trinectes maculatus preflexion larvae	hogchoker	7.77	1.34	2.97	0.00	0.51	0.28	0.49	0.96	0.48	0.23	0.00	0.00	0.00	0.00
Trinectes maculatus flexion larvae	hogchoker	2.84	1.85	0.76	0.00	0.00	0.45	0.00	0.21	0.48	0.45	0.00	0.00	0.00	0.00
Trinectes maculatus postflexion larvae	hogchoker	0.48	0.00	1.76	0.98	0.49	1.21	0.24	0.48	0.71	0.44	3.41	0.23	0.23	0.00
Trinectes maculatus juveniles	hogchoker	0.45	0.25	2.24	1.94	6.40	18.67	7.50	9.70	9.17	10.81	14.84	13.55	14.55	11.91
Trinectes maculatus adults	hogchoker	0.00	0.00	1.44	0.45	0.46	1.17	0.00	0.24	0.22	3.27	1.88	4.28	0.41	0.23
Sphoeroides nephelus juveniles	southern puffer	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chilomycterus schoepfi juveniles	striped burrfish	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
unidentified preflexion larvae	fish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.23
unidentified postflexion larvae	fish	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
anuran larvae	tadpoles	0.19	0.24	1.64	1.06	0.43	0.45	3.78	0.00	0.47	0.18	0.83	2.95	2.10	3.31

Table A6, page 1 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

	Description	Common Name	Location (km from Myakka River mouth)			
			22.2	23.3	24.3	25.1
A-30	Craspedacusta sowerbii	hydromedusa	4.15	15.58	0.00	0.00
	Liriope tetraphylla	hydromedusa	0.00	0.00	0.48	0.00
	Clytia sp.	hydromedusa	1.33	0.00	4.71	2.21
	medusa sp. c	hydromedusa	0.00	0.00	21.43	94.88
	medusa sp. a	hydromedusa	8.89	0.00	2.30	0.52
	medusa sp. d	hydromedusa	1.02	0.00	0.00	0.00
	Mnemiopsis mccradyi	comb jelly, ctenophore	456.69	1073.44	126.55	31.20
	turbellarians	flatworms	0.23	0.00	0.49	0.00
	polychaetes	sand worms, tube worms	26.51	25.62	9.73	16.67
	oligochaetes	freshwater worms	0.00	1.67	4.62	0.95
	hirudinoideans	leeches	6.37	1.54	1.14	1.50
	cladocerans, Daphnia spp.	water fleas	0.00	0.23	0.00	0.00
	Simocephalus vetulus	water flea	4.12	17.63	25.71	22.87
	Ceriodaphnia sp.	water flea	0.00	0.00	0.00	3.08
	Grimaldina brazzai	water flea	0.00	0.00	0.00	3.08
	Ilyocryptus sp.	water flea	9.38	19.79	24.80	14.11
	Sida crystallina	water flea	2.69	0.90	0.62	8.18
	Latonopsis fasciculata	water flea	0.00	0.00	0.23	0.22
	Euryalona occidentalis	water flea	0.00	0.00	0.00	0.22
	Leydigia sp.	water flea	0.00	0.00	0.23	0.48
	decapod zoeae	crab larvae	4966.32	8373.78	7825.98	1477.84
	decapod mysis	shrimp larvae	278.37	111.52	88.78	24.86
	decapod megalopae	post-zoea crab larvae	686.63	367.58	587.07	31.92
	Palaemonetes spp. postlarvae	grass shrimp	10.83	6.09	12.88	1.80
	Palaemonetes pugio juveniles	daggerblade grass shrimp	1.37	1.03	1.15	0.23
	Palaemonetes pugio adults	daggerblade grass shrimp	1.63	1.08	0.68	0.00

Table A6, page 2 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

	Description	Common Name	Location (km from Myakka River mouth)			
			22.2	23.3	24.3	25.1
A-31	Ambidexter symmetricus postlarvae	shrimp	0.00	0.00	0.00	0.52
	Callinectes sapidus juveniles	blue crab	0.25	0.00	0.00	0.00
	xanthid juveniles	mud crabs	3.30	0.00	0.00	0.00
	Rhithropanopeus harrisii juveniles	Harris mud crab	1.08	0.00	0.00	0.00
	unidentified Americamysis juveniles	opossum shrimps, mysids	629.69	595.11	242.73	84.49
	Americamysis almyra	opossum shrimp, mysid	1625.50	1557.69	894.40	490.52
	Bowmaniella dissimilis	opossum shrimp, mysid	114.76	151.58	30.37	30.34
	Taphromysis bowmani	opossum shrimp, mysid	23.79	11.56	697.41	23.75
	cumaceans	cumaceans	27.48	7.79	10.94	1556.54
	isopod sp. a	isopod	0.00	0.22	0.00	0.00
	Cyathura polita	isopod	2.00	3.03	1.82	0.93
	Xenanthura brevitelson	isopod	0.24	0.00	0.00	0.00
	Munna reynoldsi	isopod	2.53	0.68	0.24	0.49
	Probopyrus sp. (attached)	isopod	0.00	0.46	0.00	0.00
	Anopsilana jonesi	isopod	0.23	0.48	0.00	0.00
	cymothoid sp. a (Lironeca) juveniles	isopod	19.09	36.85	42.00	27.75
	Cassidinidea ovalis	isopod	0.24	0.24	0.00	0.00
	Sphaeroma quadridentata	isopod	3.22	5.28	2.72	8.24
	Sphaeroma terebrans	isopod	3.25	9.14	1.79	1.09
	Edotea triloba	isopod	472.19	756.38	896.59	389.12
	amphipods, gammaridean	amphipods	979.36	1061.35	2380.24	428.26
	cirriped nauplius stage	barnacles	0.00	0.00	0.00	0.73
	branchiurans, Argulus spp.	fish lice	3.78	2.42	2.52	2.29
	unidentified harpacticoids	copepods	0.00	0.20	0.43	2.29
	Alteutha sp.	copepod	0.00	0.00	0.23	0.00
	siphonostomatids	parasitic copepods	0.24	0.00	0.00	0.00

Table A6, page 3 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

A-32

		Location (km from Myakka River mouth)			
Description	Common Name	22.2	23.3	24.3	25.1
unidentified freshwater cyclopoids	copepods	0.76	0.21	0.00	1.35
Macrocyclus albidus	copepods	5.46	0.21	5.40	0.84
Mesocyclops edax	copepod	125.87	406.20	942.17	997.04
Orthocyclops modestus	copepod	0.38	0.48	1.48	1.89
Acartia tonsa	copepod	8.44	1.42	6.44	1.84
Diaptomus spp.	copepods	0.71	0.23	0.23	0.22
Labidocera aestiva	copepod	1.26	0.00	4.60	0.63
Osphranticum labronectum	copepod	0.00	0.00	0.20	0.00
Pseudodiaptomus coronatus	copepod	0.66	0.42	1.19	0.24
ostracods, podocopid	ostracods, seed shrimps	26.11	59.58	9.01	16.07
collembolas, podurid	springtails	0.00	1.67	0.00	0.00
ephemeropteran larvae	mayflies	40.86	177.26	122.58	108.58
odonates, anisopteran larvae	dragonflies	0.80	0.86	10.49	5.92
odonates, zygopteran larvae	damselflies	7.24	8.80	1.09	6.08
hemipterans, belostomatid adults	giant water bugs	0.19	0.00	0.23	0.00
hemipterans, corixid juveniles	water boatmen	5.38	0.00	0.22	0.00
hemipterans, corixid adults	water boatmen	0.00	0.43	0.66	0.71
hemipterans, gerrid adults	water striders	0.00	0.21	0.20	0.43
hemipterans, naucorid adults	creeping water bugs	0.00	0.43	0.20	0.00
hemipterans, nepid adults	water scorpions	0.19	0.00	0.00	0.00
hemipterans, pleid adults	pygmy backswimmers	0.00	0.00	0.00	0.20
coleopterans, curculionid adults	beetles	0.19	0.21	0.00	0.00
coleopterans, noterid adults	burrowing water beetles	5.76	3.19	1.62	1.84
coleopterans, elmid larvae	rifle beetles	0.71	1.83	0.88	3.75
coleopterans, elmid adults	rifle beetles	1.16	0.92	1.30	3.32
coleopterans, gyrid larvae	whirligig beetles	0.00	0.00	0.40	0.00

Table A6, page 4 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

	Description	Common Name	Location (km from Myakka River mouth)			
			22.2	23.3	24.3	25.1
A-33	coleopterans, haliplid adults	crawling water beetles	0.65	0.00	0.00	0.00
	coleopterans, dytiscid adults	predaceous diving beetles	0.00	0.00	0.00	1.12
	coleopterans, scirtid larvae	marsh beetles	0.00	0.00	0.00	0.24
	dipterans, pupae	flies, mosquitoes	27.87	105.42	76.52	53.51
	dipterans, ceratopogonid larvae	biting midges	0.48	0.23	2.73	0.65
	dipteran, Chaoborus punctipennis larvae	phantom midge	129.58	256.77	353.81	305.63
	dipterans, chironomid larvae	midges	20.07	56.00	34.26	101.87
	dipterans, stratiomyid larvae	soldier flies	0.00	0.00	0.74	0.24
	dipterans, sciomyzid larvae	marsh flies	0.00	0.00	0.00	0.47
	dipterans, tipulid larvae	crane flies	0.00	1.43	0.00	0.00
	trichopteran larvae	caddisflies	2.82	10.79	12.08	23.55
	lepidopterans, pyralid larvae	aquatic caterpillars	0.00	0.46	0.00	0.23
	acari	water mites	0.83	9.96	9.14	5.08
	gastropods, prosobranch	snails	272.83	149.88	100.16	19.29
	gastropods, opisthobranch	sea slugs	5.99	1.34	0.24	0.00
	pelecypods	clams, mussels, oysters	83.29	48.27	20.87	60.63
	chaetognaths, sagittid	arrow worms	1.44	0.48	1.66	0.00
	Lepisosteus sp. juveniles	gar	0.00	0.00	2.81	4.38
	Elops saurus postflexion larvae	ladyfish	0.00	0.00	0.23	0.00
	Elops saurus juveniles	ladyfish	0.00	0.00	0.00	0.24
	Brevoortia spp. postflexion larvae	menhaden	1.22	0.70	1.43	0.00
	Brevoortia spp. metamorphs	menhaden	0.46	0.45	0.94	1.95
	Brevoortia smithi juveniles	yellowfin menhaden	0.24	0.00	0.00	0.21
	Dorosoma petenense juveniles	threadfin shad	0.00	0.00	0.00	0.20
	Anchoa spp. preflexion larvae	anchovies	1.70	0.70	3.94	0.52
	Anchoa spp. flexion larvae	anchovies	5.27	13.07	29.68	6.94

Table A6, page 5 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

A-34

Description	Common Name	Location (km from Myakka River mouth)			
		22.2	23.3	24.3	25.1
Anchoa mitchilli eggs	bay anchovy	0.00	25.94	2.39	0.00
Anchoa mitchilli postflexion larvae	bay anchovy	7.03	4.93	22.82	22.65
Anchoa mitchilli juveniles	bay anchovy	527.37	368.54	805.49	769.74
Anchoa mitchilli adults	bay anchovy	0.70	1.77	2.02	1.40
Ameiurus catus juveniles	white catfish	0.00	0.00	0.40	0.00
Liposarcus spp. juveniles	suckermouth catfish	0.00	0.21	0.40	0.22
Hoplosternum littorale flexion larvae	brown hoplo catfish	0.00	0.21	0.00	0.00
Hoplosternum littorale juveniles	brown hoplo catfish	0.00	0.21	0.00	0.00
Gobiesox strumosus preflexion larvae	skilletfish	2.11	0.00	0.24	0.00
Gobiesox strumosus flexion larvae	skilletfish	6.24	1.37	0.24	0.00
Gobiesox strumosus postflexion larvae	skilletfish	0.46	0.95	0.24	0.00
Jordanella floridae juveniles	flagfish	0.00	0.00	0.22	0.44
Fundulus spp. juveniles	killifishes	0.00	0.00	0.40	0.00
Fundulus grandis juveniles	gulf killifish	0.00	0.00	0.00	0.20
Lucania goodei postflexion larvae	bluefin killifish	0.00	0.00	1.15	0.00
Lucania goodei juveniles	bluefin killifish	0.19	1.24	2.51	0.20
Lucania goodei adults	bluefin killifish	0.00	0.21	0.00	0.20
Lucania parva juveniles	rainwater killifish	0.00	0.00	0.00	0.21
Lucania parva adults	rainwater killifish	0.00	1.24	0.24	0.00
Gambusia holbrooki juveniles	eastern mosquitofish	0.38	1.35	1.15	1.07
Gambusia holbrooki adults	eastern mosquitofish	0.24	0.21	0.43	0.20
Heterandria formosa juveniles	least killifish	0.00	0.00	0.49	0.00
Heterandria formosa adults	least killifish	0.19	0.43	0.20	0.62
Menidia spp. preflexion larvae	silversides	1.19	0.00	0.24	0.85
Menidia spp. juveniles	silversides	0.19	0.66	0.00	0.23
Membras martinica juveniles	rough silverside	0.23	0.00	0.00	0.00

Table A6, page 6 of 6. Location specific plankton-net catch in Myakkahatchee Creek.

Data are presented as mean number per 1,000 cubic meters.

Organisms are listed in phylogenetic order.

A-35

		Location (km from Myakka River mouth)			
Description	Common Name	22.2	23.3	24.3	25.1
Labidesthes sicculus juveniles	brook silverside	0.00	0.81	0.00	0.24
fish eggs, percomorph	sciaenid eggs (primarily)	0.23	0.00	0.22	1.03
Syngnathus louisianae juveniles	chain pipefish	0.00	0.00	2.30	0.24
Syngnathus scovelli juveniles	gulf pipefish	0.00	0.00	0.24	0.00
Elassoma evergladei juveniles	Everglades pygmy sunfish	0.22	0.00	0.00	0.00
Elassoma evergladei adults	Everglades pygmy sunfish	0.00	0.00	2.31	0.00
Lepomis macrochirus juveniles	bluegill	0.19	0.00	0.22	0.23
Bairdiella chrysoura flexion larvae	silver perch	0.23	0.00	0.00	0.00
Cynoscion arenarius preflexion larvae	sand seatrout	2.79	0.00	0.00	0.00
Menticirrhus spp. postflexion larvae	kingfishes	0.00	0.22	0.00	0.00
gobiid preflexion larvae	gobies	25.04	20.75	25.37	17.19
gobiid flexion larvae	gobies	3.78	12.91	21.71	4.91
Bathygobius soporator flexion larvae	frillfin goby	0.50	0.00	0.00	0.00
Gobiosoma spp. postflexion larvae	gobies	35.01	132.05	223.82	33.47
Gobiosoma bosc juveniles	naked goby	0.71	0.00	0.00	0.00
Gobiosoma robustum juveniles	code goby	0.24	0.00	0.20	0.63
Microgobius spp. flexion larvae	gobies	7.65	4.24	2.48	2.78
Microgobius spp. postflexion larvae	gobies	2.73	12.47	2.54	0.45
Microgobius gulosus juveniles	clown goby	0.44	0.22	0.00	0.23
Microgobius thalassinus adults	green goby	0.00	0.24	0.00	0.00
Trinectes maculatus preflexion larvae	hogchoker	0.23	0.00	0.00	0.00
Trinectes maculatus flexion larvae	hogchoker	0.97	0.00	0.00	0.00
Trinectes maculatus postflexion larvae	hogchoker	1.22	0.00	0.00	0.49
Trinectes maculatus juveniles	hogchoker	2.21	1.67	6.40	6.33
unidentified postflexion larvae	fish	0.00	0.70	0.00	0.00
anuran larvae	tadpoles	0.00	0.00	0.22	0.00

Appendix B:
Seine and trawl summary tables

Table B1, page 1 of 2. Seine catch statistics for Myakka River (n=280).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km _U (km)	S _U (psu)	Mean CPUE (No./seine)	Max CPUE (No./seine)
<i>Limulus polyphemus</i>	Horseshoe crab	1	7	3.1	14.8	0.00	1
<i>Farfantepenaeus duorarum</i>	Pink shrimp	312	54	8.369	13	1.11	36
<i>Palaemonetes</i> spp.	Grass shrimps	13	9	19.68	8.68	0.05	5
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	670	41	10.4	14.2	2.39	84
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	73	12	34.64	0.16	0.26	38
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	3335	68	19.76	6.77	11.91	1035
<i>Ambidexter symmetricus</i>	Night shrimp	1	1	5.4	21.3	0.00	1
<i>Callinectes sapidus</i>	Blue crab	239	68	12.25	14.8	0.85	25
<i>Dasyatis sabina</i>	Atlantic stingray	6	6	14.18	12	0.02	1
<i>Lepisosteus osseus</i>	Longnose gar	6	6	21.48	3.64	0.02	1
<i>Lepisosteus platyrhincus</i>	Florida gar	15	14	27.83	2.2	0.05	2
<i>Amia calva</i>	Bowfin	1	1	28.3	0.15	0.00	1
<i>Elops saurus</i>	Ladyfish	1	1	34.2	0.3	0.00	1
<i>Brevoortia</i> spp.	Menhagens	477	16	12.39	13.9	1.70	352
<i>Dorosoma petenense</i>	Threadfin shad	1	1	28.3	0.15	0.00	1
<i>Harengula jaguana</i>	Scaled sardine	20	2	8.965	16.2	0.07	19
<i>Anchoa hepsetus</i>	Striped anchovy	75	11	11.01	14.2	0.27	21
<i>Anchoa mitchilli</i>	Bay anchovy	62260	115	15.22	11.9	222.36	13568
<i>Synodus foetens</i>	Inshore lizardfish	17	12	8.394	19.5	0.06	6
<i>Notemigonus crysoleucas</i>	Golden shiner	12	1	25.4	0.2	0.04	12
<i>Notropis</i> spp.	Shiners	2	1	32.3	0.2	0.01	2
<i>Notropis maculatus</i>	Taillight shiner	4	2	29.83	0.13	0.01	3
<i>Notropis petersoni</i>	Coastal shiner	614	44	34.09	0.34	2.19	88
<i>Ameiurus catus</i>	White catfish	1	1	33.9	0.1	0.00	1
<i>Hoplosternum littorale</i>	Brown hoplo	1	1	20.6	0.1	0.00	1
<i>Gobiesox strumosus</i>	Skilletfish	7	7	6.986	16.6	0.03	1
<i>Strongylura</i> spp.	Needlefishes	42	24	11.35	14.9	0.15	7
<i>Strongylura marina</i>	Atlantic needlefish	17	11	15.29	15	0.06	3
<i>Strongylura notata</i>	Redfin needlefish	43	17	8.309	14.7	0.15	14
<i>Strongylura timucu</i>	Timucu	3	3	18.6	8.72	0.01	1
<i>Cyprinodon variegatus</i>	Sheepshead minnow	68	15	8.378	18.1	0.24	16
<i>Fundulus confluentus</i>	Marsh killifish	64	5	31.44	0.94	0.23	51
<i>Fundulus similis</i>	Striped killifish	126	9	11.15	16.5	0.45	47
<i>Fundulus grandis</i>	Gulf killifish	100	19	18.65	6.21	0.36	28
<i>Fundulus chrysotus</i>	Golden topminnow	21	3	39.32	0.11	0.08	17
<i>Fundulus seminolis</i>	Seminole killifish	1839	51	34.61	0.39	6.57	457
<i>Lucania parva</i>	Rainwater killifish	433	37	23.18	4.05	1.55	75
<i>Lucania goodei</i>	Bluefin killifish	103	21	34.81	0.2	0.37	23
<i>Adinia xenica</i>	Diamond killifish	11	7	18.35	8.74	0.04	3
<i>Floridichthys carpio</i>	Goldspotted killifish	1	1	9.8	18.4	0.00	1
<i>Jordanella floridae</i>	Flagfish	91	8	38.03	0.12	0.33	62
<i>Gambusia holbrooki</i>	Eastern mosquitofish	6736	92	32.81	0.45	24.06	1628
<i>Poecilia latipinna</i>	Sailfin molly	1072	31	31.04	0.69	3.83	681
<i>Heterandria formosa</i>	Least killifish	63	18	38.08	0.13	0.23	26
<i>Membras martinica</i>	Rough silverside	328	21	15.39	11.1	1.17	97
<i>Menidia</i> spp.	Silversides	8514	188	16.36	6.94	30.41	463
<i>Labidesthes sicculus</i>	Brook silverside	1134	74	34.69	0.29	4.05	162
<i>Syngnathus louisianae</i>	Chain pipefish	3	3	7.5	17.5	0.01	1
<i>Syngnathus scovelli</i>	Gulf pipefish	13	12	12.31	15.1	0.05	2
<i>Hippocampus erectus</i>	Lined seahorse	1	1	12.6	18.3	0.00	1
<i>Prionotus scitulus</i>	Leopard searobin	7	2	5.071	20.3	0.03	6
<i>Prionotus tribulus</i>	Bighead searobin	8	8	10.55	14.7	0.03	1
<i>Centropomus undecimalis</i>	Common snook	15	14	14.97	4.28	0.05	2
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	1	1	40.2	0.1	0.00	1

Table B1, page 2 of 2. Seine catch statistics for Myakka River (n=280).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km_U (km)	S_U (psu)	Mean CPUE (No./seine)	Max CPUE (No./seine)
<i>Lepomis</i> spp.	Sunfishes	77	12	33.6	0.18	0.28	33
<i>Lepomis gulosus</i>	Warmouth	11	6	35.24	1.75	0.04	6
<i>Lepomis macrochirus</i>	Bluegill	357	47	30.5	0.2	1.28	94
<i>Lepomis marginatus</i>	Dollar sunfish	47	19	28.97	0.59	0.17	15
<i>Lepomis microlophus</i>	Redear sunfish	112	36	33.52	0.44	0.40	23
<i>Lepomis punctatus</i>	Spotted sunfish	12	9	37.75	0.09	0.04	3
<i>Micropterus salmoides</i>	Largemouth bass	39	16	37.32	0.18	0.14	8
<i>Pomoxis nigromaculatus</i>	Black crappie	1	1	22.9	0.8	0.00	1
<i>Elassoma evergladei</i>	Everglades pygmy sunfish	2	2	34.3	0.08	0.01	1
<i>Etheostoma fusiforme</i>	Swamp darter	62	18	34.52	0.13	0.22	25
<i>Oligoplites saurus</i>	Leatherjack	224	34	10.31	14.6	0.80	30
<i>Lutjanus griseus</i>	Gray snapper	16	12	16.93	4.34	0.06	3
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	3581	125	12.53	12.5	12.79	343
<i>Eucinostomus gula</i>	Silver jenny	209	17	7.21	17.1	0.75	69
<i>Eucinostomus harengulus</i>	Tidewater mojarra	663	78	12.93	12.3	2.37	61
<i>Eugerres plumieri</i>	Striped mojarra	706	57	9.268	11.9	2.52	229
<i>Orthopristis chrysoptera</i>	Pigfish	1	1	13.6	12.5	0.00	1
<i>Lagodon rhomboides</i>	Pinfish	1050	60	10.24	15.5	3.75	134
<i>Archosargus probatocephalus</i>	Sheepshead	16	10	12.32	10.8	0.06	4
<i>Cynoscion nebulosus</i>	Spotted seatrout	284	41	11.27	11.7	1.01	29
<i>Cynoscion arenarius</i>	Sand seatrout	61	21	13.4	7.75	0.22	10
<i>Bairdiella chrysoura</i>	Silver perch	116	16	12.28	16	0.41	23
<i>Leiostomus xanthurus</i>	Spot	4253	41	16.09	9.99	15.19	746
<i>Menticirrhus americanus</i>	Southern kingfish	30	13	10.59	13.5	0.11	7
<i>Sciaenops ocellatus</i>	Red drum	1444	49	6.885	15.5	5.16	404
<i>Tilapia</i> spp.	Tilapias	129	10	33.33	0.26	0.46	80
<i>Mugil cephalus</i>	Striped mullet	393	28	15.26	12.1	1.40	147
<i>Mugil curema</i>	White mullet	15	4	11.25	12.4	0.05	6
<i>Mugil gyrans</i>	Fantail mullet	183	10	5.852	19.6	0.65	62
<i>Chasmodes saburrae</i>	Florida blenny	1	1	5	19	0.00	1
<i>Gobiosoma</i> spp.	Gobiosoma gobies	211	49	23.91	2.34	0.75	23
<i>Gobiosoma bosc</i>	Naked goby	111	46	23.74	2.72	0.40	13
<i>Gobiosoma robustum</i>	Code goby	54	8	3.893	16.8	0.19	46
<i>Microgobius gulosus</i>	Clown goby	731	110	14.97	7.43	2.61	80
<i>Bathygobius soporator</i>	Frillfin goby	15	5	12.35	6.89	0.05	6
<i>Paralichthys albigutta</i>	Gulf flounder	1	1	3.7	21.5	0.00	1
<i>Trinectes maculatus</i>	Hogchoker	2043	135	31.37	0.79	7.30	138
<i>Achirus lineatus</i>	Lined sole	9	7	5.589	16.1	0.03	2
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	10	9	5.28	13.7	0.04	2
<i>Sphoeroides nephelus</i>	Southern puffer	11	5	9.845	20.1	0.04	6

Table B2, page 1 of 1. Seine catch statistics for Myakkahatchee Creek (n=60).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km_U (km)	S_U (psu)	Mean CPUE (No./seine)	Max CPUE (No./seine)
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	3	2	24.3	0.1	0.05	3
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	29	6	22.76	2.33	0.48	18
<i>Callinectes sapidus</i>	Blue crab	43	18	23.36	4.58	0.72	8
<i>Lepisosteus platyrhincus</i>	Florida gar	6	3	24.85	2.03	0.10	3
<i>Elops saurus</i>	Ladyfish	1	1	24.6	3.2	0.02	1
<i>Brevoortia</i> spp.	Menhadens	1440	4	25	4.32	24.00	846
<i>Dorosoma petenense</i>	Threadfin shad	71	1	25.9	0.1	1.18	71
<i>Anchoa mitchilli</i>	Bay anchovy	11830	40	23.67	4.19	197.17	2377
<i>Notemigonus crysoleucas</i>	Golden shiner	10	1	25.7	0.1	0.17	10
<i>Notropis maculatus</i>	Taillight shiner	14	4	24.53	2.84	0.23	10
<i>Notropis petersoni</i>	Coastal shiner	16	5	24.59	0.53	0.27	6
<i>Ictalurus punctatus</i>	Channel catfish	1	1	25.2	0.1	0.02	1
<i>Hoplosternum littorale</i>	Brown hoplo	1	1	24.3	0.1	0.02	1
<i>Cyprinodon variegatus</i>	Sheepshead minnow	1	1	24.6	0.4	0.02	1
<i>Fundulus grandis</i>	Gulf killifish	10	2	22.2	0.1	0.17	9
<i>Fundulus chrysotus</i>	Golden topminnow	2	2	25	0.1	0.03	1
<i>Fundulus seminolis</i>	Seminole killifish	144	10	24.91	0.57	2.40	53
<i>Lucania parva</i>	Rainwater killifish	159	13	23.88	0.96	2.65	65
<i>Lucania goodei</i>	Bluefin killifish	14	7	23.97	0.88	0.23	5
<i>Jordanella floridae</i>	Flagfish	11	3	24.35	1.12	0.18	9
<i>Gambusia holbrooki</i>	Eastern mosquitofish	1856	30	24.01	1.03	30.93	278
<i>Poecilia latipinna</i>	Sailfin molly	255	13	22.95	0.92	4.25	69
<i>Heterandria formosa</i>	Least killifish	4	4	24.8	1.43	0.07	1
<i>Menidia</i> spp.	Silversides	2265	44	24.36	3.59	37.75	267
<i>Labidesthes sicculus</i>	Brook silverside	277	19	25.52	0.39	4.62	125
<i>Syngnathus louisianae</i>	Chain pipefish	1	1	23.6	11.6	0.02	1
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	8	5	23.89	0.1	0.13	2
<i>Lepomis</i> spp.	Sunfishes	16	5	25.14	0.1	0.27	9
<i>Lepomis gulosus</i>	Warmouth	5	4	24.2	1.45	0.08	2
<i>Lepomis macrochirus</i>	Bluegill	169	17	24.99	0.58	2.82	61
<i>Lepomis marginatus</i>	Dollar sunfish	38	10	24.14	0.79	0.63	10
<i>Lepomis microlophus</i>	Redear sunfish	58	13	24.89	0.9	0.97	14
<i>Lepomis punctatus</i>	Spotted sunfish	2	2	25	0.1	0.03	1
<i>Micropterus salmoides</i>	Largemouth bass	2	2	25.05	1.83	0.03	1
<i>Etheostoma fusiforme</i>	Swamp darter	4	3	24.58	0.43	0.07	2
<i>Oligoplites saurus</i>	Leatherjack	1	1	23.4	0.65	0.02	1
<i>Lutjanus griseus</i>	Gray snapper	1	1	25.2	0.55	0.02	1
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	220	19	23.11	2.73	3.67	64
<i>Eucinostomus harengulus</i>	Tidewater mojarra	59	7	23.08	8.54	0.98	25
<i>Eugerres plumieri</i>	Striped mojarra	70	20	23.83	1.33	1.17	11
<i>Lagodon rhomboides</i>	Pinfish	107	14	23.95	3.95	1.78	45
<i>Cynoscion nebulosus</i>	Spotted seatrout	3	3	23.57	7.59	0.05	1
<i>Leiostomus xanthurus</i>	Spot	734	17	24.11	2.63	12.23	425
<i>Sciaenops ocellatus</i>	Red drum	5	5	23.56	2.79	0.08	1
Cichlidae spp.	Cichlids	1	1	24.6	11	0.02	1
<i>Tilapia</i> spp.	Tilapias	11	3	23.81	0.17	0.18	8
<i>Sarotherodon melanotheron</i>	Blackchin tilapia	1	1	24.3	0.1	0.02	1
<i>Mugil cephalus</i>	Striped mullet	588	13	24.53	1.73	9.80	183
<i>Gobiosoma</i> spp.	Gobiosoma gobies	127	18	24.51	1.32	2.12	50
<i>Gobiosoma bosc</i>	Naked goby	58	21	24.55	1.59	0.97	18
<i>Gobiosoma robustum</i>	Code goby	1	1	24.6	3.2	0.02	1
<i>Microgobius gulosus</i>	Clown goby	112	29	23.77	1.86	1.87	22
<i>Trinectes maculatus</i>	Hogchoker	992	49	24.38	1.76	16.53	124

Table B3, page 1 of 2. Trawl catch statistics for Myakka River (n=140).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km_U (km)	S_U (psu)	Mean CPUE (No./trawl)	Max CPUE (No./trawl)
<i>Farfantepenaeus duorarum</i>	Pink shrimp	405	7	11.85	13.1	2.89	69
<i>Rimapenaeus constrictus</i>	Roughneck shrimp	8	3	3.788	22.6	0.06	5
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	1	1	15.5	0.1	0.01	1
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	2	2	36	0.15	0.01	1
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	2	2	14.45	14.6	0.01	1
<i>Callinectes sapidus</i>	Blue crab	250	79	15.81	11.4	1.79	13
<i>Dasyatis sabina</i>	Atlantic stingray	26	19	13.22	13.7	0.19	3
<i>Rhinoptera bonasus</i>	Cownose ray	1	1	13.7	11.8	0.01	1
<i>Lepisosteus osseus</i>	Longnose gar	5	3	32.1	0.85	0.04	3
<i>Lepisosteus platyrhincus</i>	Florida gar	5	4	35.76	0.1	0.04	2
<i>Elops saurus</i>	Ladyfish	1	1	17.9	11.4	0.01	1
<i>Dorosoma petenense</i>	Threadfin shad	1	1	2.7	22.5	0.01	1
<i>Anchoa</i> spp.	Anchovies	2	1	11	17	0.01	2
<i>Anchoa hepsetus</i>	Striped anchovy	1	1	16.6	11.1	0.01	1
<i>Anchoa mitchilli</i>	Bay anchovy	8864	51	15.76	12.1	63.31	2118
<i>Synodus foetens</i>	Inshore lizardfish	2	2	10.4	16.8	0.01	1
<i>Notropis petersoni</i>	Coastal shiner	1	1	36	0.1	0.01	1
<i>Ameiurus catus</i>	White catfish	8	7	33.43	0.13	0.06	2
<i>Ictalurus punctatus</i>	Channel catfish	94	16	33.43	0.2	0.67	24
<i>Bagre marinus</i>	Gafftopsail catfish	36	10	13.98	3.86	0.26	12
<i>Ariopsis felis</i>	Hardhead catfish	186	18	8.154	3.63	1.33	85
<i>Pterygoplichthys multiradialis</i>	Orinoco sailfin catfish	6	4	36.1	0.23	0.04	3
<i>Pterygoplichthys</i> spp.	Sailfin catfishes	6	2	38	0.17	0.04	5
<i>Pterygoplichthys disjunctivus</i>	Vermiculated sailfin catfish	1	1	35.5	1.17	0.01	1
<i>Urophycis floridana</i>	Southern hake	4	1	9.6	20.5	0.03	4
<i>Fundulus confluentus</i>	Marsh killifish	1	1	29.5	0.5	0.01	1
<i>Fundulus seminolis</i>	Seminole killifish	2	1	37.7	0.2	0.01	2
<i>Lucania parva</i>	Rainwater killifish	2	1	27.3	9.43	0.01	2
<i>Gambusia holbrooki</i>	Eastern mosquitofish	1	1	36	0.1	0.01	1
<i>Menidia</i> spp.	Silversides	3	3	21.03	8.88	0.02	1
<i>Syngnathus louisianae</i>	Chain pipefish	9	7	8.544	16.2	0.06	3
<i>Syngnathus scovelli</i>	Gulf pipefish	3	3	19.07	12.1	0.02	1
<i>Hippocampus zosterae</i>	Dwarf seahorse	1	1	5.5	23.3	0.01	1
<i>Prionotus scitulus</i>	Leopard searobin	18	9	5.144	20.1	0.13	6
<i>Prionotus tribulus</i>	Bighead searobin	73	18	8.36	18.8	0.52	26
<i>Lepomis</i> spp.	Sunfishes	1	1	37.7	0.2	0.01	1
<i>Lepomis gulosus</i>	Warmouth	1	1	37.7	0.2	0.01	1
<i>Lepomis macrochirus</i>	Bluegill	41	13	36.67	0.11	0.29	13
<i>Lepomis marginatus</i>	Dollar sunfish	1	1	37.7	0.2	0.01	1
<i>Lepomis microlophus</i>	Redear sunfish	10	4	37.39	0.22	0.07	5
<i>Lepomis punctatus</i>	Spotted sunfish	8	3	39.15	0.14	0.06	4
<i>Micropterus salmoides</i>	Largemouth bass	4	2	38.4	0.13	0.03	3
<i>Pomoxis nigromaculatus</i>	Black crappie	3	1	30.4	0.5	0.02	3
<i>Etheostoma fusiforme</i>	Swamp darter	1	1	37.7	0.1	0.01	1
<i>Chloroscombrus chrysurus</i>	Atlantic bumper	9	2	3.611	21.3	0.06	8
<i>Lutjanus griseus</i>	Gray snapper	2	2	20.1	1.98	0.01	1
<i>Lutjanus synagris</i>	Lane snapper	2	1	3	14.9	0.01	2
<i>Eucinostomus</i> spp.	Eucinostomus mojarras	24	9	14.63	9.56	0.17	5
<i>Eucinostomus gula</i>	Silver jenny	58	11	6.907	20.2	0.41	18
<i>Eucinostomus harengulus</i>	Tidewater mojarra	18	7	7.094	6.45	0.13	10
<i>Eugerres plumieri</i>	Striped mojarra	58	13	15.57	4.56	0.41	22
<i>Lagodon rhomboides</i>	Pinfish	19	7	7.816	17.9	0.14	13
<i>Cynoscion nebulosus</i>	Spotted seatrout	21	12	11.51	8.88	0.15	6
<i>Cynoscion arenarius</i>	Sand seatrout	1183	48	14.84	8.33	8.45	237

Table B3, page 2 of 2. Trawl catch statistics for Myakka River (n=140).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km_U (km)	S_U (psu)	Mean CPUE (No./trawl)	Max CPUE (No./trawl)
<i>Bairdiella chrysoura</i>	Silver perch	82	17	10.16	7.17	0.59	21
<i>Leiostomus xanthurus</i>	Spot	101	12	23.71	2.65	0.72	65
<i>Menticirrhus americanus</i>	Southern kingfish	343	39	9.223	13.5	2.45	116
<i>Sciaenops ocellatus</i>	Red drum	14	3	26.15	2.06	0.10	11
<i>Chaetodipterus faber</i>	Atlantic spadefish	2	2	8.75	11.9	0.01	1
<i>Tilapia</i> spp.	Tilapias	3	2	34.07	0.23	0.02	2
<i>Mugil cephalus</i>	Striped mullet	2	1	26	0.67	0.01	2
Gobiidae spp.	Gobies	1	1	21.4	12.7	0.01	1
<i>Gobiosoma</i> spp.	Gobiosoma gobies	6	5	10.83	13.8	0.04	2
<i>Gobiosoma bosc</i>	Naked goby	1	1	21.4	12.7	0.01	1
<i>Gobiosoma robustum</i>	Code goby	1	1	10.9	15.9	0.01	1
<i>Microgobius gulosus</i>	Clown goby	129	26	19.74	7.61	0.92	35
<i>Microgobius thalassinus</i>	Green goby	5	1	8.9	19.1	0.04	5
<i>Etropus crossotus</i>	Fringed flounder	1	1	9.9	19.5	0.01	1
<i>Trinectes maculatus</i>	Hogchoker	2145	99	23.39	2.64	15.32	279
<i>Achirus lineatus</i>	Lined sole	8	4	6.05	11.4	0.06	4
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	24	11	9.075	18.3	0.17	5
<i>Stephanolepis hispidus</i>	Planehead filefish	1	1	3.6	16	0.01	1
<i>Sphoeroides nephelus</i>	Southern puffer	4	4	7.025	21.4	0.03	1
<i>Chilomycterus schoepfii</i>	Striped burrfish	3	2	2.933	18.7	0.02	2

Table B4, page 1 of 1. Trawl catch statistics for Myakkahatchee Creek (n=30).

Organisms are listed in phylogenetic order.

Taxon	Common Name	Number Collected	Collection Frequency	km_U (km)	S_U (psu)	Mean CPUE (No./trawl)	Max CPUE (No./trawl)
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	1	2	22.3	0.1	0.03	1
<i>Callinectes sapidus</i>	Blue crab	65	20	23.38	3.42	2.17	7
<i>Dasyatis sabina</i>	Atlantic stingray	2	1	23.6	12.2	0.07	2
<i>Lepisosteus osseus</i>	Longnose gar	3	2	24.7	1.93	0.10	2
<i>Lepisosteus platyrhincus</i>	Florida gar	2	1	25.9	2.67	0.07	2
<i>Elops saurus</i>	Ladyfish	5	2	23.08	6.76	0.17	4
<i>Dorosoma petenense</i>	Threadfin shad	3	2	22.4	2.38	0.10	2
<i>Anchoa mitchilli</i>	Bay anchovy	2998	16	24.78	2.04	99.93	2271
<i>Ameiurus catus</i>	White catfish	4	1	22.3	0.1	0.13	4
<i>Ictalurus punctatus</i>	Channel catfish	22	4	22.73	0.1	0.73	15
<i>Ariopsis felis</i>	Hardhead catfish	2	1	22.6	3.2	0.07	2
Loricariidae spp.	Suckermouth catfish	1	1	25.1	1.13	0.03	1
<i>Fundulus seminolis</i>	Seminole killifish	1	1	25.7	0.73	0.03	1
<i>Lucania parva</i>	Rainwater killifish	3	3	25.33	2.61	0.10	1
<i>Menidia</i> spp.	Silversides	3	2	25.7	3.24	0.10	2
<i>Prionotus tribulus</i>	Bighead searobin	1	1	22.6	3.2	0.03	1
<i>Centropomus undecimalis</i>	Common snook	1	1	25.7	0.5	0.03	1
<i>Lepomis</i> spp.	Sunfishes	1	1	25.9	2.67	0.03	1
<i>Lepomis gulosus</i>	Warmouth	4	1	25.9	2.67	0.13	4
<i>Lepomis macrochirus</i>	Bluegill	37	8	25.43	1.68	1.23	21
<i>Lepomis microlophus</i>	Redear sunfish	1	1	25.7	0.73	0.03	1
<i>Lutjanus griseus</i>	Gray snapper	2	2	22.7	4.32	0.07	1
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	30	2	22.99	5.13	1.00	28
<i>Eugerres plumieri</i>	Striped mojarra	12	6	23.88	0.71	0.40	4
<i>Lagodon rhomboides</i>	Pinfish	9	3	24.17	1.93	0.30	4
<i>Archosargus probatocephalus</i>	Sheepshead	1	1	25.2	5.97	0.03	1
<i>Cynoscion arenarius</i>	Sand seatrout	206	12	23	3.71	6.87	101
<i>Bairdiella chrysoura</i>	Silver perch	1	1	24.2	12	0.03	1
<i>Leiostomus xanthurus</i>	Spot	455	6	22.88	4.69	15.17	270
<i>Sciaenops ocellatus</i>	Red drum	1	1	22.3	1.98	0.03	1
<i>Tilapia</i> spp.	Tilapias	2	1	25.1	1.13	0.07	2
<i>Oreochromis aureus</i>	Blue tilapia	1	1	25.3	0.1	0.03	1
<i>Gobiosoma</i> spp.	Gobiosoma gobies	1	1	22.5	0.1	0.03	1
<i>Gobiosoma bosc</i>	Naked goby	4	2	23.25	3.87	0.13	3
<i>Microgobius gulosus</i>	Clown goby	19	7	24.14	1.82	0.63	10
<i>Bathygobius soporator</i>	Frillfin goby	2	2	22.6	5.51	0.07	1
<i>Trinectes maculatus</i>	Hogchoker	2115	23	24.13	1.53	70.50	616

Table B5. Page 1 of 4.

Seine catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

B-8

Taxon	Common Name	Jan (18)	Feb (18)	Mar (18)	Apr (18)	May (36)	Jun (36)	Jul (36)	Aug (32)	Sep (32)	Oct (32)	Nov (32)	Dec (32)
<i>Limulus polyphemus</i>	Horseshoe crab	0	0	0	0	0	0	0	0	0	0	1	0
<i>Farfantepenaeus duorarum</i>	Pink shrimp	4	9	0	0	0	8	44	36	11	43	125	32
<i>Palaemonetes</i> spp.	Grass shrimps	0	0	0	0	1	0	2	0	1	2	6	1
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	0	0	1	3	76	71	99	15	12	8	152	233
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0	0	0	1	0	0	4	1	3	25	4	38
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	0	0	90	6	51	290	83	13	14	173	785	1859
<i>Ambidexter symmetricus</i>	Night shrimp	0	0	0	0	0	0	0	0	0	0	1	0
<i>Callinectes sapidus</i>	Blue crab	27	125	15	20	13	4	4	1	6	7	34	26
<i>Dasyatis sabina</i>	Atlantic stingray	0	0	2	0	2	0	0	1	0	0	1	0
<i>Lepisosteus osseus</i>	Longnose gar	0	0	0	1	0	1	1	2	0	1	0	0
<i>Lepisosteus platyrhincus</i>	Florida gar	0	0	2	1	2	5	1	1	3	4	2	0
<i>Amia calva</i>	Bowfin	0	1	0	0	0	0	0	0	0	0	0	0
<i>Elops saurus</i>	Ladyfish	0	0	0	0	1	1	0	0	0	0	0	0
<i>Brevoortia</i> spp.	Menhaden	0	10	356	860	105	586	0	0	0	0	0	0
<i>Dorosoma petenense</i>	Threadfin shad	0	1	0	0	0	0	71	0	0	0	0	0
<i>Harengula jaguana</i>	Scaled sardine	0	0	1	0	0	19	0	0	0	0	0	0
<i>Anchoa hepsetus</i>	Striped anchovy	0	0	0	0	57	18	0	0	0	0	0	0
<i>Anchoa mitchilli</i>	Bay anchovy	23	4261	6896	4464	9037	2254	4317	484	421	2163	28968	10802
<i>Synodus foetens</i>	Inshore lizardfish	0	0	0	3	4	2	0	0	0	0	6	2
<i>Notemigonus crysoleucas</i>	Golden shiner	0	0	0	0	0	0	0	10	0	12	0	0
<i>Notropis</i> spp.	Shiners	0	0	0	0	2	0	0	0	0	0	0	0
<i>Notropis maculatus</i>	Taillight shiner	0	11	0	0	0	0	5	0	0	1	0	1
<i>Notropis petersoni</i>	Coastal shiner	0	1	4	2	27	51	216	154	33	28	68	46
<i>Ameiurus catus</i>	White catfish	0	0	0	0	0	0	0	1	0	0	0	0
<i>Ictalurus punctatus</i>	Channel catfish	0	0	0	0	0	0	0	1	0	0	0	0
<i>Hoplosternum littorale</i>	Brown hoplo	0	0	0	0	0	0	0	1	1	0	0	0
<i>Gobiosox strumosus</i>	Skilletfish	2	0	0	0	1	0	0	0	1	1	2	0
<i>Strongylura</i> spp.	Needlefishes	0	0	0	0	18	16	2	0	1	4	0	1
<i>Strongylura marina</i>	Atlantic needlefish	0	0	0	0	6	10	0	0	1	0	0	0
<i>Strongylura notata</i>	Redfin needlefish	0	0	0	0	5	8	21	0	0	5	4	0

Table B5. Page 2 of 4.

Seine catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

B-9

Taxon	Common Name	Jan (18)	Feb (18)	Mar (18)	Apr (18)	May (36)	Jun (36)	Jul (36)	Aug (32)	Sep (32)	Oct (32)	Nov (32)	Dec (32)
<i>Strongylura timucu</i>	Timucu	0	0	0	0	0	1	0	0	1	0	1	0
<i>Cyprinodon variegatus</i>	Sheepshead minnow	33	11	0	0	1	0	1	1	0	9	0	13
<i>Fundulus confluentus</i>	Marsh killifish	5	0	0	0	3	0	0	0	0	0	0	56
<i>Fundulus similis</i>	Striped killifish	0	0	0	0	47	41	37	1	0	0	0	0
<i>Fundulus grandis</i>	Gulf killifish	39	3	0	0	1	0	19	0	16	0	27	5
<i>Fundulus chrysotus</i>	Golden topminnow	0	0	0	0	0	0	18	1	1	0	0	3
<i>Fundulus seminolis</i>	Seminole killifish	13	37	10	7	921	327	167	8	78	150	148	117
<i>Lucania parva</i>	Rainwater killifish	79	11	0	9	111	27	85	15	1	0	142	112
<i>Lucania goodei</i>	Bluefin killifish	2	3	0	1	35	10	28	1	8	7	3	19
<i>Adinia xenica</i>	Diamond killifish	9	0	0	0	0	0	0	0	0	0	1	1
<i>Floridichthys carpio</i>	Goldspotted killifish	0	0	0	0	0	0	0	0	0	0	0	1
<i>Jordanella floridae</i>	Flagfish	0	0	0	0	3	0	63	1	9	0	0	26
<i>Gambusia holbrooki</i>	Eastern mosquitofish	684	232	28	55	756	28	286	270	767	840	1238	3408
<i>Poecilia latipinna</i>	Sailfin molly	31	44	5	1	48	0	69	1	127	6	40	955
<i>Heterandria formosa</i>	Least killifish	1	1	1	2	8	0	33	1	0	5	4	11
<i>Membras martinica</i>	Rough silverside	1	0	0	0	216	53	14	0	0	2	42	0
<i>Menidia spp.</i>	Silversides	309	575	623	703	1042	981	2010	772	673	1392	593	1106
<i>Labidesthes sicculus</i>	Brook silverside	19	3	6	12	3	87	254	289	333	226	144	35
<i>Syngnathus louisianae</i>	Chain pipefish	0	0	0	0	1	0	0	0	0	0	2	1
<i>Syngnathus scovelli</i>	Gulf pipefish	0	1	0	2	2	2	1	0	0	0	2	3
<i>Hippocampus erectus</i>	Lined seahorse	0	0	0	1	0	0	0	0	0	0	0	0
<i>Prionotus scitulus</i>	Leopard searobin	0	0	0	0	0	0	0	0	0	0	7	0
<i>Prionotus tribulus</i>	Bighead searobin	0	0	0	0	0	0	0	0	0	0	7	1
<i>Centropomus undecimalis</i>	Common snook	0	0	0	0	1	0	1	5	2	2	2	2
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	0	0	0	0	0	0	2	2	4	0	1	0
<i>Lepomis spp.</i>	Sunfishes	0	0	0	0	59	0	7	18	8	1	0	0
<i>Lepomis gulosus</i>	Warmouth	2	1	0	0	0	0	1	0	9	2	1	0
<i>Lepomis macrochirus</i>	Bluegill	29	17	2	9	4	9	318	26	30	52	19	11
<i>Lepomis marginatus</i>	Dollar sunfish	8	5	0	1	1	1	0	10	25	26	2	6
<i>Lepomis microlophus</i>	Redear sunfish	9	14	12	5	4	0	61	6	38	6	6	9

Table B5. Page 3 of 4.

Seine catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

B-10

Taxon	Common Name	Jan (18)	Feb (18)	Mar (18)	Apr (18)	May (36)	Jun (36)	Jul (36)	Aug (32)	Sep (32)	Oct (32)	Nov (32)	Dec (32)
<i>Lepomis punctatus</i>	Spotted sunfish	1	0	1	0	1	0	4	1	4	1	0	1
<i>Micropterus salmoides</i>	Largemouth bass	0	9	0	3	4	3	9	0	7	5	1	0
<i>Pomoxis nigromaculatus</i>	Black crappie	0	0	1	0	0	0	0	0	0	0	0	0
<i>Elassoma evergladei</i>	Everglades pygmy sunfish	0	0	0	0	0	0	1	0	0	0	1	0
<i>Etheostoma fusiforme</i>	Swamp darter	0	0	1	0	1	0	50	0	3	5	4	2
<i>Oligoplites saurus</i>	Leatherjack	0	0	0	0	93	90	29	10	0	3	0	0
<i>Lutjanus griseus</i>	Gray snapper	0	0	0	0	1	1	1	3	2	3	4	2
<i>Eucinostomus</i> spp.	Eucinostomus mojarras	594	397	300	69	53	325	359	84	155	240	703	522
<i>Eucinostomus gula</i>	Silver jenny	1	2	8	17	1	67	100	1	11	1	0	0
<i>Eucinostomus harengulus</i>	Tidewater mojarra	4	5	25	76	200	91	32	66	55	73	7	88
<i>Eugerres plumieri</i>	Striped mojarra	2	3	6	0	14	143	379	92	16	23	31	67
<i>Orthopristis chrysoptera</i>	Pigfish	1	0	0	0	0	0	0	0	0	0	0	0
<i>Lagodon rhomboides</i>	Pinfish	92	387	319	140	141	50	23	1	2	1	0	1
<i>Archosargus probatocephalus</i>	Sheepshead	0	0	0	1	4	0	0	4	1	2	1	3
<i>Cynoscion nebulosus</i>	Spotted seatrout	0	0	0	0	47	130	65	19	4	2	16	4
<i>Cynoscion arenarius</i>	Sand seatrout	0	0	0	0	12	5	11	9	7	14	2	1
<i>Bairdiella chrysoura</i>	Silver perch	0	0	0	12	49	46	2	0	0	0	7	0
<i>Leiostomus xanthurus</i>	Spot	2126	1986	703	74	75	22	0	0	0	0	1	0
<i>Menticirrhus americanus</i>	Southern kingfish	0	0	0	4	9	4	1	0	0	5	7	0
<i>Sciaenops ocellatus</i>	Red drum	21	69	10	2	0	0	1	2	0	906	273	165
Cichlidae spp.	Cichlids	0	0	0	0	1	0	0	0	0	0	0	0
<i>Tilapia</i> spp.	Tilapias	0	0	0	0	126	2	10	1	0	1	0	0
<i>Sarotherodon melanotheron</i>	Blackchin tilapia	0	0	0	0	0	0	0	0	1	0	0	0
<i>Mugil cephalus</i>	Striped mullet	417	211	213	4	16	2	3	1	0	19	0	95
<i>Mugil curema</i>	White mullet	6	0	1	0	0	6	2	0	0	0	0	0
<i>Mugil gyrans</i>	Fantail mullet	0	1	63	3	1	42	0	0	0	0	11	62
<i>Chasmodes saburrae</i>	Florida blenny	0	0	0	0	0	0	1	0	0	0	0	0
<i>Gobiosoma</i> spp.	Gobiosoma gobies	2	9	0	0	9	10	176	37	31	23	3	38
<i>Gobiosoma bosc</i>	Naked goby	8	11	10	1	3	7	37	14	7	27	6	38
<i>Gobiosoma robustum</i>	Code goby	0	0	0	0	3	49	1	0	0	0	2	0

Table B5. Page 4 of 4.

Seine catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

Taxon	Common Name	Jan (18)	Feb (18)	Mar (18)	Apr (18)	May (36)	Jun (36)	Jul (36)	Aug (32)	Sep (32)	Oct (32)	Nov (32)	Dec (32)
<i>Microgobius gulosus</i>	Clown goby	25	33	14	5	46	140	319	140	47	34	19	21
<i>Bathygobius soporator</i>	Frillfin goby	0	0	0	1	0	0	1	6	0	0	7	0
<i>Paralichthys albigutta</i>	Gulf flounder	1	0	0	0	0	0	0	0	0	0	0	0
<i>Trinectes maculatus</i>	Hogchoker	84	173	345	101	148	128	754	175	120	352	270	385
<i>Achirus lineatus</i>	Lined sole	0	0	0	0	2	3	0	0	0	2	2	0
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	0	0	0	0	0	0	0	1	1	2	5	1
<i>Sphoeroides nephelus</i>	Southern puffer	0	0	0	0	7	1	0	0	0	0	3	0

Table B6. Page 1 of 3.

Trawl catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

B-12

Taxon	Common Name	Jan (9)	Feb (9)	Mar (9)	Apr (9)	May (18)	Jun (18)	Jul (18)	Aug (16)	Sep (16)	Oct (16)	Nov (16)	Dec (16)
<i>Farfantepenaeus duorarum</i>	Pink shrimp	20	8	15	9	0	10	83	4	8	95	97	56
<i>Rimapenaeus constrictus</i>	Roughneck shrimp	1	0	0	0	0	0	0	0	0	0	5	2
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	0	0	0	0	0	0	0	1	0	0	0	0
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0	0	0	0	1	0	0	1	0	0	1	0
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	0	0	0	0	0	0	0	0	0	0	0	2
<i>Callinectes sapidus</i>	Blue crab	25	12	34	28	30	16	48	20	18	17	29	38
<i>Dasyatis sabina</i>	Atlantic stingray	0	0	4	5	5	5	0	2	1	1	4	1
<i>Rhinoptera bonasus</i>	Cownose ray	0	0	0	0	0	0	0	0	0	1	0	0
<i>Lepisosteus osseus</i>	Longnose gar	0	0	3	0	2	1	0	0	0	0	0	2
<i>Lepisosteus platyrhincus</i>	Florida gar	0	0	0	0	0	0	1	0	0	3	3	0
<i>Elops saurus</i>	Ladyfish	0	5	0	0	1	0	0	0	0	0	0	0
<i>Dorosoma petenense</i>	Threadfin shad	0	0	0	0	0	1	0	0	0	2	1	0
<i>Anchoa</i> spp.	Anchovies	0	0	0	0	2	0	0	0	0	0	0	0
<i>Anchoa hepsetus</i>	Striped anchovy	0	0	0	0	0	1	0	0	0	0	0	0
<i>Anchoa mitchilli</i>	Bay anchovy	210	2325	273	893	561	5504	263	15	127	788	133	770
<i>Synodus foetens</i>	Inshore lizardfish	0	0	0	0	1	1	0	0	0	0	0	0
<i>Notropis petersoni</i>	Coastal shiner	0	0	0	0	0	0	0	0	0	1	0	0
<i>Ameiurus catus</i>	White catfish	0	0	0	0	3	0	3	5	1	0	0	0
<i>Ictalurus punctatus</i>	Channel catfish	0	0	0	0	0	0	14	70	26	6	0	0
<i>Bagre marinus</i>	Gafftopsail catfish	0	0	8	0	0	1	0	10	12	3	0	2
<i>Ariopsis felis</i>	Hardhead catfish	0	1	0	0	0	2	6	126	39	8	1	5
Loricariidae spp.	Suckermouth catfish	0	0	0	0	0	1	0	0	0	0	0	0
<i>Pterygoplichthys multiradialis</i>	Orinoco sailfin catfish	0	1	0	0	4	0	0	0	0	0	0	1
<i>Pterygoplichthys</i> spp.	Sailfin catfishes	0	0	0	0	0	0	0	0	0	0	0	6
<i>Pterygoplichthys disjunctivus</i>	Vermiculated sailfin catfish	0	0	0	0	0	1	0	0	0	0	0	0
<i>Urophycis floridana</i>	Southern hake	0	4	0	0	0	0	0	0	0	0	0	0
<i>Fundulus confluentus</i>	Marsh killifish	0	0	0	0	0	0	0	0	0	0	0	1
<i>Fundulus seminolis</i>	Seminole killifish	1	0	0	0	2	0	0	0	0	0	0	0
<i>Lucania parva</i>	Rainwater killifish	1	0	0	1	2	1	0	0	0	0	0	0
<i>Gambusia holbrooki</i>	Eastern mosquitofish	0	0	0	0	0	0	0	0	0	1	0	0
<i>Menidia</i> spp.	Silversides	1	0	0	1	0	2	0	0	0	0	0	2
<i>Syngnathus louisianae</i>	Chain pipefish	0	0	1	0	2	3	0	0	0	0	2	1

Table B6. Page 2 of 3.

Trawl catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

B-13

Taxon	Common Name	Jan (9)	Feb (9)	Mar (9)	Apr (9)	May (18)	Jun (18)	Jul (18)	Aug (16)	Sep (16)	Oct (16)	Nov (16)	Dec (16)
<i>Syngnathus scovelli</i>	Gulf pipefish	0	0	0	0	0	2	0	0	0	0	0	1
<i>Hippocampus zosterae</i>	Dwarf seahorse	0	0	0	0	1	0	0	0	0	0	0	0
<i>Prionotus scitulus</i>	Leopard searobin	5	0	0	1	2	6	0	0	0	0	2	2
<i>Prionotus tribulus</i>	Bighead searobin	11	3	1	0	0	0	1	0	0	5	18	35
<i>Centropomus undecimalis</i>	Common snook	0	0	0	0	0	0	0	0	0	0	0	1
<i>Lepomis</i> spp.	Sunfishes	0	0	0	0	1	0	0	0	0	0	1	0
<i>Lepomis gulosus</i>	Warmouth	0	0	0	0	1	0	0	0	0	0	4	0
<i>Lepomis macrochirus</i>	Bluegill	3	0	1	1	0	0	8	2	3	11	31	18
<i>Lepomis marginatus</i>	Dollar sunfish	1	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis microlophus</i>	Redear sunfish	1	2	0	0	0	0	3	0	0	0	0	5
<i>Lepomis punctatus</i>	Spotted sunfish	0	0	0	0	3	0	0	0	0	0	1	4
<i>Micropterus salmoides</i>	Largemouth bass	0	0	0	1	0	0	0	0	0	0	0	3
<i>Pomoxis nigromaculatus</i>	Black crappie	0	0	0	3	0	0	0	0	0	0	0	0
<i>Etheostoma fusiforme</i>	Swamp darter	0	0	1	0	0	0	0	0	0	0	0	0
<i>Chloroscombrus chrysurus</i>	Atlantic bumper	0	0	0	0	0	1	0	0	0	0	0	8
<i>Lutjanus griseus</i>	Gray snapper	0	1	0	0	0	0	0	1	0	0	0	2
<i>Lutjanus synagris</i>	Lane snapper	0	0	0	0	0	0	0	0	0	2	0	0
<i>Eucinostomus</i> spp.	Eucinostomus mojarras	3	28	0	0	0	7	5	0	0	0	0	11
<i>Eucinostomus gula</i>	Silver jenny	2	5	7	0	0	1	18	1	0	5	0	19
<i>Eucinostomus harengulus</i>	Tidewater mojarra	0	0	0	0	1	1	1	10	3	0	1	1
<i>Eugerres plumieri</i>	Striped mojarra	0	0	0	0	0	21	27	6	10	3	3	0
<i>Lagodon rhomboides</i>	Pinfish	16	2	5	0	0	1	1	0	2	0	0	1
<i>Archosargus probatocephalus</i>	Sheepshead	0	0	0	1	0	0	0	0	0	0	0	0
<i>Cynoscion nebulosus</i>	Spotted seatrout	0	1	0	0	1	7	8	1	1	1	1	0
<i>Cynoscion arenarius</i>	Sand seatrout	6	0	0	5	79	306	315	136	116	69	342	15
<i>Bairdiella chrysoura</i>	Silver perch	0	0	1	0	3	10	14	34	2	10	8	1
<i>Leiostomus xanthurus</i>	Spot	385	110	50	2	0	1	6	2	0	0	0	0
<i>Menticirrhus americanus</i>	Southern kingfish	0	0	3	2	27	131	38	39	36	37	7	23
<i>Sciaenops ocellatus</i>	Red drum	0	0	0	0	0	0	0	0	0	2	2	11
<i>Chaetodipterus faber</i>	Atlantic spadefish	0	0	0	0	0	0	2	0	0	0	0	0
<i>Tilapia</i> spp.	Tilapias	0	0	0	0	3	2	0	0	0	0	0	0
<i>Tilapia aurea</i>	Blue tilapia	0	0	0	0	0	0	0	0	1	0	0	0

Table B6. Page 3 of 3.

Trawl catch by month, Myakka River and Myakkahatchee Creek combined.

Number of monthly samples is indicated in parentheses.

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Taxon	Common Name	Jan (9)	Feb (9)	Mar (9)	Apr (9)	May (18)	Jun (18)	Jul (18)	Aug (16)	Sep (16)	Oct (16)	Nov (16)	Dec (16)
<i>Mugil cephalus</i>	Striped mullet	2	0	0	0	0	0	0	0	0	0	0	0
Gobiidae spp.	Gobies	0	0	0	0	1	0	0	0	0	0	0	0
<i>Gobiosoma</i> spp.	Gobiosoma gobies	0	0	0	0	4	1	1	0	1	0	0	0
<i>Gobiosoma bosc</i>	Naked goby	0	0	0	1	1	3	0	0	0	0	0	0
<i>Gobiosoma robustum</i>	Code goby	0	0	0	0	0	1	0	0	0	0	0	0
<i>Microgobius gulosus</i>	Clown goby	2	3	1	2	30	85	10	8	2	1	0	4
<i>Microgobius thalassinus</i>	Green goby	0	0	0	0	0	0	5	0	0	0	0	0
<i>Bathygobius soporator</i>	Frillfin goby	1	1	0	0	0	0	0	0	0	0	0	0
<i>Etropus crossotus</i>	Fringed flounder	0	0	0	0	0	0	0	0	0	0	0	1
<i>Trinectes maculatus</i>	Hogchoker	63	7	211	26	309	1397	1031	573	332	84	164	63
<i>Achirus lineatus</i>	Lined sole	0	0	0	0	0	2	0	5	0	0	0	1
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	0	1	1	1	0	1	2	0	0	0	12	6
<i>Stephanolepis hispidus</i>	Planehead filefish	0	0	0	0	0	1	0	0	0	0	0	0
<i>Sphoeroides nephelus</i>	Southern puffer	0	0	0	1	1	0	0	0	0	0	1	1
<i>Chilomycterus schoepfii</i>	Striped burrfish	0	0	0	0	2	1	0	0	0	0	0	0

Table B7, page 1 of 2. Location-specific seine catch, Myakka River.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)						
		2.4-7.5	7.5-13.5	13.5-18.5	18.5-23.4	23.4-28.8	28.8-35.0	35.0-42.0
<i>Limulus polyphemus</i>	Horseshoe crab	0.025	0.000	0.000	0.000	0.000	0.000	0.000
<i>Farfantepenaeus duorarum</i>	Pink shrimp	4.875	0.950	1.450	0.400	0.125	0.000	0.000
<i>Palaemonetes</i> spp.	Grass shrimps	0.075	0.000	0.125	0.025	0.000	0.050	0.050
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	7.450	2.225	5.100	1.950	0.025	0.000	0.000
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0.000	0.000	0.000	0.000	0.000	1.050	0.775
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	10.625	1.500	7.500	28.300	30.525	4.900	0.025
<i>Ambidexter symmetricus</i>	Night shrimp	0.025	0.000	0.000	0.000	0.000	0.000	0.000
<i>Callinectes sapidus</i>	Blue crab	2.300	1.000	1.450	0.775	0.250	0.175	0.025
<i>Dasyatis sabina</i>	Atlantic stingray	0.025	0.025	0.050	0.050	0.000	0.000	0.000
<i>Lepisosteus osseus</i>	Longnose gar	0.000	0.000	0.050	0.050	0.025	0.025	0.000
<i>Lepisosteus platyrhincus</i>	Florida gar	0.000	0.000	0.025	0.100	0.075	0.100	0.075
<i>Amia calva</i>	Bowfin	0.000	0.000	0.000	0.000	0.025	0.000	0.000
<i>Elops saurus</i>	Ladyfish	0.000	0.000	0.000	0.000	0.000	0.025	0.000
<i>Brevoortia</i> spp.	Menhadens	0.325	8.875	1.700	0.800	0.200	0.025	0.000
<i>Dorosoma petenense</i>	Threadfin shad	0.000	0.000	0.000	0.000	0.025	0.000	0.000
<i>Harengula jaguana</i>	Scaled sardine	0.025	0.475	0.000	0.000	0.000	0.000	0.000
<i>Anchoa hepsetus</i>	Striped anchovy	1.125	0.000	0.375	0.250	0.000	0.125	0.000
<i>Anchoa mitchilli</i>	Bay anchovy	264.200	295.775	217.100	699.675	56.575	18.975	4.200
<i>Synodus foetens</i>	Inshore lizardfish	0.250	0.125	0.050	0.000	0.000	0.000	0.000
<i>Notemigonus crysoleucas</i>	Golden shiner	0.000	0.000	0.000	0.000	0.300	0.000	0.000
<i>Notropis</i> spp.	Shiners	0.000	0.000	0.000	0.000	0.000	0.050	0.000
<i>Notropis maculatus</i>	Taillight shiner	0.000	0.000	0.000	0.000	0.025	0.075	0.000
<i>Notropis petersoni</i>	Coastal shiner	0.000	0.000	0.000	0.050	1.700	6.225	7.375
<i>Ameiurus catus</i>	White catfish	0.000	0.000	0.000	0.000	0.000	0.025	0.000
<i>Hoplosternum littorale</i>	Brown hoplo	0.000	0.000	0.000	0.025	0.000	0.000	0.000
<i>Gobiesox strumosus</i>	Skilletfish	0.150	0.000	0.000	0.025	0.000	0.000	0.000
<i>Strongylura</i> spp.	Needlefishes	0.500	0.125	0.175	0.125	0.050	0.075	0.000
<i>Strongylura marina</i>	Atlantic needlefish	0.050	0.050	0.225	0.075	0.000	0.025	0.000
<i>Strongylura notata</i>	Redfin needlefish	0.525	0.225	0.325	0.000	0.000	0.000	0.000
<i>Strongylura timucu</i>	Timucu	0.025	0.000	0.000	0.025	0.000	0.025	0.000
<i>Cyprinodon variegatus</i>	Sheepshead minnow	0.975	0.500	0.125	0.075	0.025	0.000	0.000
<i>Fundulus confluentus</i>	Marsh killifish	0.000	0.000	0.000	0.150	0.000	1.450	0.000
<i>Fundulus similis</i>	Striped killifish	0.050	2.825	0.275	0.000	0.000	0.000	0.000
<i>Fundulus grandis</i>	Gulf killifish	0.075	0.075	0.725	1.525	0.100	0.000	0.000
<i>Fundulus chrysotus</i>	Golden topminnow	0.000	0.000	0.000	0.000	0.000	0.075	0.450
<i>Fundulus seminolis</i>	Seminole killifish	0.025	0.000	0.000	0.225	1.025	24.500	20.200
<i>Lucania parva</i>	Rainwater killifish	0.875	0.100	0.075	3.800	3.950	2.000	0.025
<i>Lucania goodei</i>	Bluefin killifish	0.000	0.000	0.000	0.000	0.075	1.625	0.875
<i>Adinia xenica</i>	Diamond killifish	0.000	0.025	0.075	0.150	0.025	0.000	0.000
<i>Floridichthys carpio</i>	Goldspotted killifish	0.000	0.025	0.000	0.000	0.000	0.000	0.000
<i>Jordanella floridae</i>	Flagfish	0.000	0.000	0.000	0.025	0.000	0.650	1.600
<i>Gambusia holbrooki</i>	Eastern mosquitofish	0.250	0.300	0.150	6.650	19.425	101.850	39.775
<i>Poecilia latipinna</i>	Sailfin molly	0.075	0.050	0.350	0.925	1.025	23.250	1.125
<i>Heterandria formosa</i>	Least killifish	0.000	0.000	0.000	0.000	0.000	0.375	1.200
<i>Membras martinica</i>	Rough silverside	0.400	3.200	3.150	1.400	0.025	0.025	0.000
<i>Menidia</i> spp.	Silversides	17.200	62.325	64.275	30.275	25.325	9.900	3.550
<i>Labidesthes sicculus</i>	Brook silverside	0.000	0.000	0.000	0.075	4.300	7.350	16.625
<i>Syngnathus louisianae</i>	Chain pipefish	0.050	0.025	0.000	0.000	0.000	0.000	0.000
<i>Syngnathus scovelli</i>	Gulf pipefish	0.050	0.125	0.100	0.050	0.000	0.000	0.000
<i>Hippocampus erectus</i>	Lined seahorse	0.000	0.025	0.000	0.000	0.000	0.000	0.000
<i>Prionotus scitulus</i>	Leopard searobin	0.175	0.000	0.000	0.000	0.000	0.000	0.000
<i>Prionotus tribulus</i>	Bighead searobin	0.100	0.025	0.025	0.050	0.000	0.000	0.000
<i>Centropomus undecimalis</i>	Common snook	0.125	0.025	0.025	0.125	0.050	0.025	0.000
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.025
<i>Lepomis</i> spp.	Sunfishes	0.000	0.025	0.000	0.050	0.200	1.000	0.650
<i>Lepomis gulosus</i>	Warmouth	0.000	0.025	0.000	0.000	0.000	0.025	0.225
<i>Lepomis macrochirus</i>	Bluegill	0.000	0.000	0.000	0.100	3.050	4.000	1.775
<i>Lepomis marginatus</i>	Dollar sunfish	0.000	0.000	0.000	0.100	0.350	0.550	0.175
<i>Lepomis microlophus</i>	Redear sunfish	0.000	0.000	0.000	0.100	0.625	0.850	1.225
<i>Lepomis punctatus</i>	Spotted sunfish	0.000	0.000	0.000	0.000	0.000	0.050	0.250
<i>Micropterus salmoides</i>	Largemouth bass	0.000	0.000	0.000	0.000	0.150	0.050	0.775
<i>Pomoxis nigromaculatus</i>	Black crappie	0.000	0.000	0.000	0.025	0.000	0.000	0.000
<i>Elassoma evergladei</i>	Everglades pygmy sunfish	0.000	0.000	0.000	0.000	0.000	0.025	0.025
<i>Etheostoma fusiforme</i>	Swamp darter	0.000	0.000	0.000	0.175	0.225	0.275	0.875
<i>Oligoplites saurus</i>	Leatherjack	2.475	1.800	0.575	0.425	0.225	0.100	0.000
<i>Lutjanus griseus</i>	Gray snapper	0.075	0.000	0.125	0.125	0.075	0.000	0.000

Table B7, page 2 of 2. Location-specific seine catch, Myakka River.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)						
		2.4-7.5	7.5-13.5	13.5-18.5	18.5-23.4	23.4-28.8	28.8-35.0	35.0-42.0
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	17.075	31.225	22.650	15.950	2.225	0.075	0.325
<i>Eucinostomus gula</i>	Silver jenny	2.400	2.800	0.025	0.000	0.000	0.000	0.000
<i>Eucinostomus harengulus</i>	Tidewater mojarra	2.775	6.925	4.200	2.300	0.375	0.000	0.000
<i>Eugerres plumieri</i>	Striped mojarra	9.650	4.150	1.475	1.500	0.825	0.050	0.000
<i>Orthopristis chrysoptera</i>	Pigfish	0.000	0.000	0.025	0.000	0.000	0.000	0.000
<i>Lagodon rhomboides</i>	Pinfish	12.750	5.200	2.925	5.025	0.325	0.025	0.000
<i>Archosargus probatocephalus</i>	Sheepshead	0.100	0.175	0.050	0.025	0.050	0.000	0.000
<i>Cynoscion nebulosus</i>	Spotted seatrout	2.125	1.850	2.600	0.500	0.025	0.000	0.000
<i>Cynoscion arenarius</i>	Sand seatrout	0.575	0.100	0.325	0.300	0.025	0.200	0.000
<i>Bairdiella chrysoura</i>	Silver perch	1.475	0.000	0.700	0.150	0.000	0.575	0.000
<i>Leiostomus xanthurus</i>	Spot	28.125	8.025	10.225	36.025	23.925	0.000	0.000
<i>Menticirrhus americanus</i>	Southern kingfish	0.250	0.150	0.300	0.050	0.000	0.000	0.000
<i>Sciaenops ocellatus</i>	Red drum	26.275	5.625	2.400	1.650	0.150	0.000	0.000
<i>Tilapia</i> spp.	Tilapias	0.000	0.000	0.000	0.000	0.025	2.850	0.350
<i>Mugil cephalus</i>	Striped mullet	0.475	0.925	7.825	0.575	0.000	0.025	0.000
<i>Mugil curema</i>	White mullet	0.000	0.225	0.150	0.000	0.000	0.000	0.000
<i>Mugil gyrans</i>	Fantail mullet	4.150	0.350	0.075	0.000	0.000	0.000	0.000
<i>Chasmodes saburrae</i>	Florida blenny	0.025	0.000	0.000	0.000	0.000	0.000	0.000
<i>Gobiosoma</i> spp.	Gobiosoma gobies	0.150	0.100	0.200	1.875	1.450	1.400	0.100
<i>Gobiosoma bosc</i>	Naked goby	0.025	0.125	0.100	0.950	1.150	0.350	0.075
<i>Gobiosoma robustum</i>	Code goby	1.250	0.075	0.000	0.025	0.000	0.000	0.000
<i>Microgobius gulosus</i>	Clown goby	5.225	3.000	2.925	3.425	2.925	0.775	0.000
<i>Bathygobius soporator</i>	Frillfin goby	0.000	0.375	0.000	0.000	0.000	0.000	0.000
<i>Paralichthys albigutta</i>	Gulf flounder	0.025	0.000	0.000	0.000	0.000	0.000	0.000
<i>Trinectes maculatus</i>	Hogchoker	0.100	0.350	1.325	6.250	6.575	19.000	17.475
<i>Achirus lineatus</i>	Lined sole	0.200	0.000	0.025	0.000	0.000	0.000	0.000
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	0.225	0.025	0.000	0.000	0.000	0.000	0.000
<i>Sphoeroides nephelus</i>	Southern puffer	0.125	0.000	0.150	0.000	0.000	0.000	0.000

Table B8, page 1 of 2. Location-specific seine catch, Myakkahatchee Creek.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)	
		22.3-24.3	24.3-26.4
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0.000	0.100
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	0.667	0.300
<i>Callinectes sapidus</i>	Blue crab	1.033	0.400
<i>Lepisosteus platyrhincus</i>	Florida gar	0.033	0.167
<i>Elops saurus</i>	Ladyfish	0.000	0.033
<i>Brevoortia</i> spp.	Menhaden	0.367	47.633
<i>Dorosoma petenense</i>	Threadfin shad	0.000	2.367
<i>Anchoa mitchilli</i>	Bay anchovy	236.100	158.233
<i>Notemigonus crysoleucas</i>	Golden shiner	0.000	0.333
<i>Notropis maculatus</i>	Taillight shiner	0.033	0.433
<i>Notropis petersoni</i>	Coastal shiner	0.033	0.500
<i>Ictalurus punctatus</i>	Channel catfish	0.000	0.033
<i>Hoplosternum littorale</i>	Brown hoplo	0.000	0.033
<i>Cyprinodon variegatus</i>	Sheepshead minnow	0.000	0.033
<i>Fundulus grandis</i>	Gulf killifish	0.333	0.000
<i>Fundulus chrysotus</i>	Golden topminnow	0.000	0.067
<i>Fundulus seminolis</i>	Seminole killifish	1.167	3.633
<i>Lucania parva</i>	Rainwater killifish	1.533	3.767
<i>Lucania goodei</i>	Bluefin killifish	0.133	0.333
<i>Jordanella floridae</i>	Flagfish	0.000	0.367
<i>Gambusia holbrooki</i>	Eastern mosquitofish	27.200	34.667
<i>Poecilia latipinna</i>	Sailfin molly	5.833	2.667
<i>Heterandria formosa</i>	Least killifish	0.000	0.133
<i>Menidia</i> spp.	Silversides	22.067	53.433
<i>Labidesthes sicculus</i>	Brook silverside	0.833	8.400
<i>Syngnathus louisianae</i>	Chain pipefish	0.033	0.000
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	0.133	0.133
<i>Lepomis</i> spp.	Sunfishes	0.100	0.433
<i>Lepomis gulosus</i>	Warmouth	0.033	0.133
<i>Lepomis macrochirus</i>	Bluegill	1.233	4.400
<i>Lepomis marginatus</i>	Dollar sunfish	0.467	0.800
<i>Lepomis microlophus</i>	Redear sunfish	0.433	1.500
<i>Lepomis punctatus</i>	Spotted sunfish	0.000	0.067
<i>Micropterus salmoides</i>	Largemouth bass	0.000	0.067
<i>Etheostoma fusiforme</i>	Swamp darter	0.033	0.100
<i>Oligoplites saurus</i>	Leatherjack	0.033	0.000
<i>Lutjanus griseus</i>	Gray snapper	0.000	0.033
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	5.233	2.100
<i>Eucinostomus harengulus</i>	Tidewater mojarra	1.867	0.100
<i>Eugerres plumieri</i>	Striped mojarra	1.167	1.167
<i>Lagodon rhomboides</i>	Pinfish	1.167	2.400
<i>Cynoscion nebulosus</i>	Spotted seatrout	0.067	0.033
<i>Leiostomus xanthurus</i>	Spot	5.467	19.000

Table B8, page 2 of 2. Location-specific seine catch, Myakkahatchee Creek.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)	
		22.3-24.3	24.3-26.4
<i>Sciaenops ocellatus</i>	Red drum	0.067	0.100
Cichlidae spp.	Cichlids	0.000	0.033
<i>Tilapia</i> spp.	Tilapias	0.100	0.267
<i>Sarotherodon melanotheron</i>	Blackchin tilapia	0.000	0.033
<i>Mugil cephalus</i>	Striped mullet	0.333	19.267
<i>Gobiosoma</i> spp.	Gobiosoma gobies	0.600	3.633
<i>Gobiosoma bosc</i>	Naked goby	0.433	1.500
<i>Gobiosoma robustum</i>	Code goby	0.000	0.033
<i>Microgobius gulosus</i>	Clown goby	1.733	2.000
<i>Trinectes maculatus</i>	Hogchoker	9.500	23.567

Table B9, page 1 of 2. Location-specific trawl catch, Myakka River.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)						
		2.4-7.5	7.5-13.5	13.5-18.5	18.5-23.4	23.4-28.8	28.8-35.0	35.0-42.0
<i>Farfantepenaeus duorarum</i>	Pink shrimp	5.650	4.250	9.000	0.950	0.400	0.000	0.000
<i>Rimapenaeus constrictus</i>	Roughneck shrimp	0.400	0.000	0.000	0.000	0.000	0.000	0.000
<i>Palaemonetes intermedius</i>	Brackish grass shrimp	0.000	0.000	0.050	0.000	0.000	0.000	0.000
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0.000	0.000	0.000	0.000	0.000	0.050	0.050
<i>Palaemonetes pugio</i>	Daggerblade grass shrimp	0.000	0.050	0.000	0.050	0.000	0.000	0.000
<i>Callinectes sapidus</i>	Blue crab	2.100	3.300	2.200	2.250	0.950	1.350	0.350
<i>Dasyatis sabina</i>	Atlantic stingray	0.300	0.450	0.100	0.350	0.100	0.000	0.000
<i>Rhinoptera bonasus</i>	Cownose ray	0.000	0.000	0.050	0.000	0.000	0.000	0.000
<i>Lepisosteus osseus</i>	Longnose gar	0.000	0.000	0.000	0.000	0.050	0.150	0.050
<i>Lepisosteus platyrhincus</i>	Florida gar	0.000	0.000	0.000	0.000	0.000	0.100	0.150
<i>Elops saurus</i>	Ladyfish	0.000	0.000	0.050	0.000	0.000	0.000	0.000
<i>Dorosoma petenense</i>	Threadfin shad	0.050	0.000	0.000	0.000	0.000	0.000	0.000
<i>Anchoa</i> spp.	Anchovies	0.000	0.100	0.000	0.000	0.000	0.000	0.000
<i>Anchoa hepsetus</i>	Striped anchovy	0.000	0.000	0.050	0.000	0.000	0.000	0.000
<i>Anchoa mitchilli</i>	Bay anchovy	7.550	115.250	227.250	68.300	23.600	1.250	0.000
<i>Synodus foetens</i>	Inshore lizardfish	0.050	0.000	0.050	0.000	0.000	0.000	0.000
<i>Notropis petersoni</i>	Coastal shiner	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Ameiurus catus</i>	White catfish	0.000	0.000	0.000	0.000	0.100	0.100	0.200
<i>Ictalurus punctatus</i>	Channel catfish	0.000	0.000	0.250	0.500	0.150	0.950	2.850
<i>Bagre marinus</i>	Gafftopsail catfish	0.250	0.350	0.750	0.050	0.400	0.000	0.000
<i>Ariopsis felis</i>	Hardhead catfish	4.550	3.850	0.400	0.150	0.300	0.050	0.000
<i>Pterygoplichthys multiradialis</i>	Orinoco sailfin catfish	0.000	0.000	0.000	0.000	0.000	0.150	0.150
<i>Pterygoplichthys</i> spp.	Sailfin catfishes	0.000	0.000	0.000	0.000	0.000	0.050	0.250
<i>Pterygoplichthys disjunctivus</i>	Vermiculated sailfin catfish	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Urophycis floridana</i>	Southern hake	0.000	0.200	0.000	0.000	0.000	0.000	0.000
<i>Fundulus confluentus</i>	Marsh killifish	0.000	0.000	0.000	0.000	0.000	0.050	0.000
<i>Fundulus seminolis</i>	Seminole killifish	0.000	0.000	0.000	0.000	0.000	0.000	0.100
<i>Lucania parva</i>	Rainwater killifish	0.000	0.000	0.000	0.000	0.100	0.000	0.000
<i>Gambusia holbrooki</i>	Eastern mosquitofish	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Menidia</i> spp.	Silversides	0.000	0.000	0.050	0.000	0.100	0.000	0.000
<i>Syngnathus louisianae</i>	Chain pipefish	0.250	0.100	0.050	0.050	0.000	0.000	0.000
<i>Syngnathus scovelli</i>	Gulf pipefish	0.000	0.050	0.000	0.000	0.100	0.000	0.000
<i>Hippocampus zosterae</i>	Dwarf seahorse	0.050	0.000	0.000	0.000	0.000	0.000	0.000
<i>Prionotus scitulus</i>	Leopard searobin	0.700	0.200	0.000	0.000	0.000	0.000	0.000
<i>Prionotus tribulus</i>	Bighead searobin	1.200	2.000	0.450	0.000	0.000	0.000	0.000
<i>Lepomis</i> spp.	Sunfishes	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Lepomis gulosus</i>	Warmouth	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Lepomis macrochirus</i>	Bluegill	0.000	0.000	0.000	0.000	0.100	0.450	1.500
<i>Lepomis marginatus</i>	Dollar sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Lepomis microlophus</i>	Redear sunfish	0.000	0.000	0.000	0.000	0.050	0.000	0.450
<i>Lepomis punctatus</i>	Spotted sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.400
<i>Micropterus salmoides</i>	Largemouth bass	0.000	0.000	0.000	0.000	0.000	0.000	0.200
<i>Pomoxis nigromaculatus</i>	Black crappie	0.000	0.000	0.000	0.000	0.000	0.150	0.000
<i>Etheostoma fusiforme</i>	Swamp darter	0.000	0.000	0.000	0.000	0.000	0.000	0.050
<i>Chloroscombrus chrysurus</i>	Atlantic bumper	0.400	0.050	0.000	0.000	0.000	0.000	0.000
<i>Lutjanus griseus</i>	Gray snapper	0.000	0.000	0.050	0.000	0.050	0.000	0.000
<i>Lutjanus synagris</i>	Lane snapper	0.100	0.000	0.000	0.000	0.000	0.000	0.000
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	0.200	0.400	0.050	0.300	0.200	0.050	0.000
<i>Eucinostomus gula</i>	Silver jenny	2.000	0.900	0.000	0.000	0.000	0.000	0.000
<i>Eucinostomus harengulus</i>	Tidewater mojarra	0.550	0.300	0.050	0.000	0.000	0.000	0.000
<i>Eugerres plumieri</i>	Striped mojarra	0.050	1.400	0.100	1.050	0.050	0.100	0.150
<i>Lagodon rhomboides</i>	Pinfish	0.650	0.200	0.050	0.000	0.050	0.000	0.000
<i>Cynoscion nebulosus</i>	Spotted seatrout	0.150	0.600	0.100	0.100	0.100	0.000	0.000
<i>Cynoscion arenarius</i>	Sand seatrout	2.900	22.250	23.200	7.200	3.400	0.100	0.100
<i>Bairdiella chrysoura</i>	Silver perch	1.400	1.450	0.900	0.350	0.000	0.000	0.000
<i>Leiostomus xanthurus</i>	Spot	0.150	0.100	0.200	0.850	3.450	0.300	0.000
<i>Menticirrhus americanus</i>	Southern kingfish	4.650	10.800	1.400	0.300	0.000	0.000	0.000
<i>Sciaenops ocellatus</i>	Red drum	0.000	0.000	0.100	0.050	0.000	0.550	0.000
<i>Chaetodipterus faber</i>	Atlantic spadefish	0.000	0.100	0.000	0.000	0.000	0.000	0.000
<i>Tilapia</i> spp.	Tilapias	0.000	0.000	0.000	0.000	0.050	0.000	0.100
<i>Mugil cephalus</i>	Striped mullet	0.000	0.000	0.000	0.000	0.100	0.000	0.000
Gobiidae spp.	Gobies	0.000	0.000	0.000	0.050	0.000	0.000	0.000
<i>Gobiosoma</i> spp.	Gobiosoma gobies	0.150	0.000	0.050	0.100	0.000	0.000	0.000
<i>Gobiosoma bosc</i>	Naked goby	0.000	0.000	0.000	0.050	0.000	0.000	0.000
<i>Gobiosoma robustum</i>	Code goby	0.000	0.050	0.000	0.000	0.000	0.000	0.000
<i>Microgobius gulosus</i>	Clown goby	0.000	0.550	2.500	1.050	2.300	0.050	0.000

Table B9, page 2 of 2. Location-specific trawl catch, Myakka River.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)						
		2.4-7.5	7.5-13.5	13.5-18.5	18.5-23.4	23.4-28.8	28.8-35.0	35.0-42.0
<i>Microgobius thalassinus</i>	Green goby	0.000	0.250	0.000	0.000	0.000	0.000	0.000
<i>Etropus crossotus</i>	Fringed flounder	0.000	0.050	0.000	0.000	0.000	0.000	0.000
<i>Trinectes maculatus</i>	Hogchoker	6.950	22.300	13.650	2.750	21.950	9.550	30.100
<i>Achirus lineatus</i>	Lined sole	0.350	0.050	0.000	0.000	0.000	0.000	0.000
<i>Symphurus plagiusa</i>	Blackcheek tonguefish	0.500	0.400	0.250	0.000	0.050	0.000	0.000
<i>Stephanolepis hispidus</i>	Planehead filefish	0.050	0.000	0.000	0.000	0.000	0.000	0.000
<i>Sphoeroides nephelus</i>	Southern puffer	0.050	0.150	0.000	0.000	0.000	0.000	0.000
<i>Chilomycterus schoepfii</i>	Striped burrfish	0.150	0.000	0.000	0.000	0.000	0.000	0.000

Table B10, page 1 of 1. Location-specific trawl catch, Myakkahatchee Creek.

Data are presented as mean number per deployment.

Organisms are listed in phylogenetic order.

Taxon	Common Name	Location (km from mouth)	
		22.3-24.3	24.3-26.4
<i>Palaemonetes paludosus</i>	Riverine grass shrimp	0.067	0.000
<i>Callinectes sapidus</i>	Blue crab	3.667	0.667
<i>Dasyatis sabina</i>	Atlantic stingray	0.133	0.000
<i>Lepisosteus osseus</i>	Longnose gar	0.000	0.200
<i>Lepisosteus platyrhincus</i>	Florida gar	0.000	0.133
<i>Elops saurus</i>	Ladyfish	0.267	0.067
<i>Dorosoma petenense</i>	Threadfin shad	0.200	0.000
<i>Anchoa mitchilli</i>	Bay anchovy	32.667	167.200
<i>Ameiurus catus</i>	White catfish	0.267	0.000
<i>Ictalurus punctatus</i>	Channel catfish	1.333	0.133
<i>Ariopsis felis</i>	Hardhead catfish	0.133	0.000
Loricariidae spp.	Suckermouth catfish	0.000	0.067
<i>Fundulus seminolis</i>	Seminole killifish	0.000	0.067
<i>Lucania parva</i>	Rainwater killifish	0.000	0.200
<i>Menidia</i> spp.	Silversides	0.000	0.200
<i>Prionotus tribulus</i>	Bighead searobin	0.067	0.000
<i>Centropomus undecimalis</i>	Common snook	0.000	0.067
<i>Lepomis</i> spp.	Sunfishes	0.000	0.067
<i>Lepomis gulosus</i>	Warmouth	0.000	0.267
<i>Lepomis macrochirus</i>	Bluegill	0.200	2.267
<i>Lepomis microlophus</i>	Redear sunfish	0.000	0.067
<i>Lutjanus griseus</i>	Gray snapper	0.133	0.000
<i>Eucinostomus</i> spp.	Eucinostomus mojarra	1.867	0.133
<i>Eugerres plumieri</i>	Striped mojarra	0.467	0.333
<i>Lagodon rhomboides</i>	Pinfish	0.400	0.200
<i>Archosargus probatocephalus</i>	Sheepshead	0.000	0.067
<i>Cynoscion arenarius</i>	Sand seatrout	12.267	1.467
<i>Bairdiella chrysoura</i>	Silver perch	0.000	0.067
<i>Leiostomus xanthurus</i>	Spot	28.067	2.267
<i>Sciaenops ocellatus</i>	Red drum	0.067	0.000
<i>Tilapia</i> spp.	Tilapias	0.000	0.133
<i>Oreochromis aureus</i>	Blue tilapia	0.000	0.067
<i>Gobiosoma</i> spp.	Gobiosoma gobies	0.067	0.000
<i>Gobiosoma bosc</i>	Naked goby	0.200	0.067
<i>Microgobius gulosus</i>	Clown goby	0.533	0.733
<i>Bathygobius soporator</i>	Frillfin goby	0.133	0.000
<i>Trinectes maculatus</i>	Hogchoker	71.333	69.667

Appendix C:
Length-frequency plots for selected taxa

Farfantepenaeus duorarum (Pink shrimp)

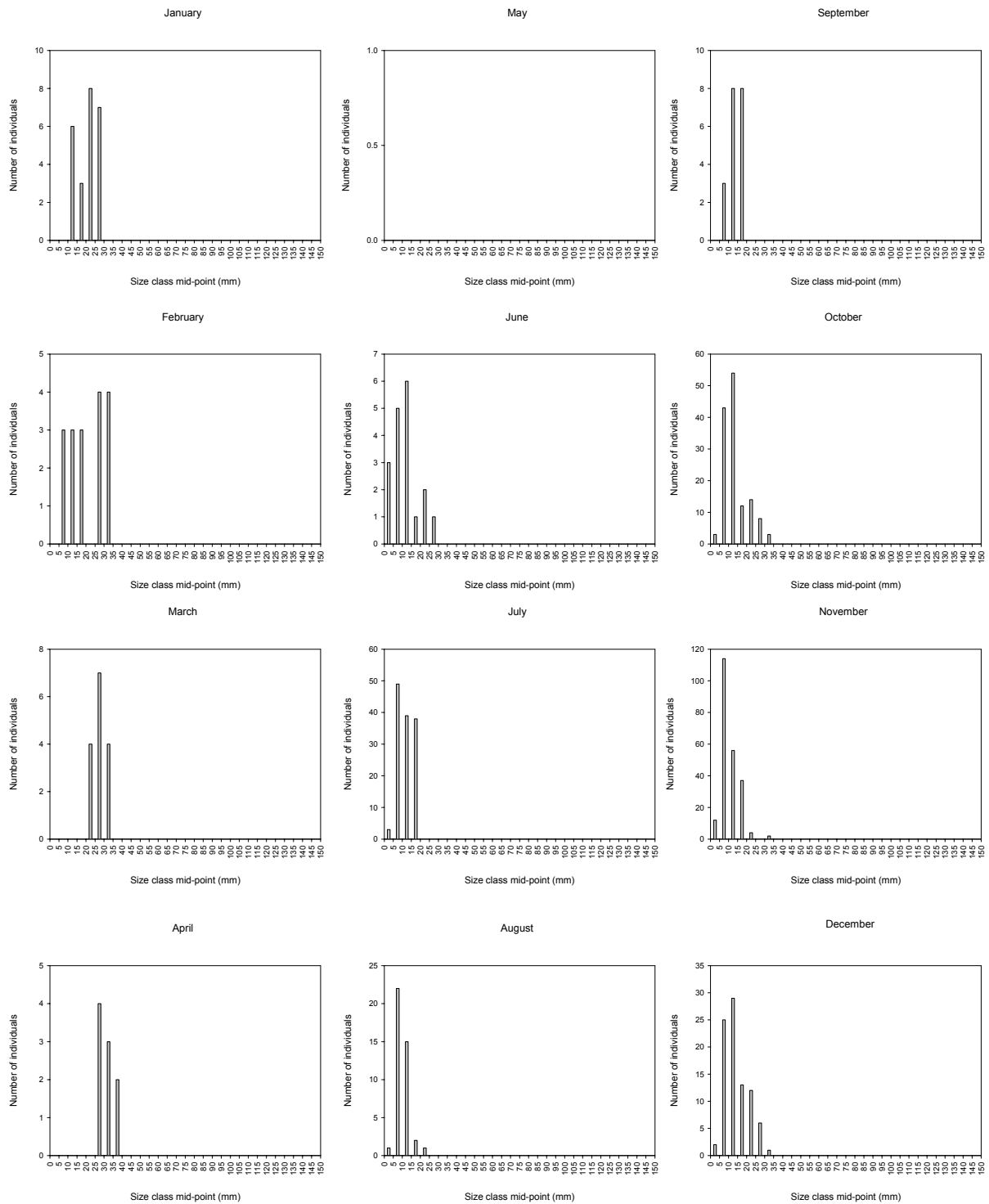


Fig. C1. Monthly length frequencies of Pink shrimp collected in seines and trawls.

Callinectes sapidus (Blue crab)

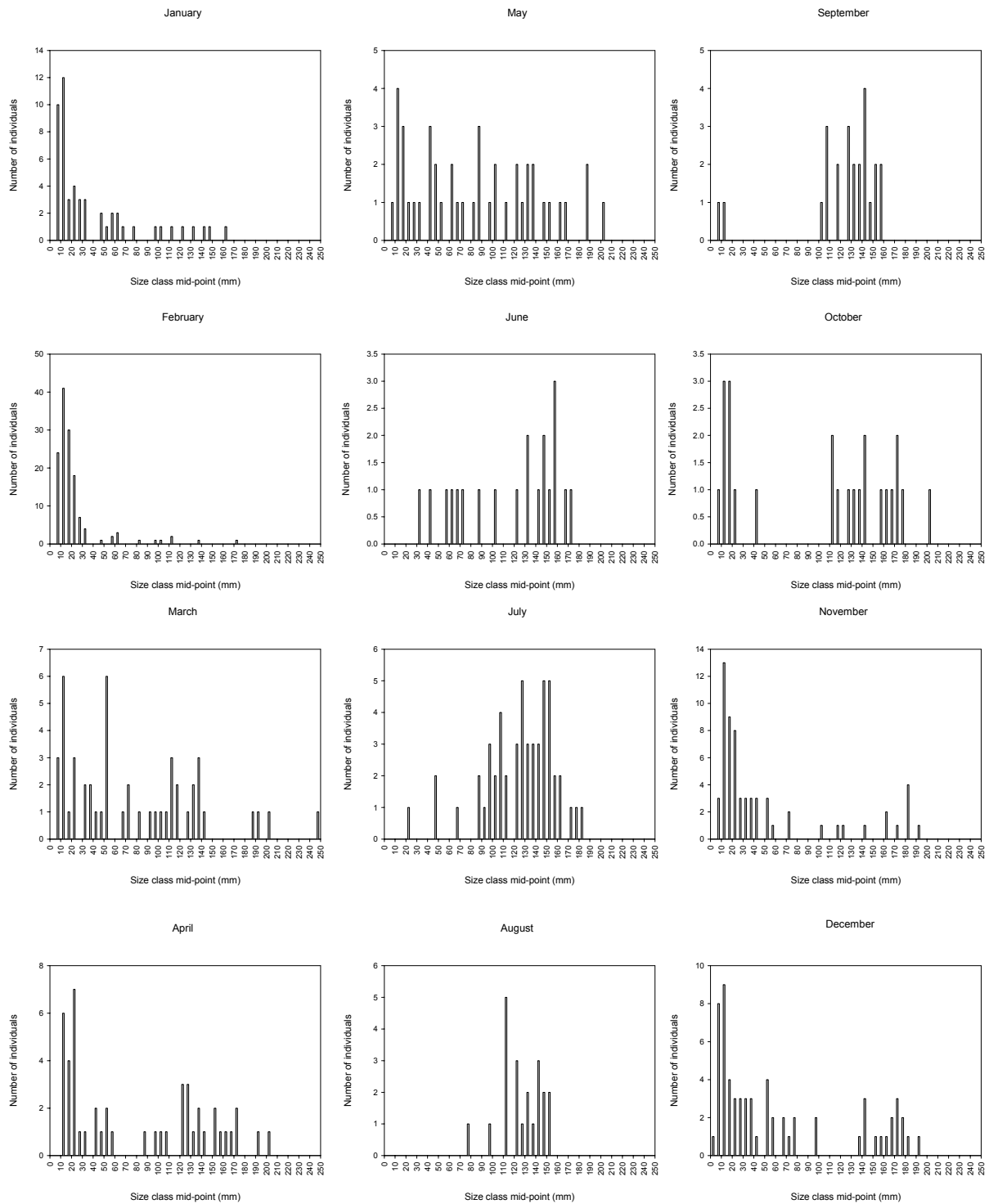


Fig. C2. Monthly length frequencies of Blue crab collected in seines and trawls.

Brevoortia spp. (Menhadens)

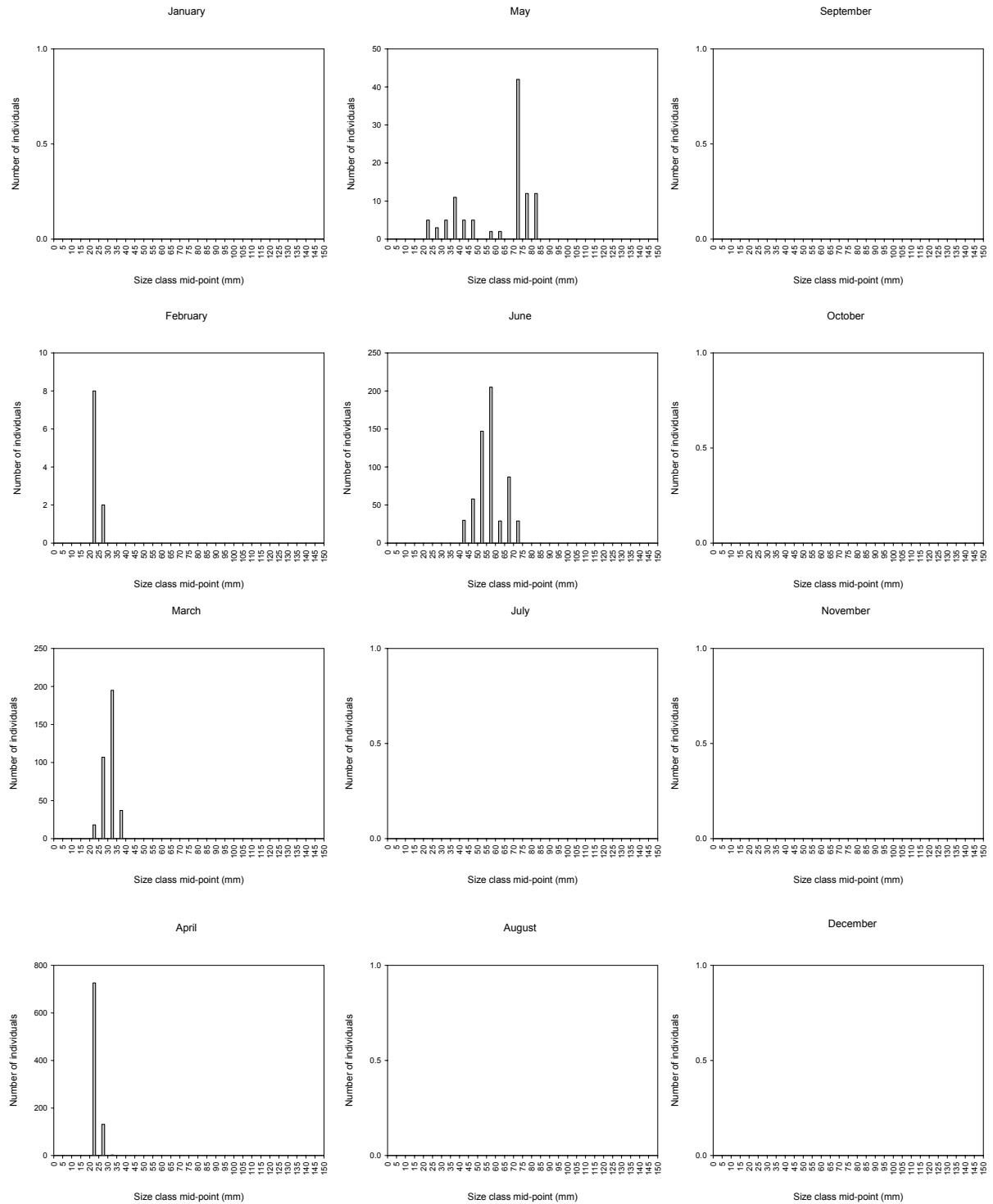


Fig. C3. Monthly length frequencies of Menhadens collected in seines and trawls.

Anchoa mitchilli (Bay anchovy)

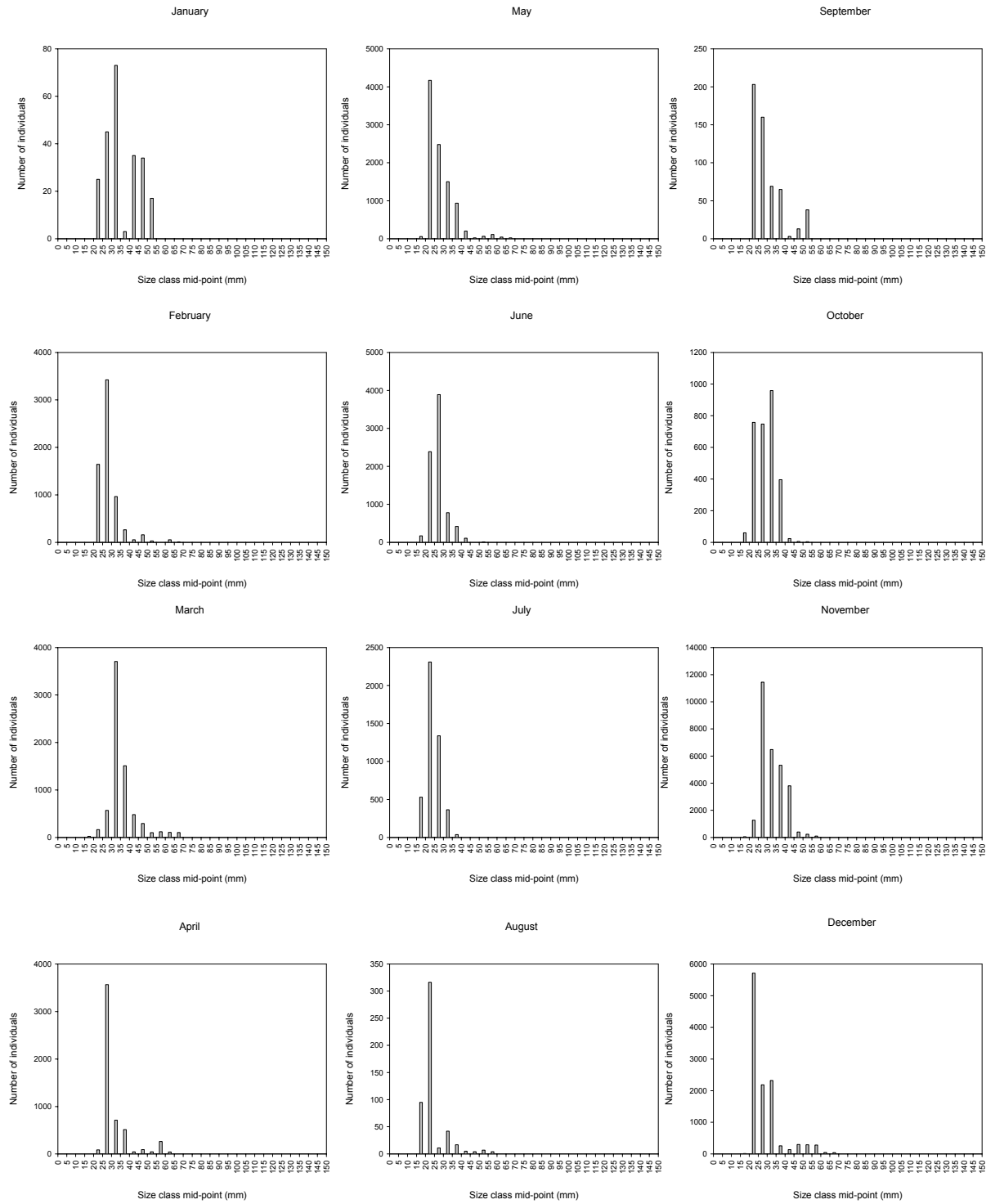


Fig. C4. Monthly length frequencies of Bay anchovy collected in seines and trawls.

Notropis petersoni (Coastal shiner)

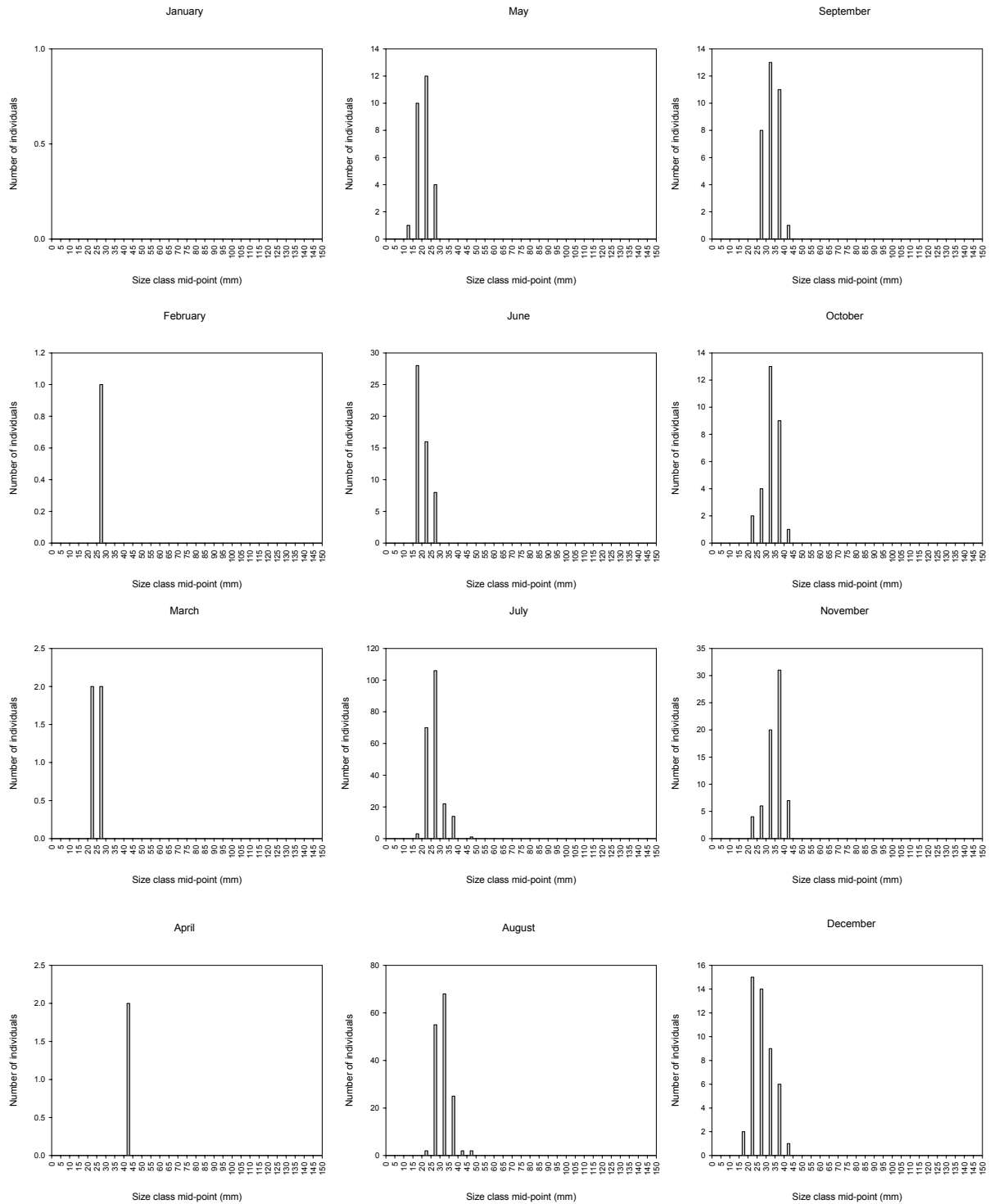


Fig. C5. Monthly length frequencies of Coastal shiner collected in seines and trawls.

Ictalurus punctatus (Channel catfish)

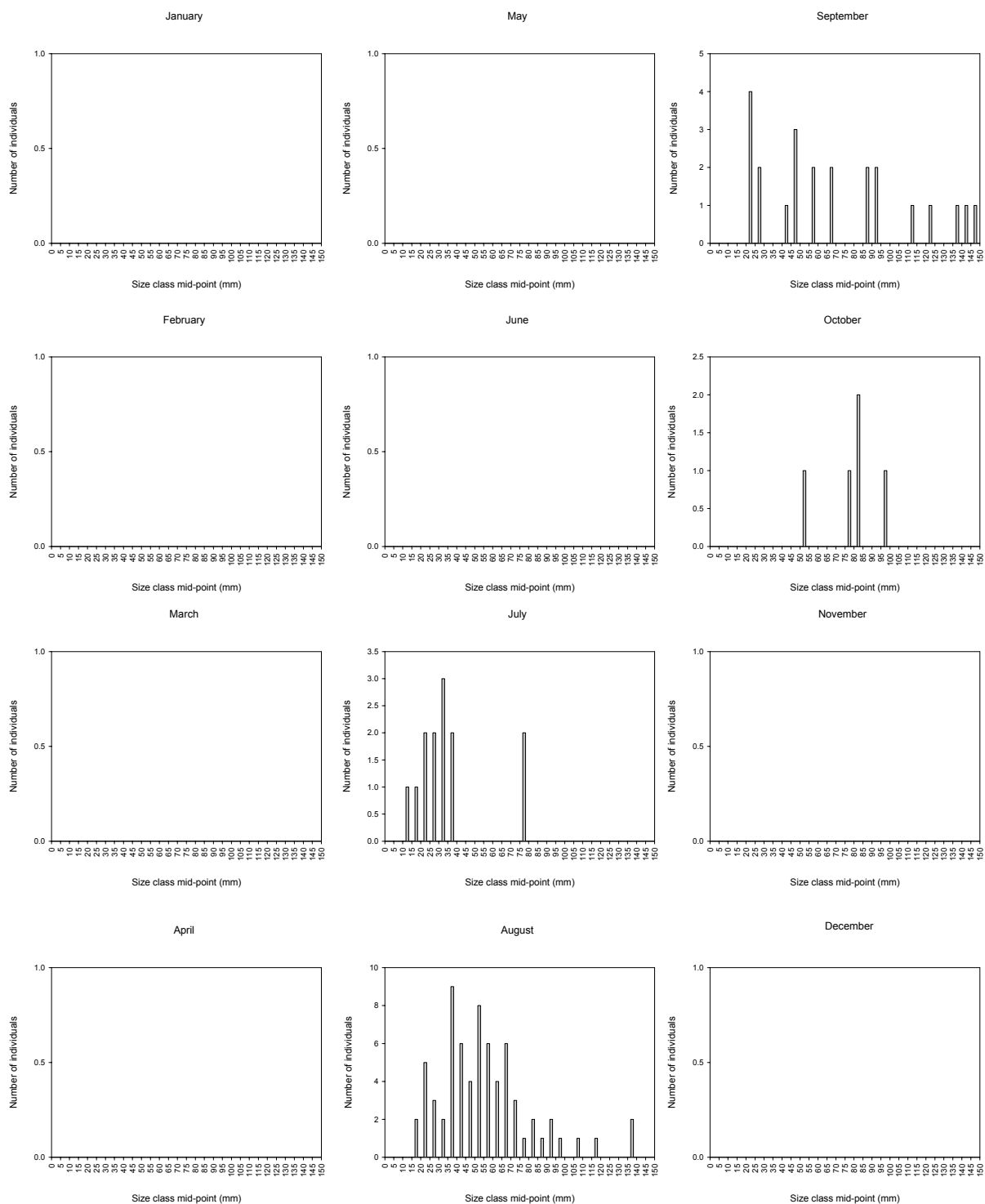


Fig. C6. Monthly length frequencies of Channel catfish collected in seines and trawls.

Ariopsis felis (Hardhead catfish)

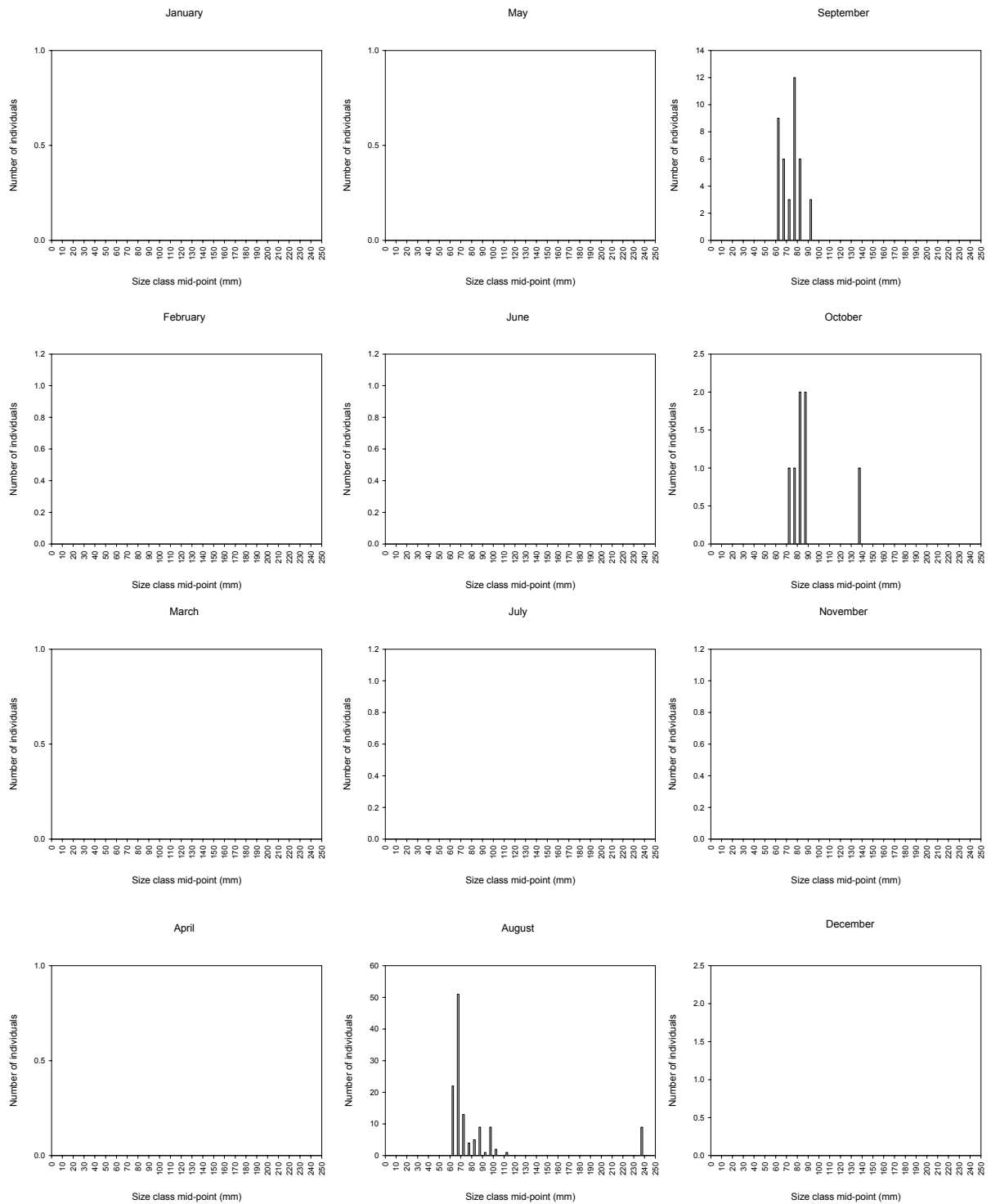


Fig. C7. Monthly length frequencies of Hardhead catfish collected in seines and trawls.

Fundulus grandis (Gulf killifish)

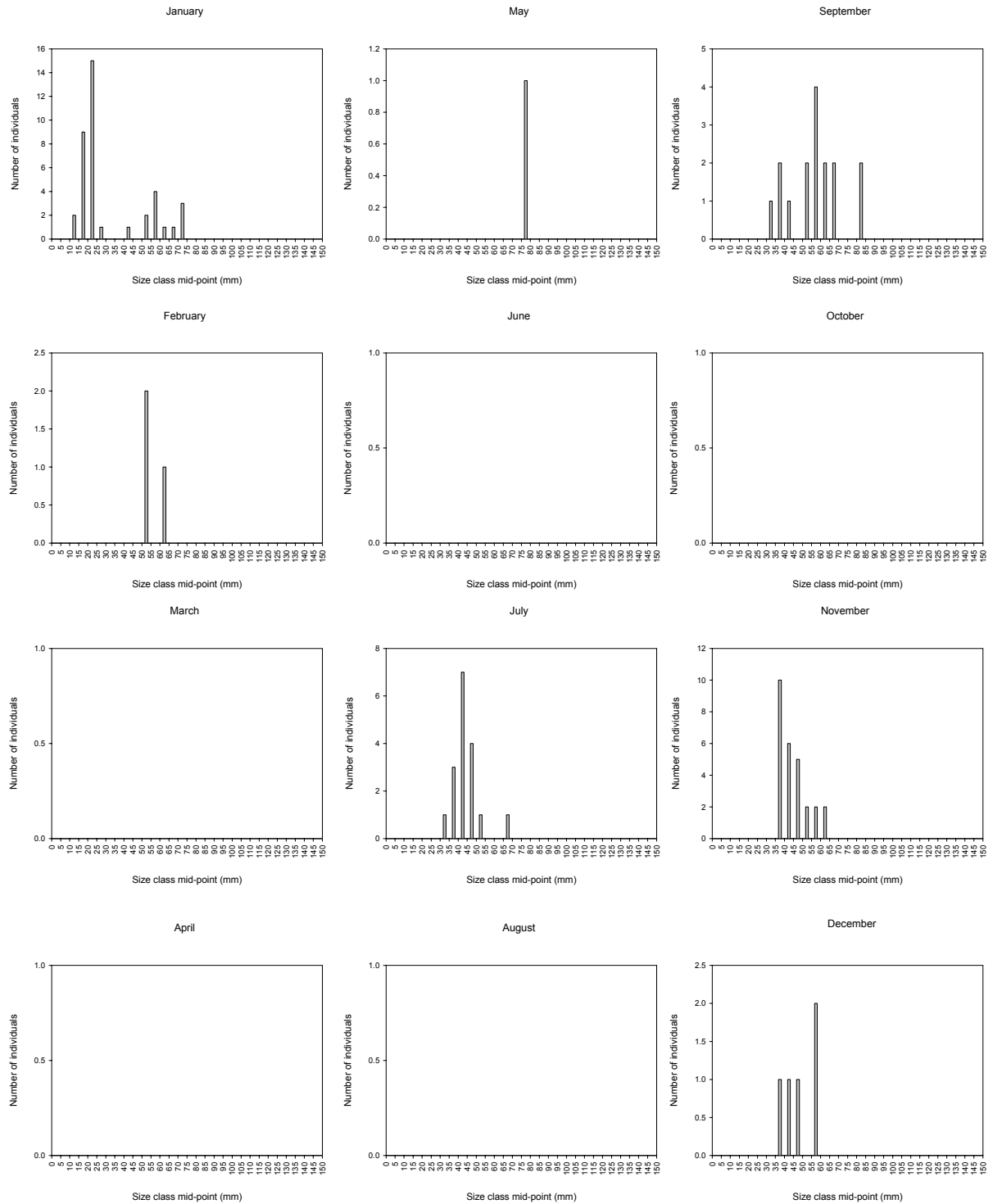


Fig. C8. Monthly length frequencies of Gulf killifish collected in seines and trawls.

Fundulus seminolis (Seminoe killifish)

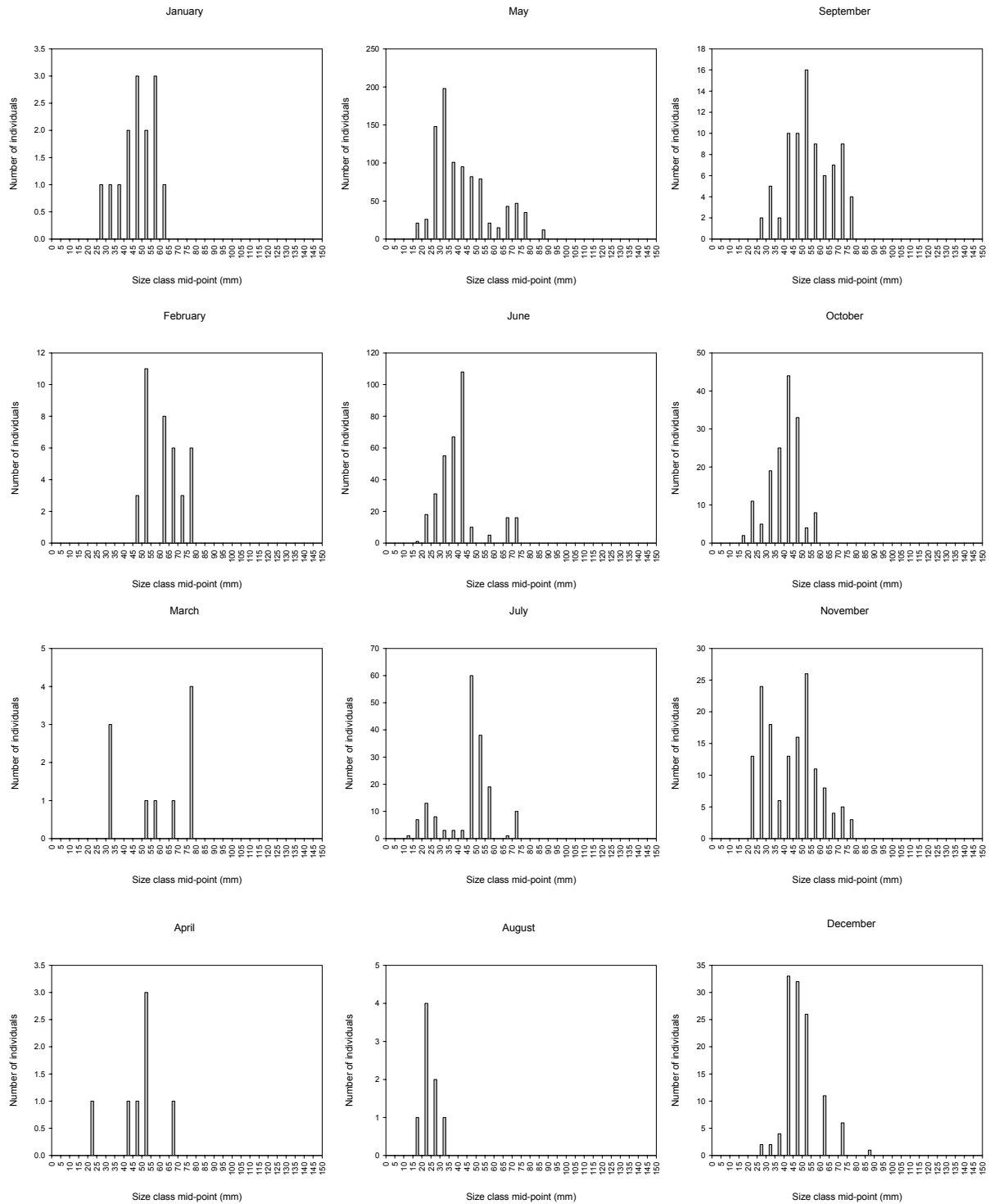


Fig. C9. Monthly length frequencies of Seminoe killifish collected in seines and trawls.

Lucania parva (Rainwater killifish)

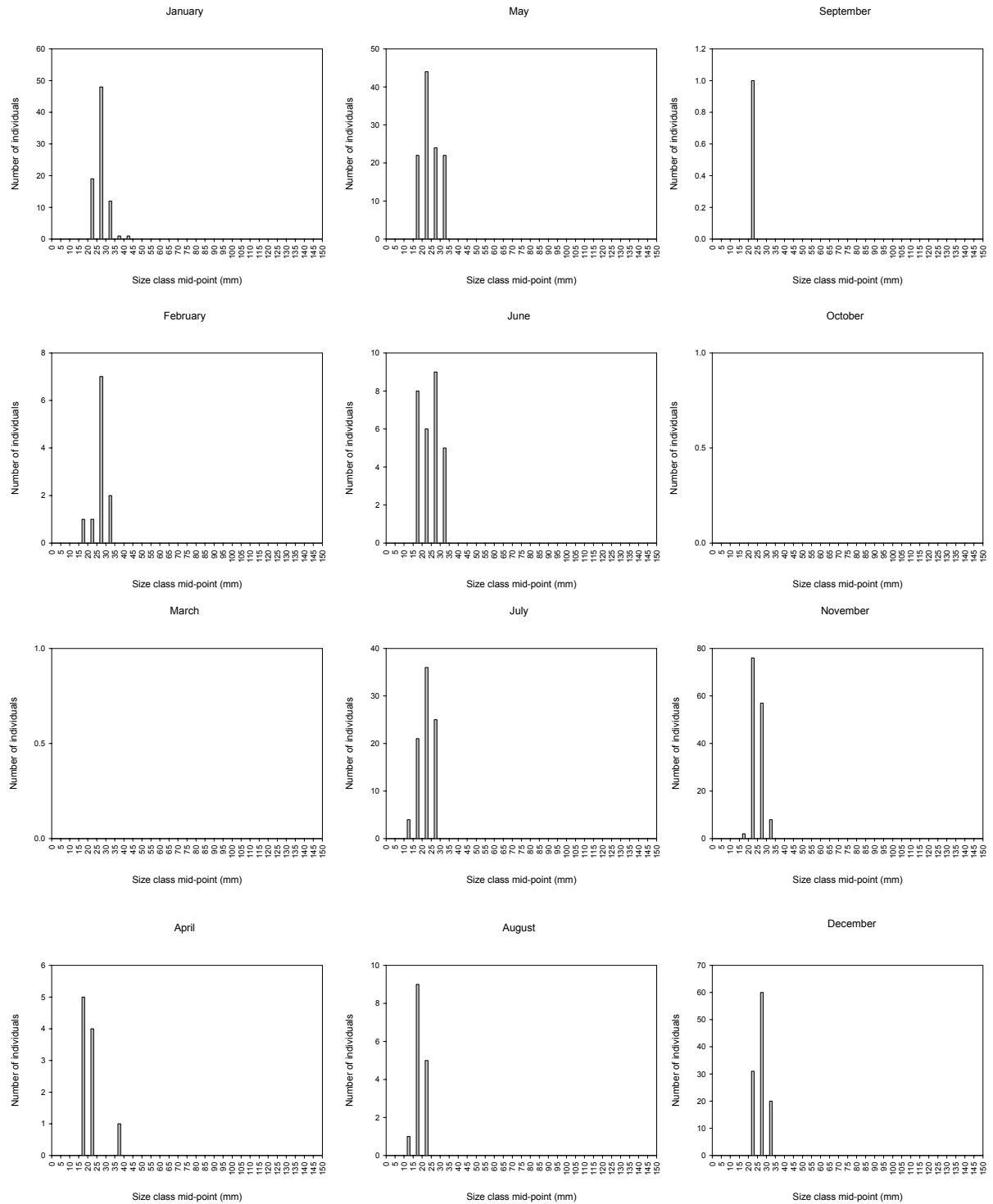


Fig. C10. Monthly length frequencies of Rainwater killifish collected in seines and trawls.

Lucania goodei (Bluefin killifish)

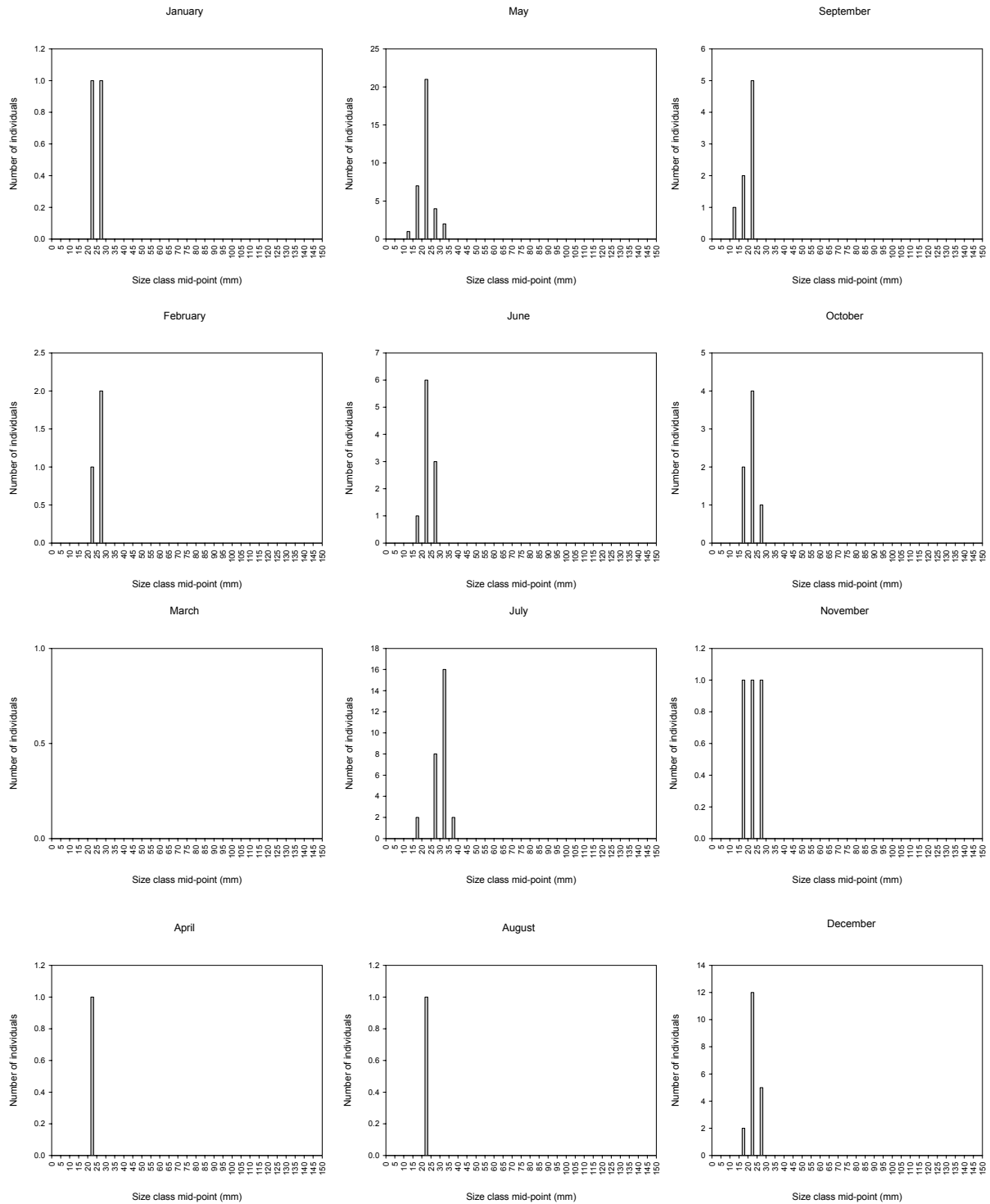


Fig. C11. Monthly length frequencies of Bluefin killifish collected in seines and trawls.

Jordanella floridae (Flagfish)

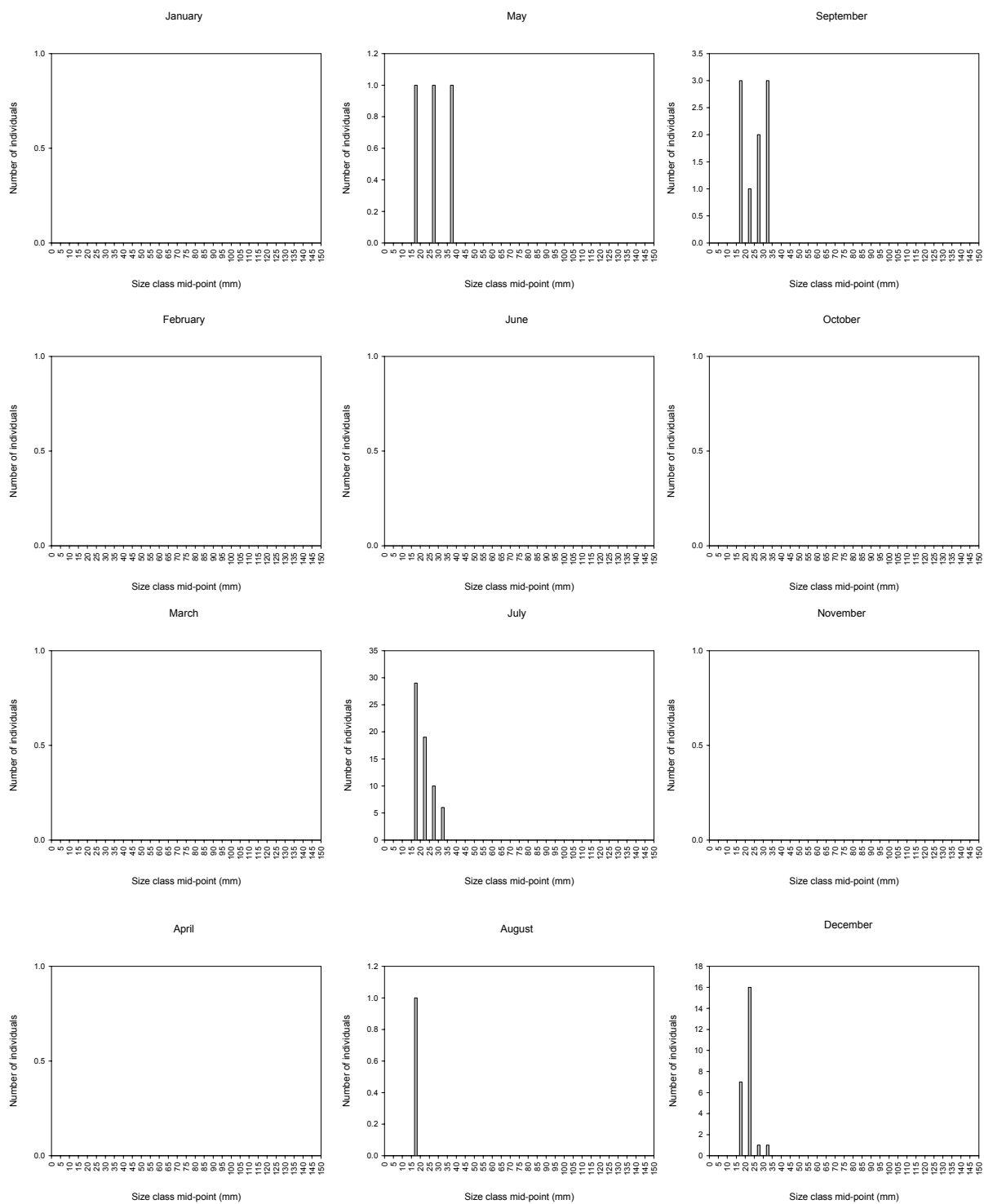


Fig. C12. Monthly length frequencies of Flagfish collected in seines and trawls.

Gambusia holbrooki (Eastern mosquitofish)

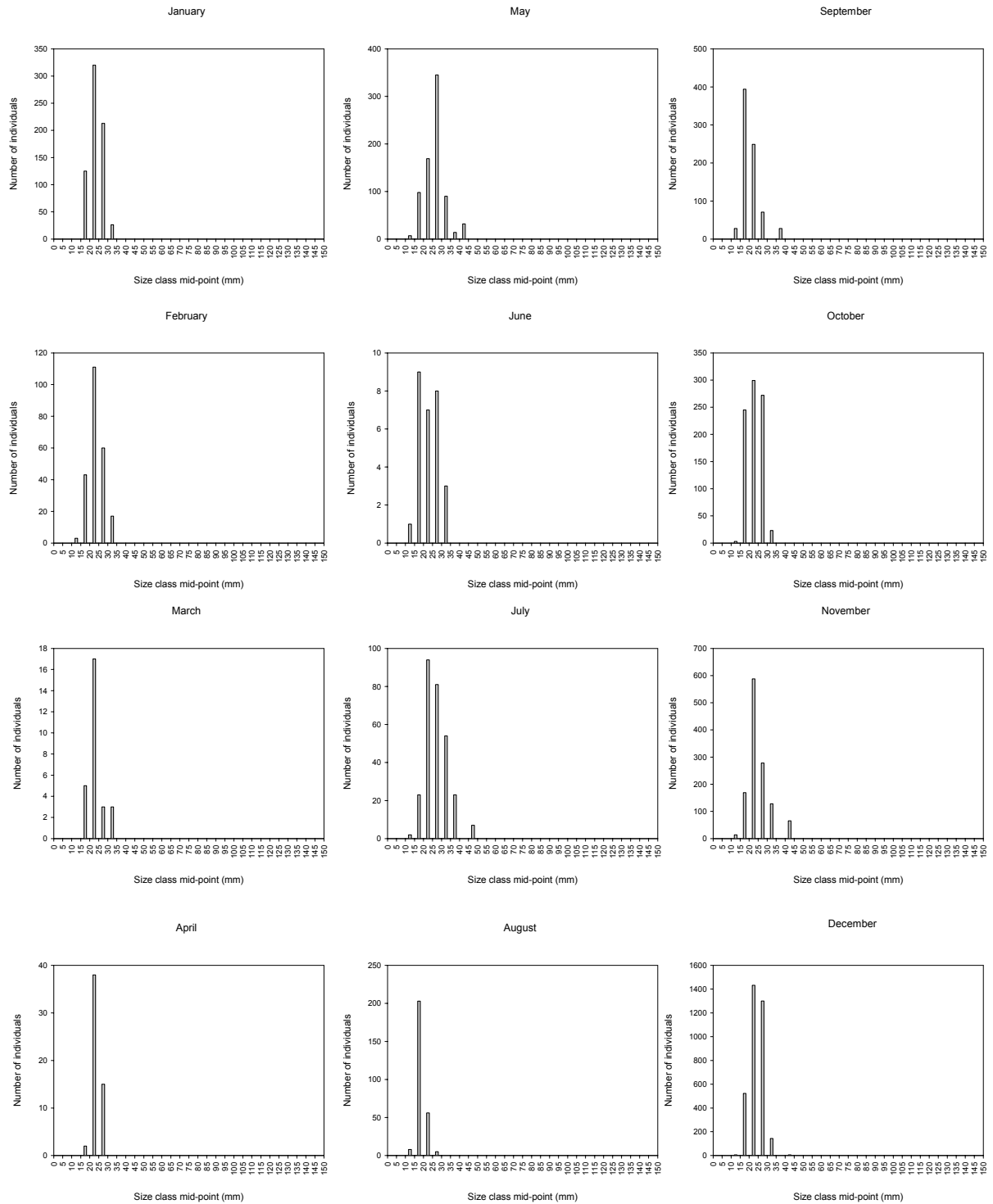


Fig. C13. Monthly length frequencies of Eastern mosquitofish collected in seines and trawls.

Poecilia latipinna (Sailfin molly)

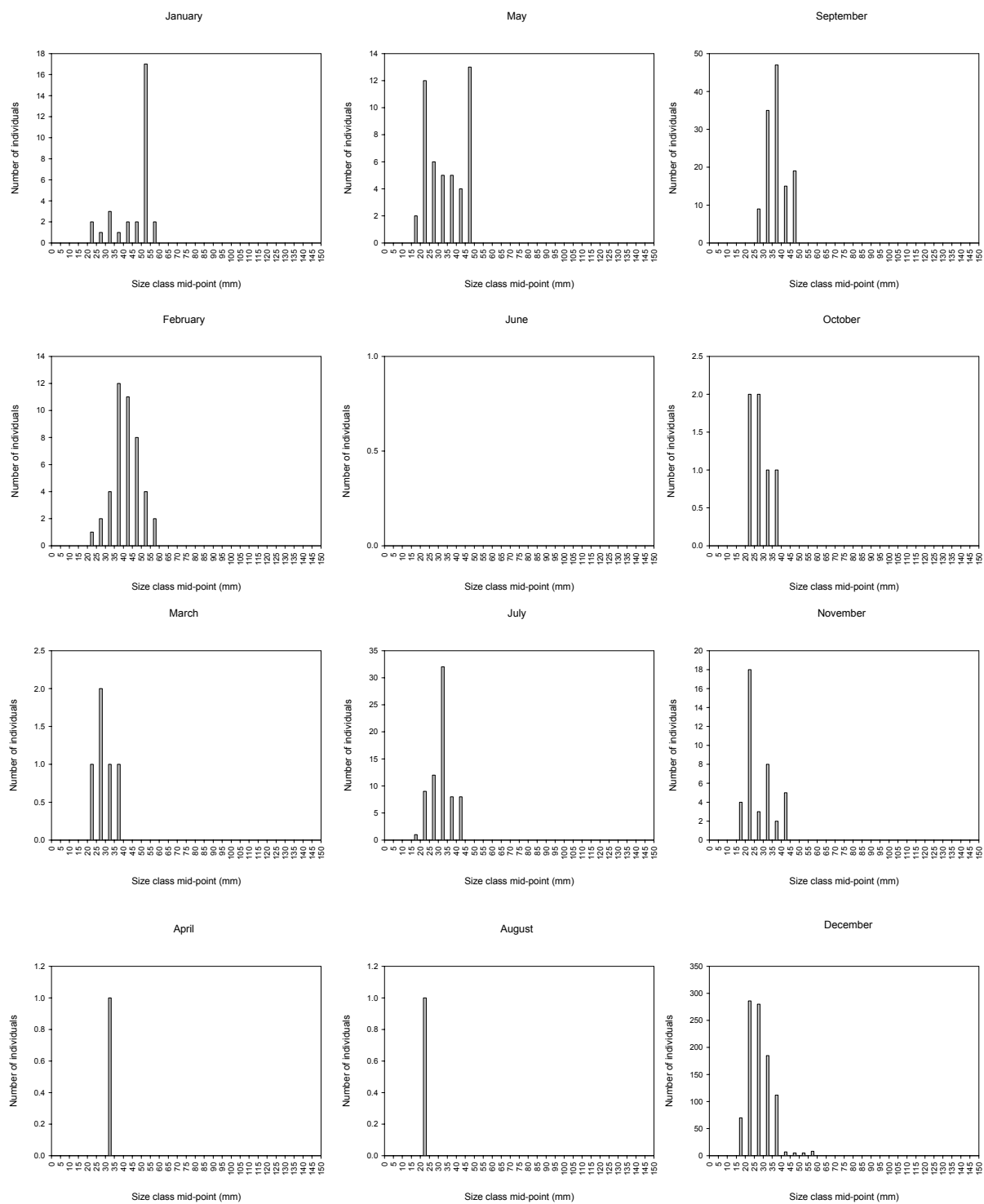


Fig. C14. Monthly length frequencies of Sailfin molly collected in seines and trawls.

Membras martinica (Rough silverside)

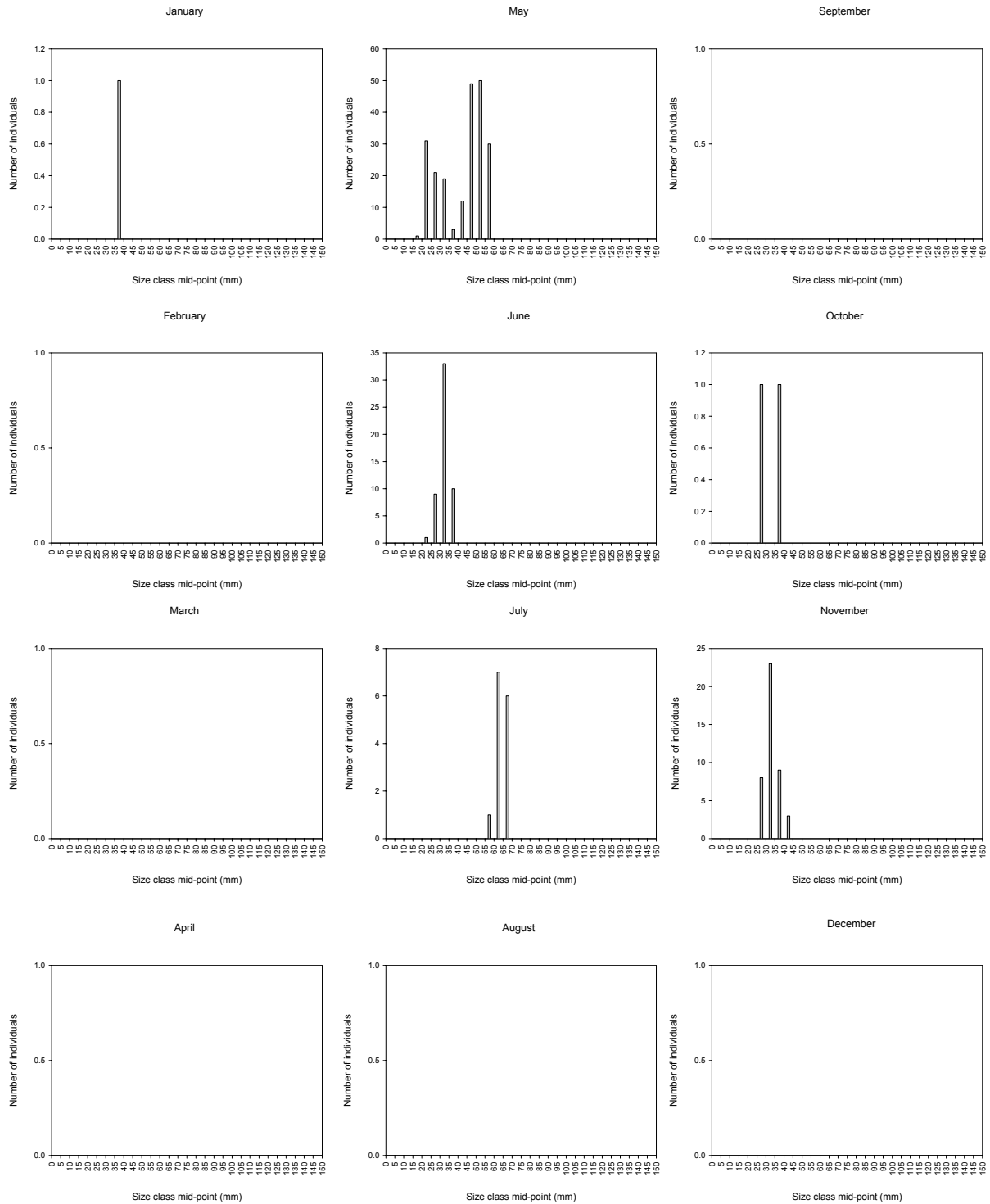


Fig. C15. Monthly length frequencies of Rough silverside collected in seines and trawls.

Menidia spp. (Siversides)

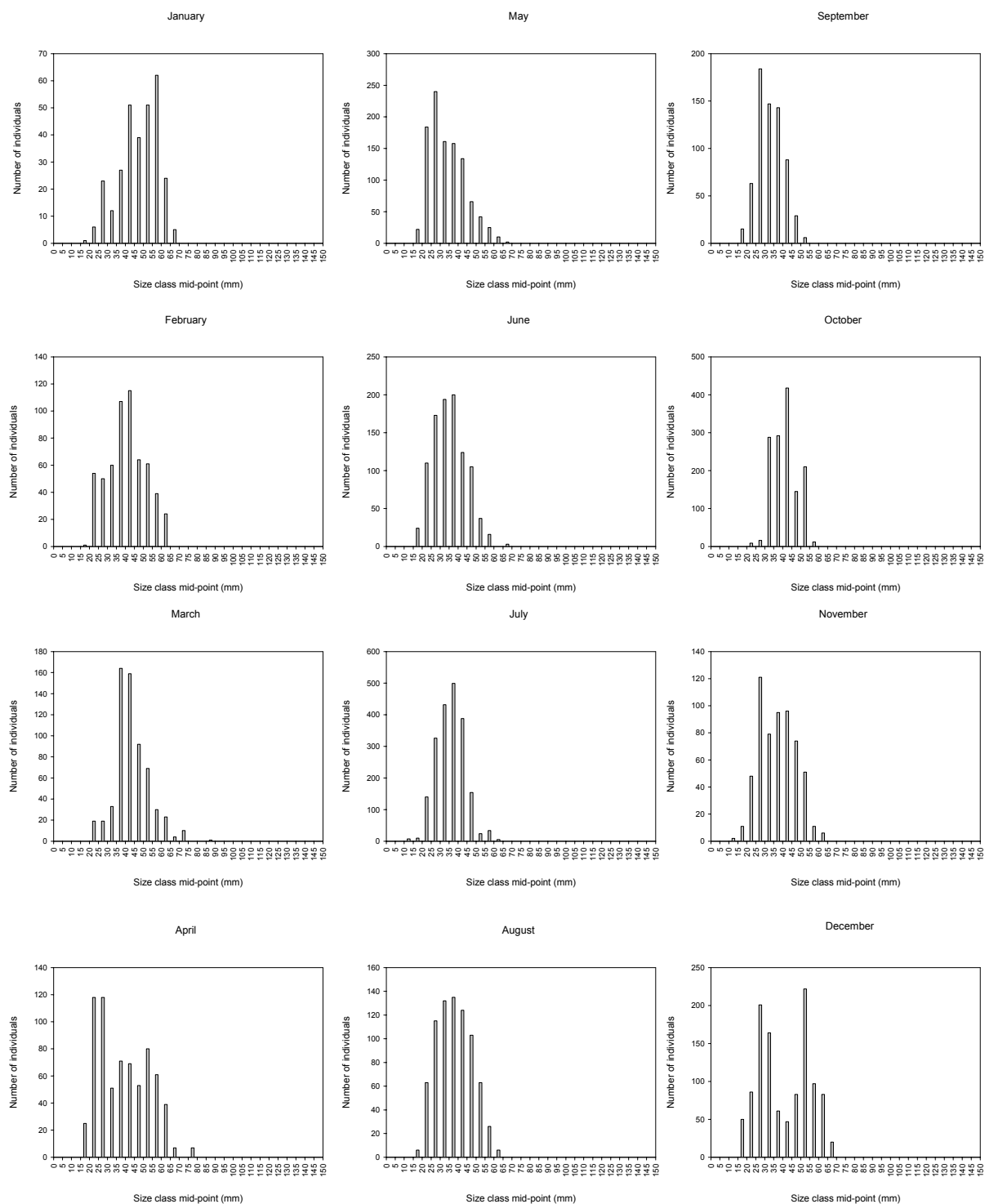


Fig. C16. Monthly length frequencies of Siversides collected in seines and trawls.

Labidesthes sicculus (Brook silverside)

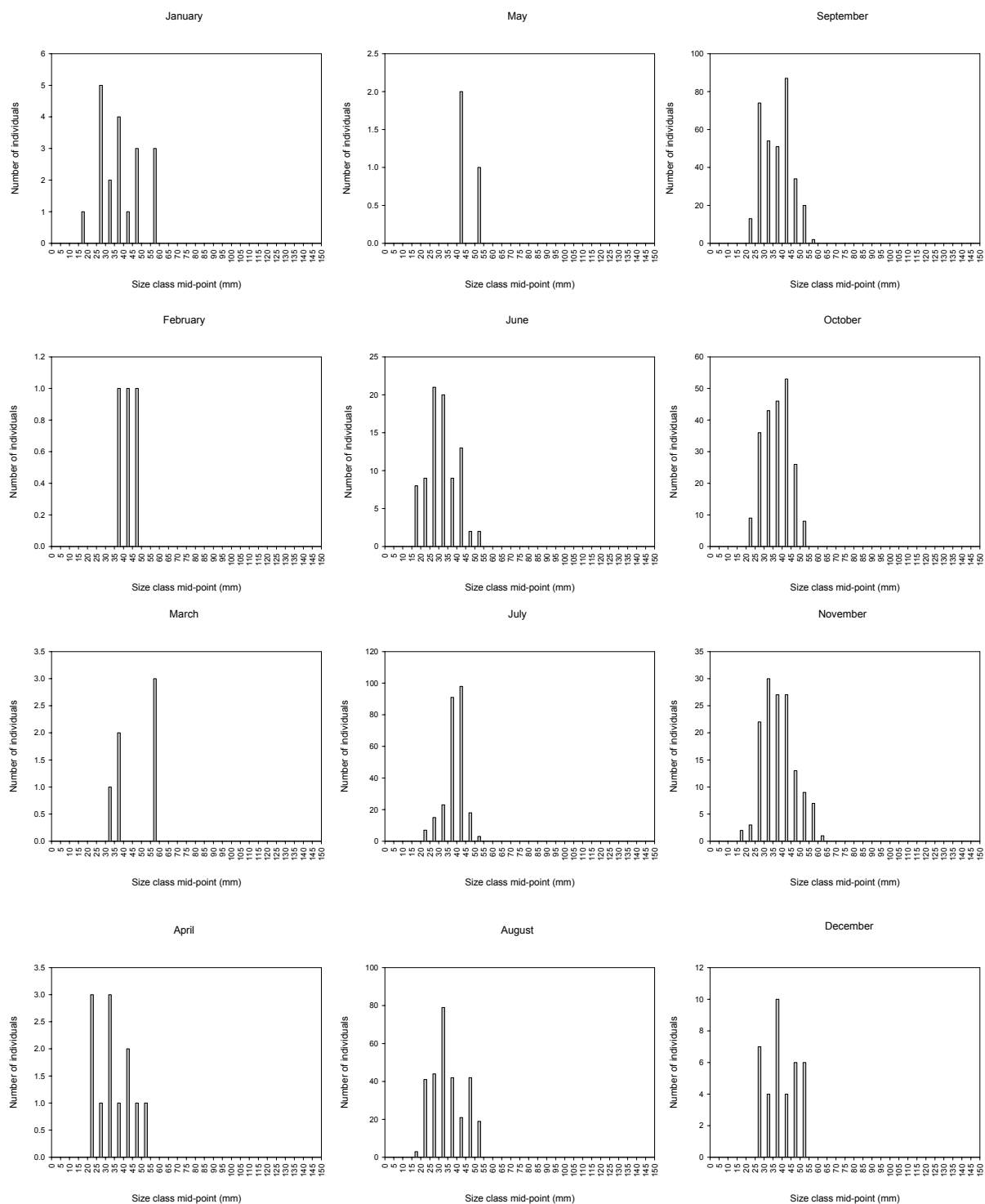


Fig. C17. Monthly length frequencies of Brook silverside collected in seines and trawls.

Prionotus tribulus (Bighead searobin)

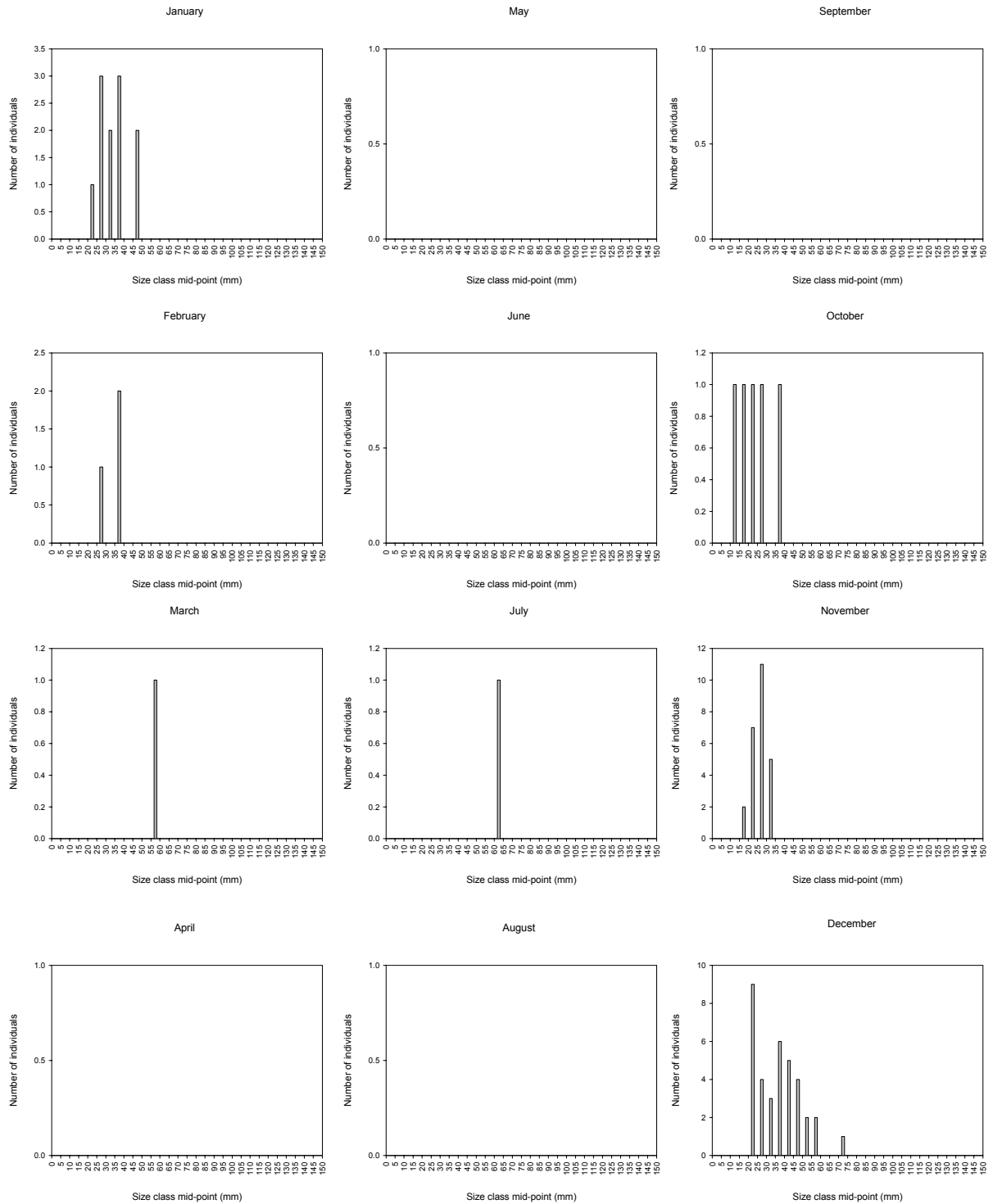


Fig. C18. Monthly length frequencies of Bighead searobin collected in seines and trawls.

Lepomis macrochirus (Bluegill)

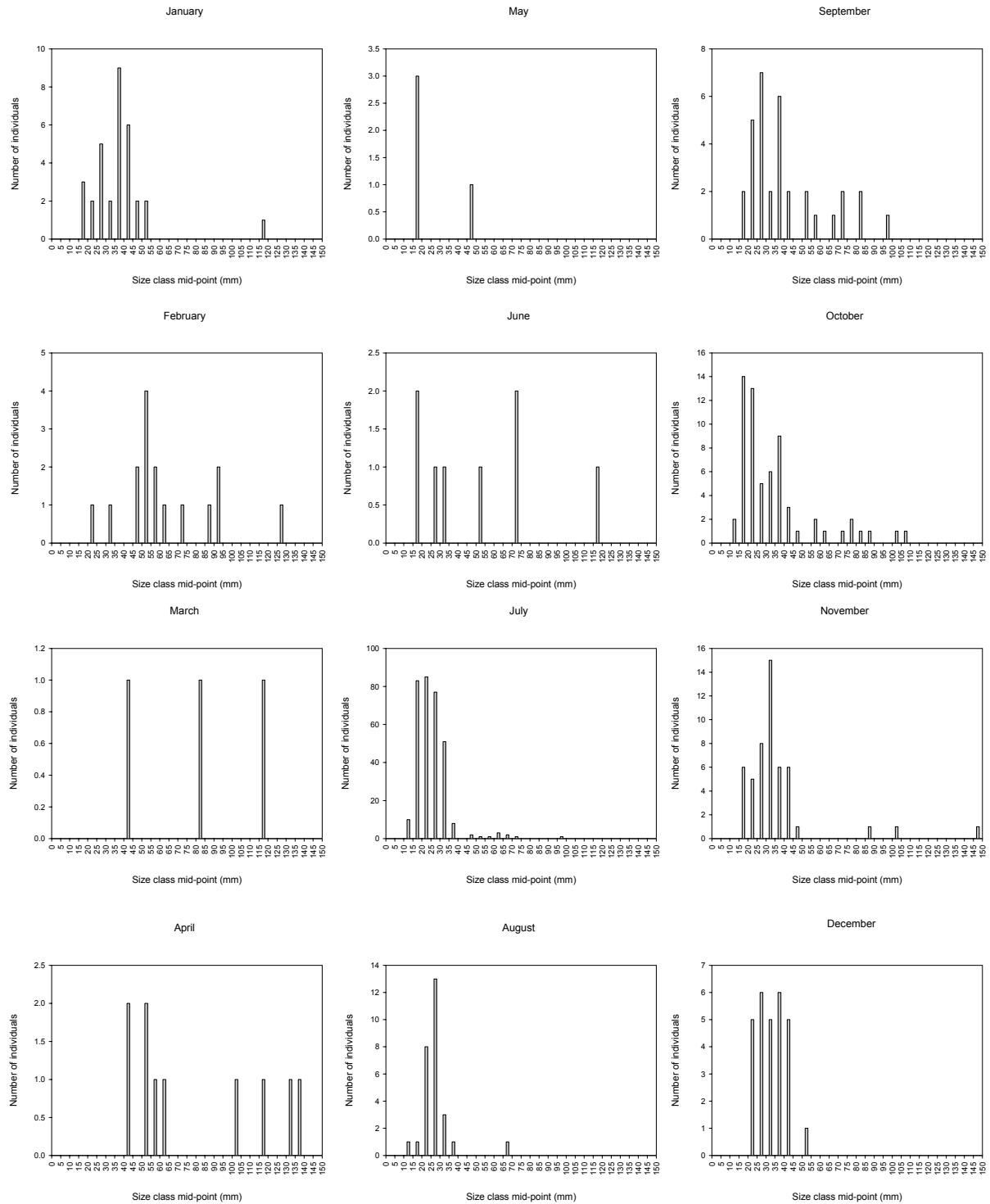


Fig. C19. Monthly length frequencies of Bluegill collected in seines and trawls.

Lepomis marginatus (Dollar sunfish)

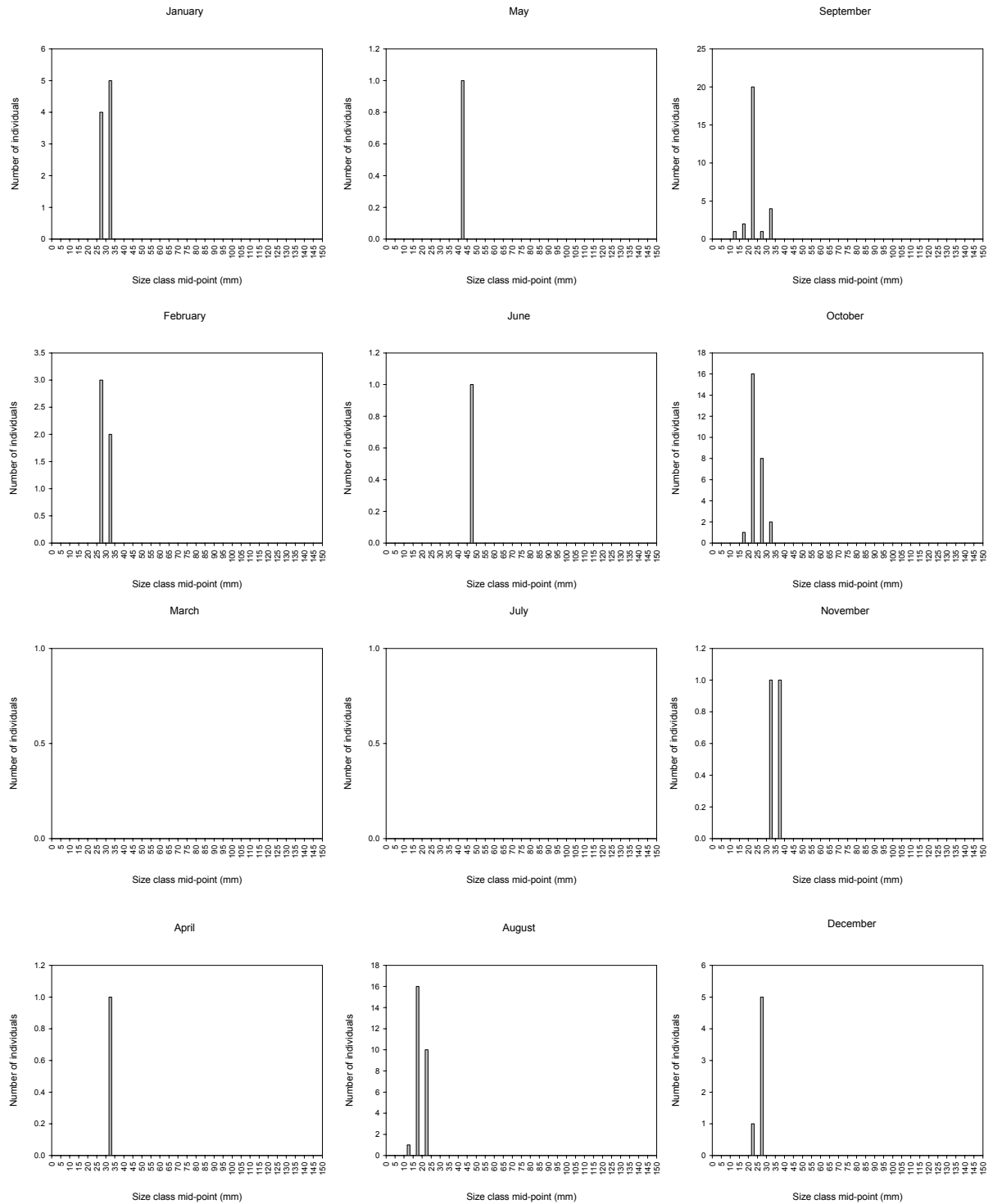


Fig. C20. Monthly length frequencies of Dollar sunfish collected in seines and trawls.

Lepomis microlophus (Redear sunfish)

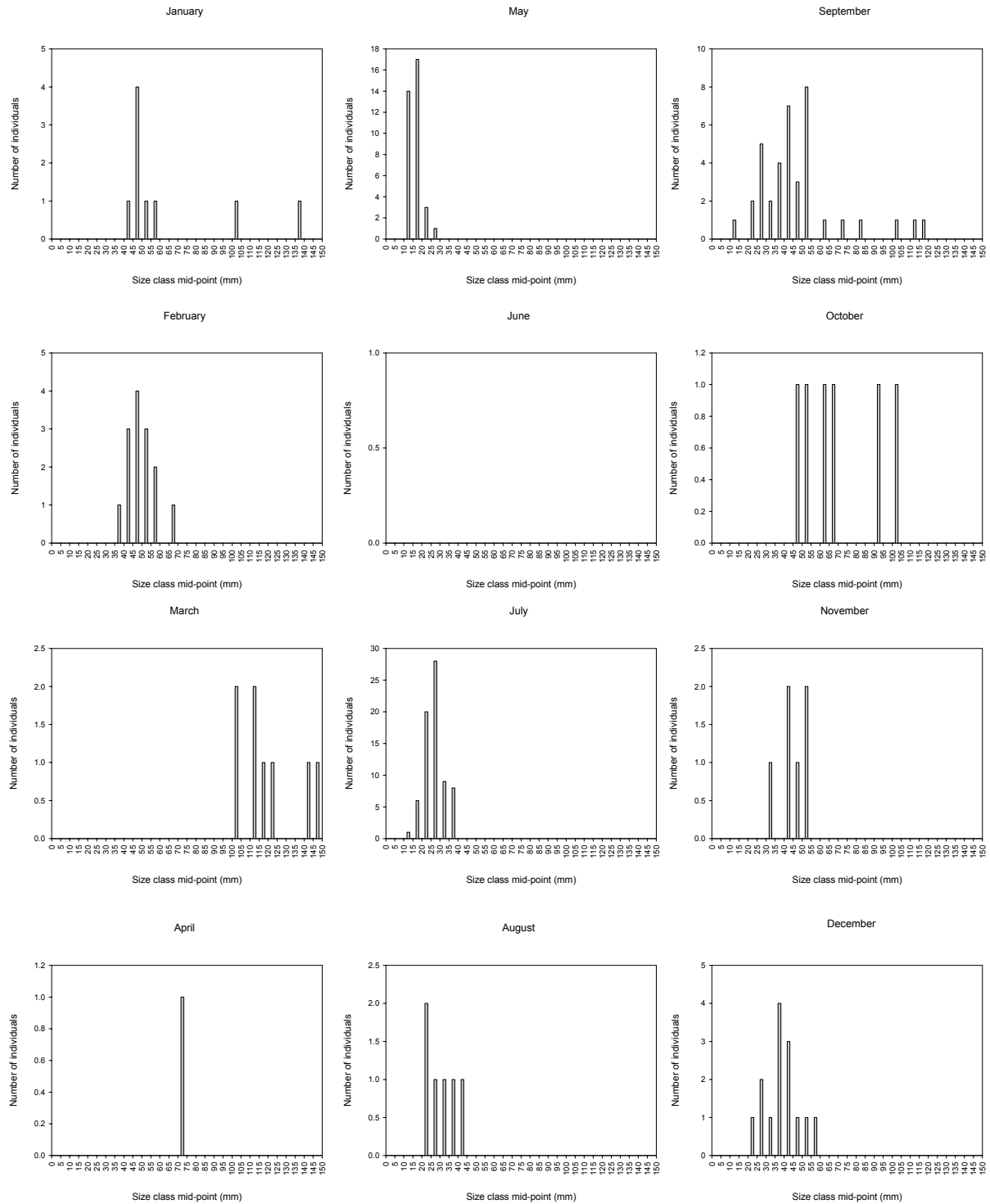


Fig. C21. Monthly length frequencies of Redear sunfish collected in seines and trawls.

Oligoplites saurus (Leatherjacket)

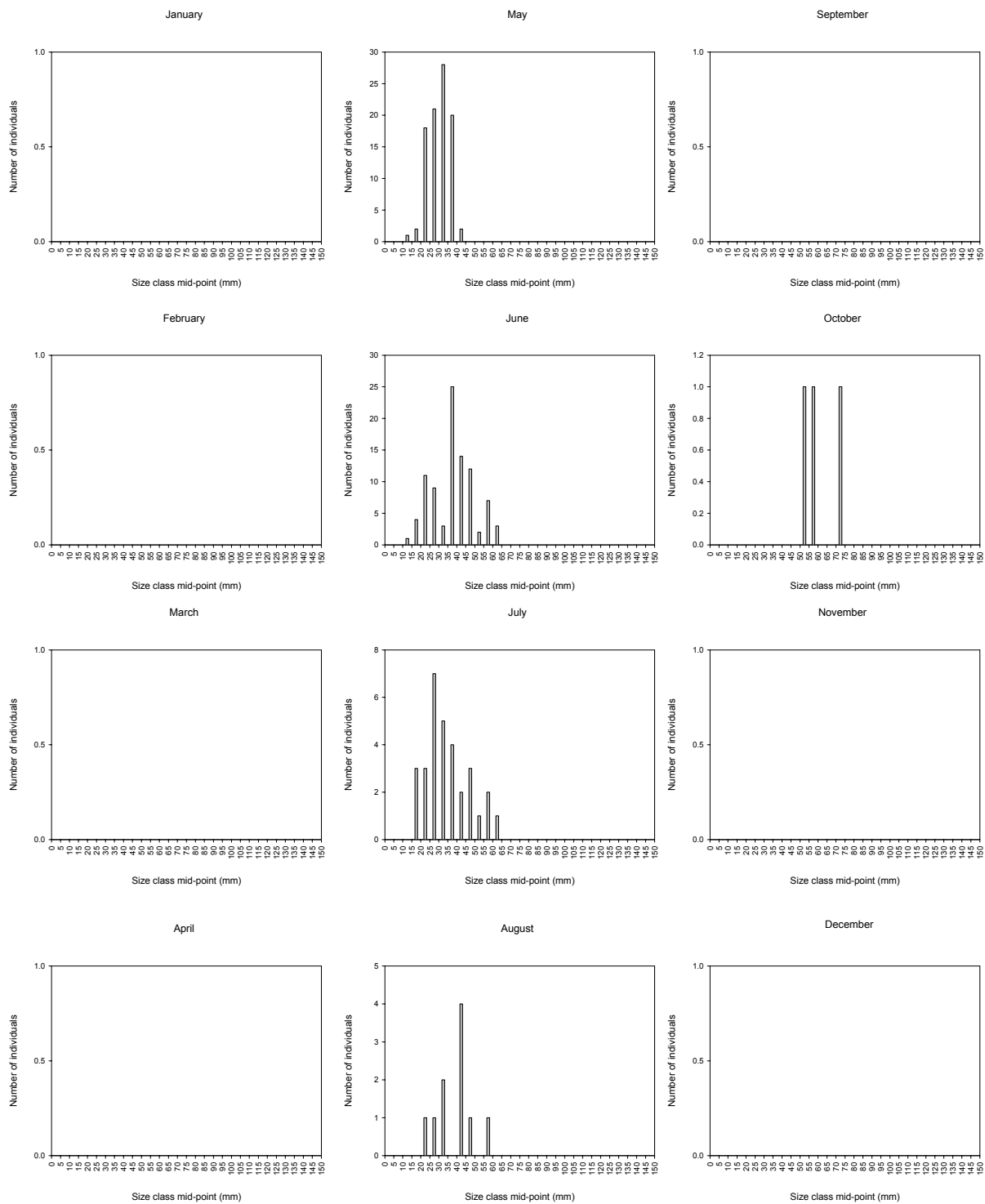


Fig. C22. Monthly length frequencies of Leatherjacket collected in seines and trawls.

Eucinostomus spp. (*Eucinostomus mojarras*)

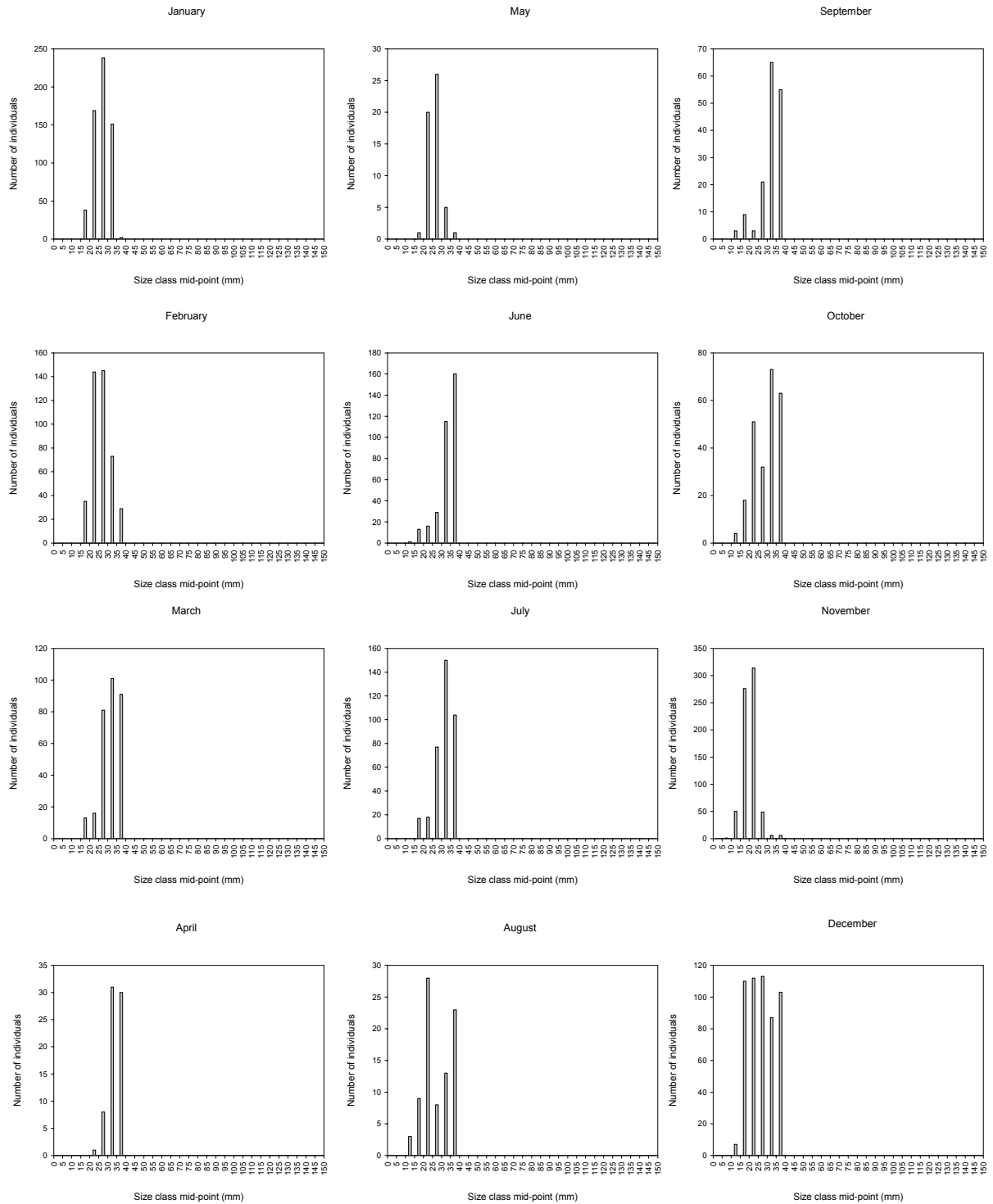


Fig. C23. Monthly length frequencies of *Eucinostomus mojarras* collected in seines and trawls.

Eucinostomus gula (Silver jenny)

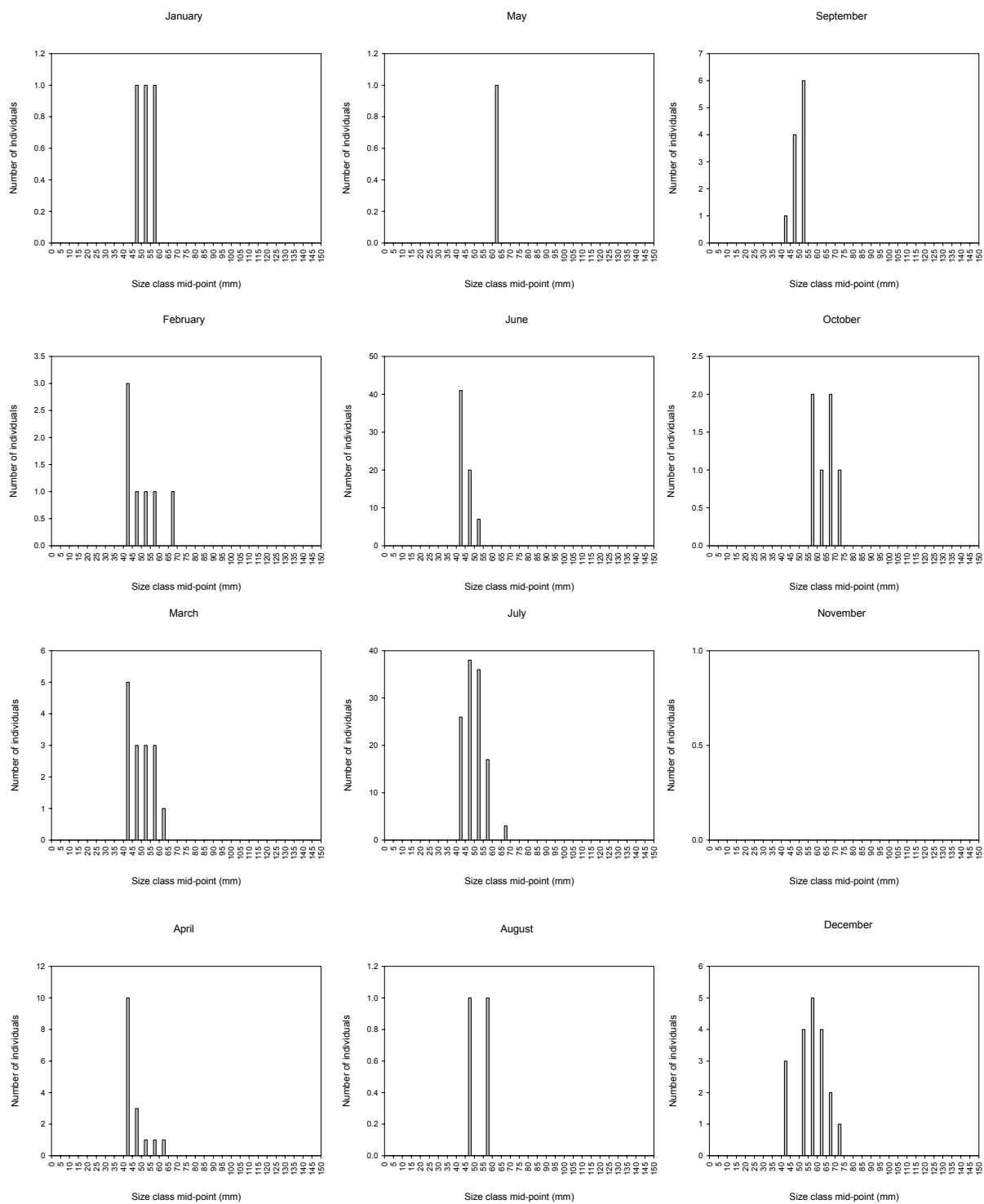


Fig. C24. Monthly length frequencies of Silver jenny collected in seines and trawls.

Eucinostomus harengulus (Tidewater mojarra)

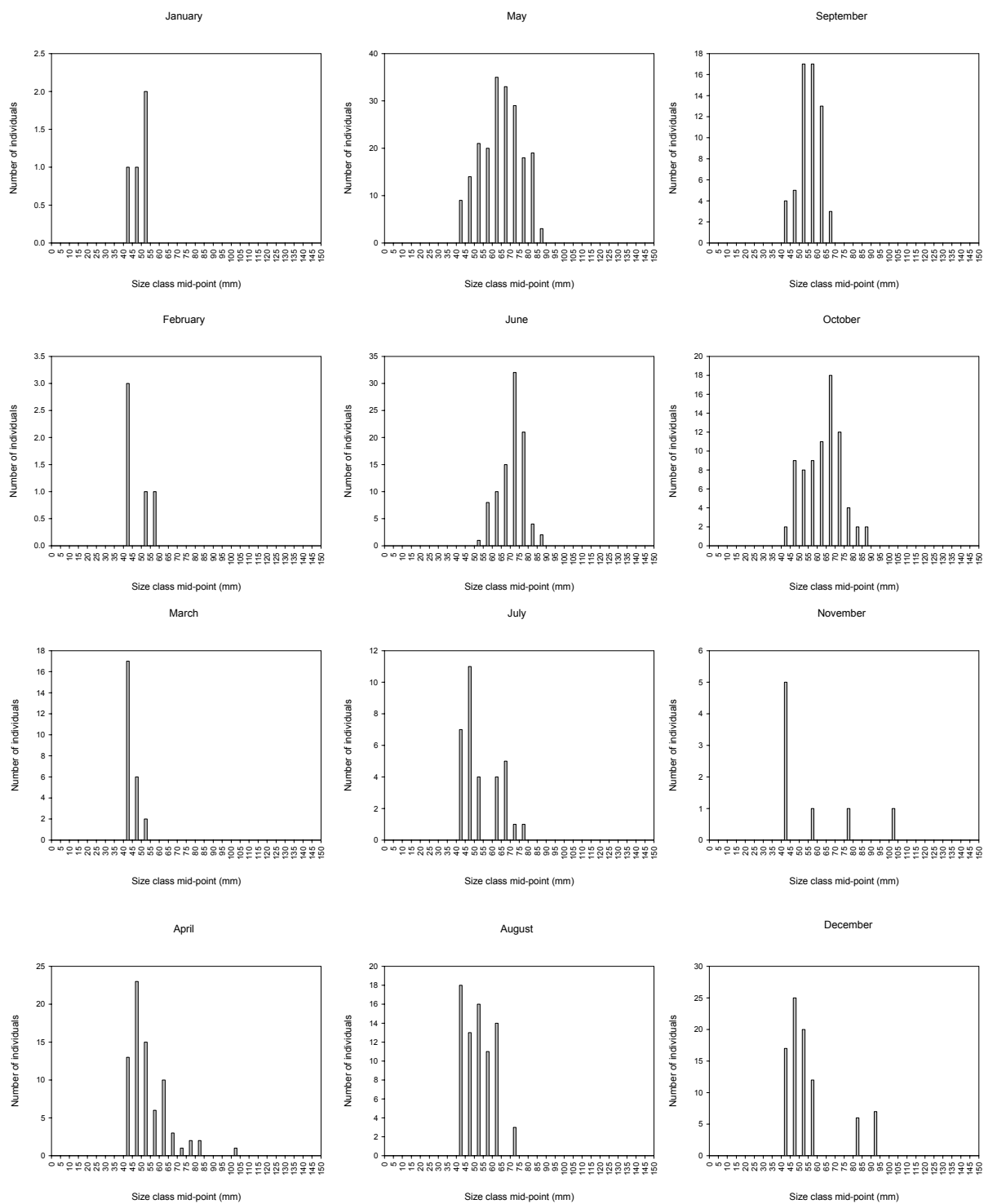


Fig. C25. Monthly length frequencies of Tidewater mojarra collected in seines and trawls.

Eugerres plumieri (Striped mojarra)

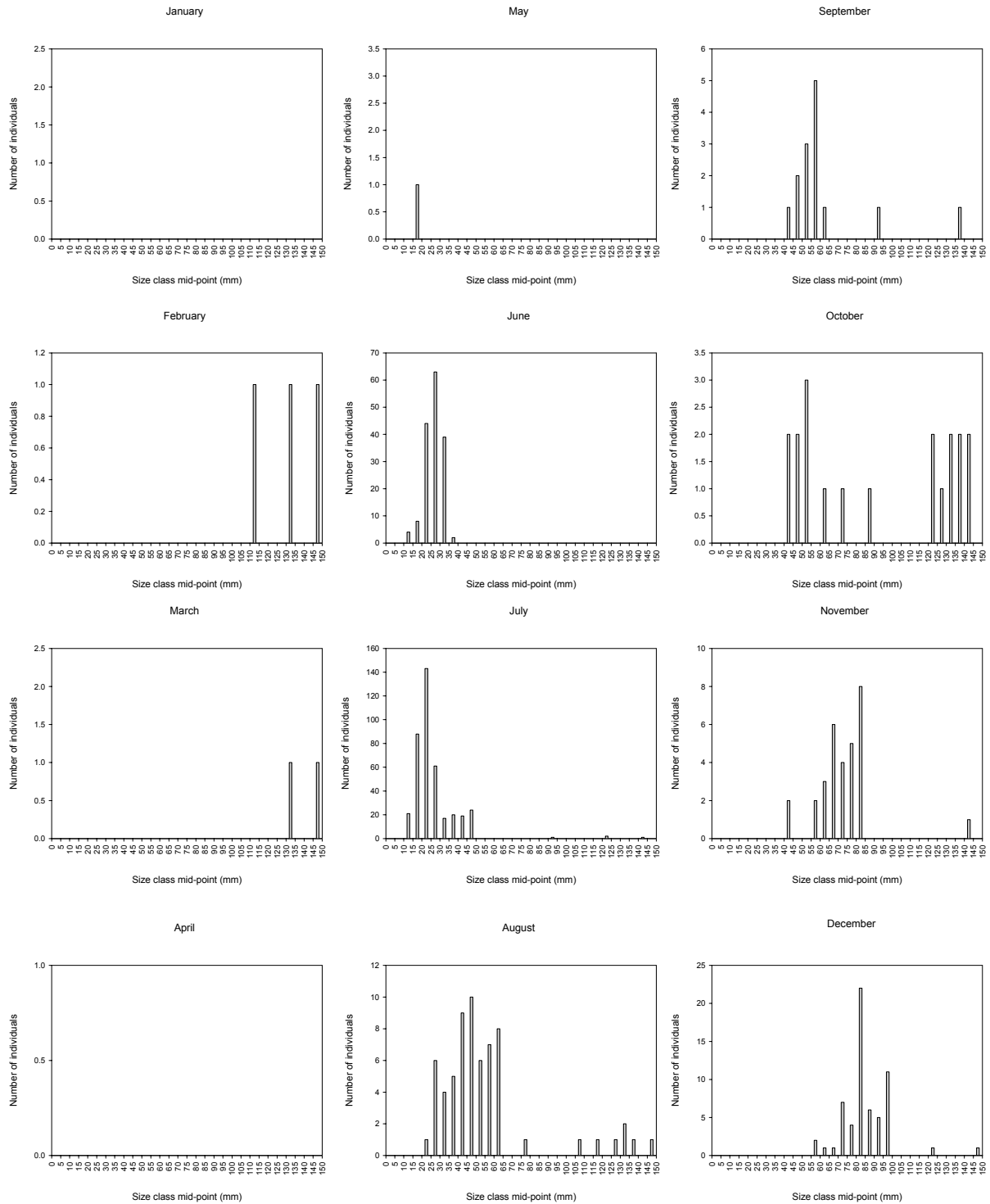


Fig. C26. Monthly length frequencies of Striped mojarra collected in seines and trawls.

Lagodon rhomboides (Pinfish)

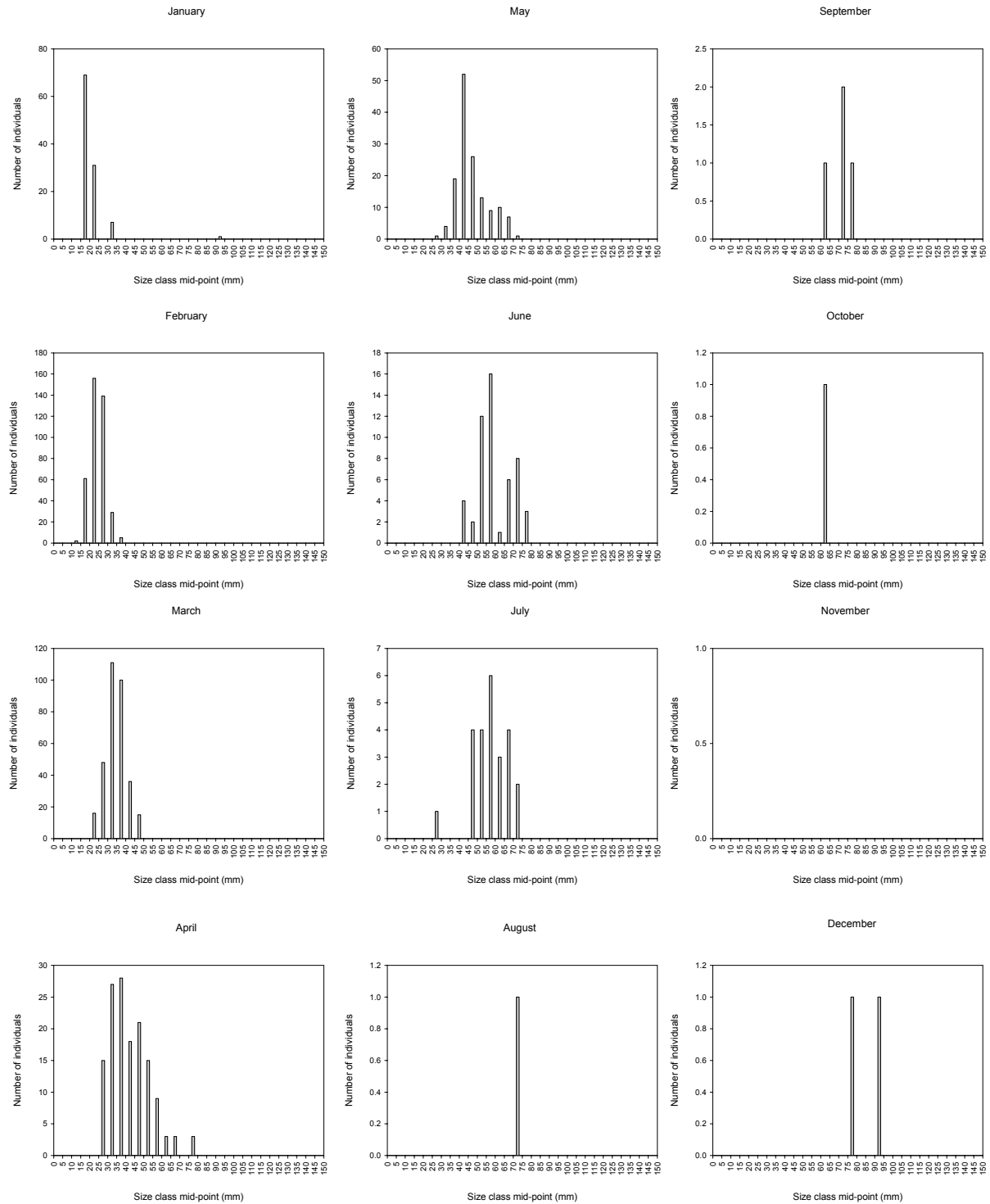


Fig. C27. Monthly length frequencies of Pinfish collected in seines and trawls.

Cynoscion nebulosus (Spotted seatrout)

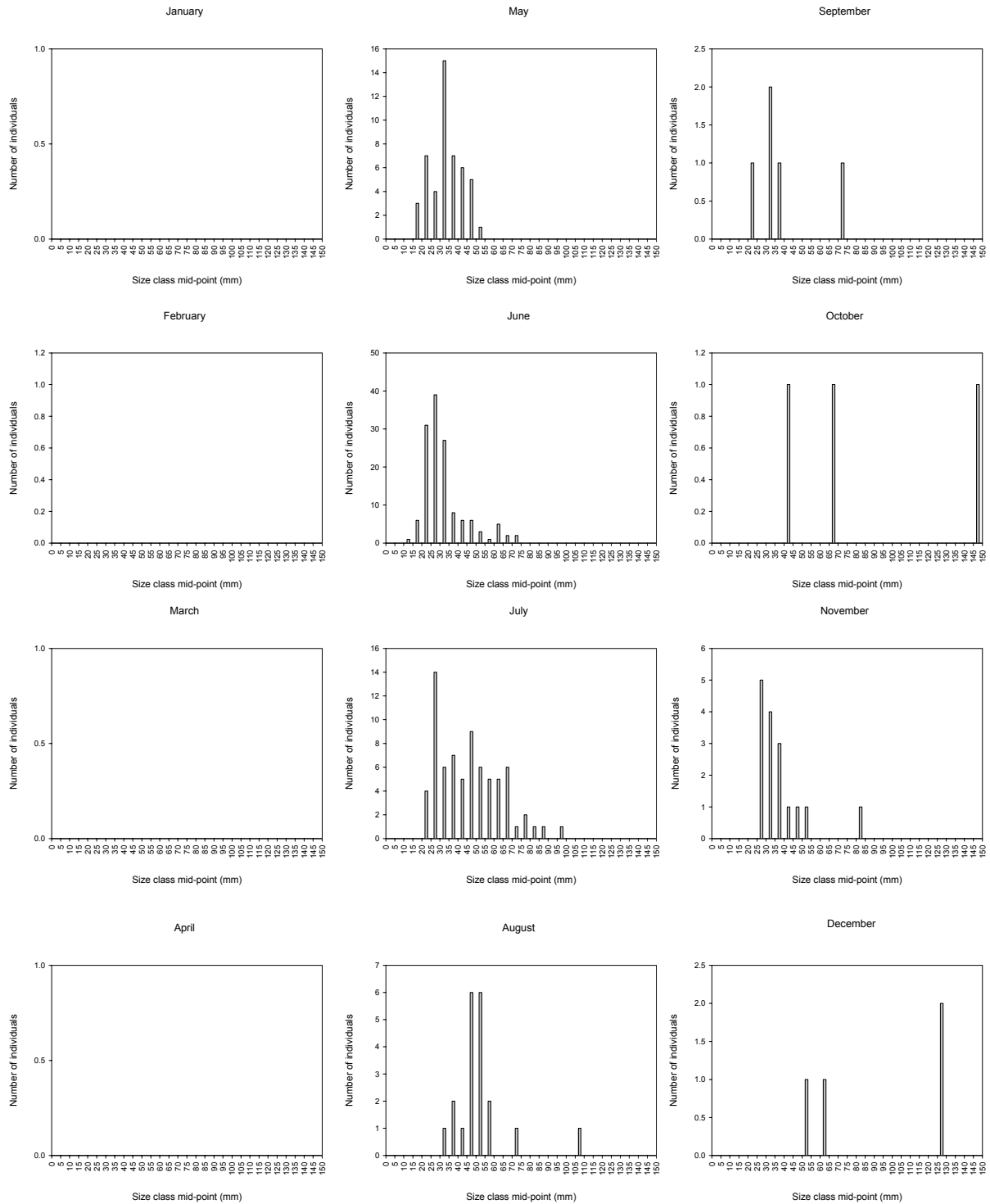


Fig. C28. Monthly length frequencies of Spotted seatrout collected in seines and trawls.

Cynoscion arenarius (Sand seatrout)

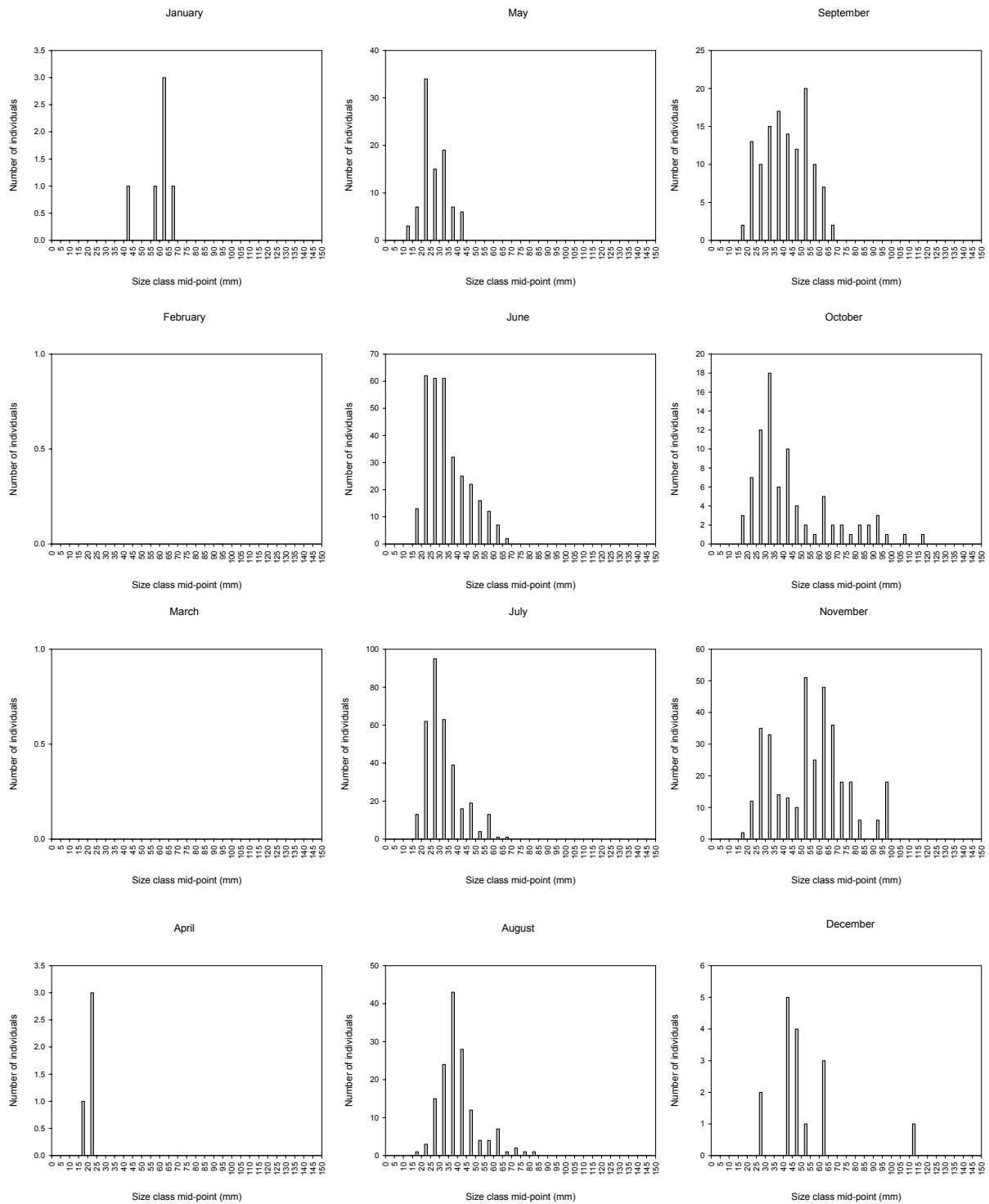


Fig. C29. Monthly length frequencies of Sand seatrout collected in seines and trawls.

Bairdiella chrysoura (Silver perch)

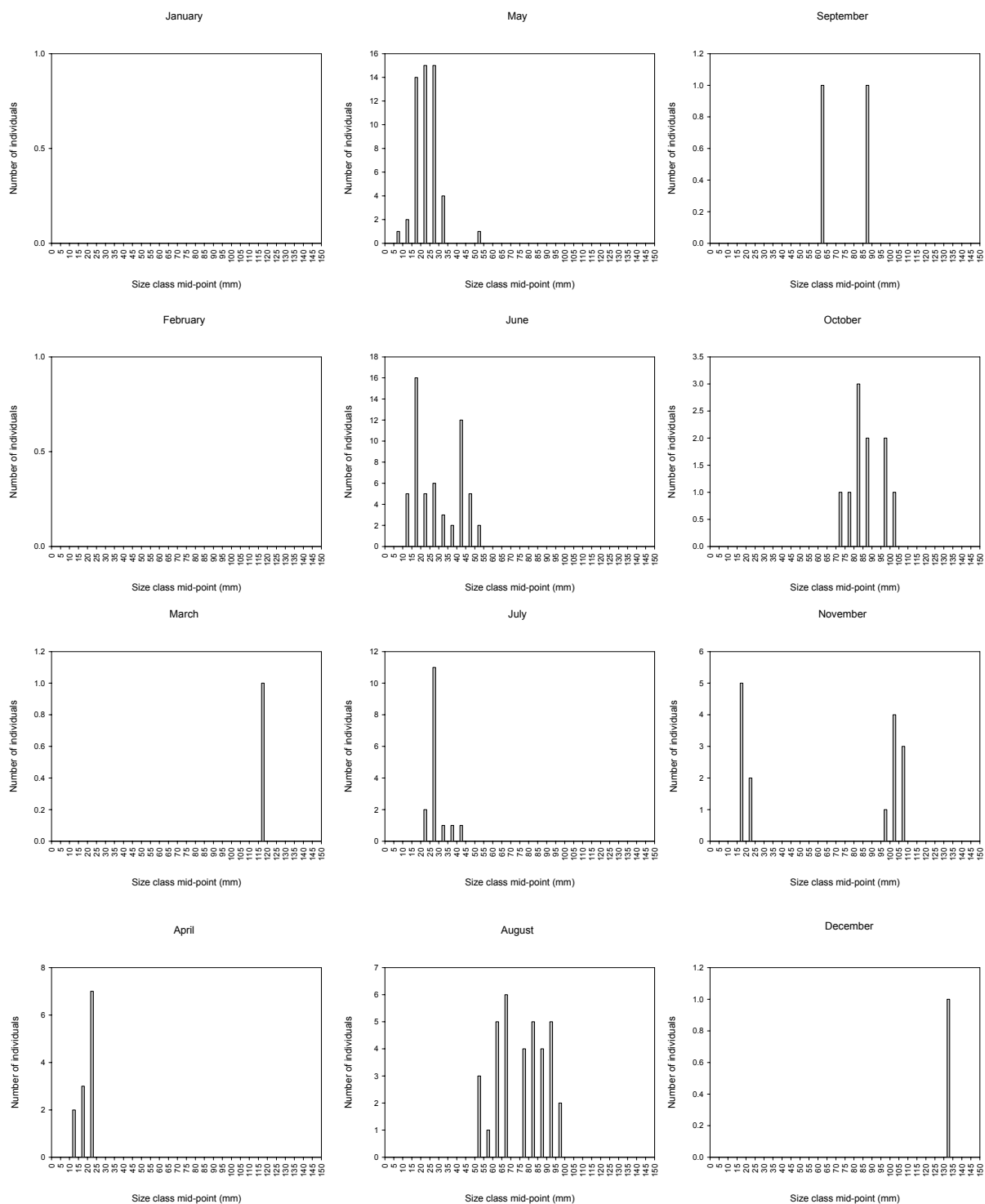


Fig. C30. Monthly length frequencies of Silver perch collected in seines and trawls.

Leiostomus xanthurus (Spot)

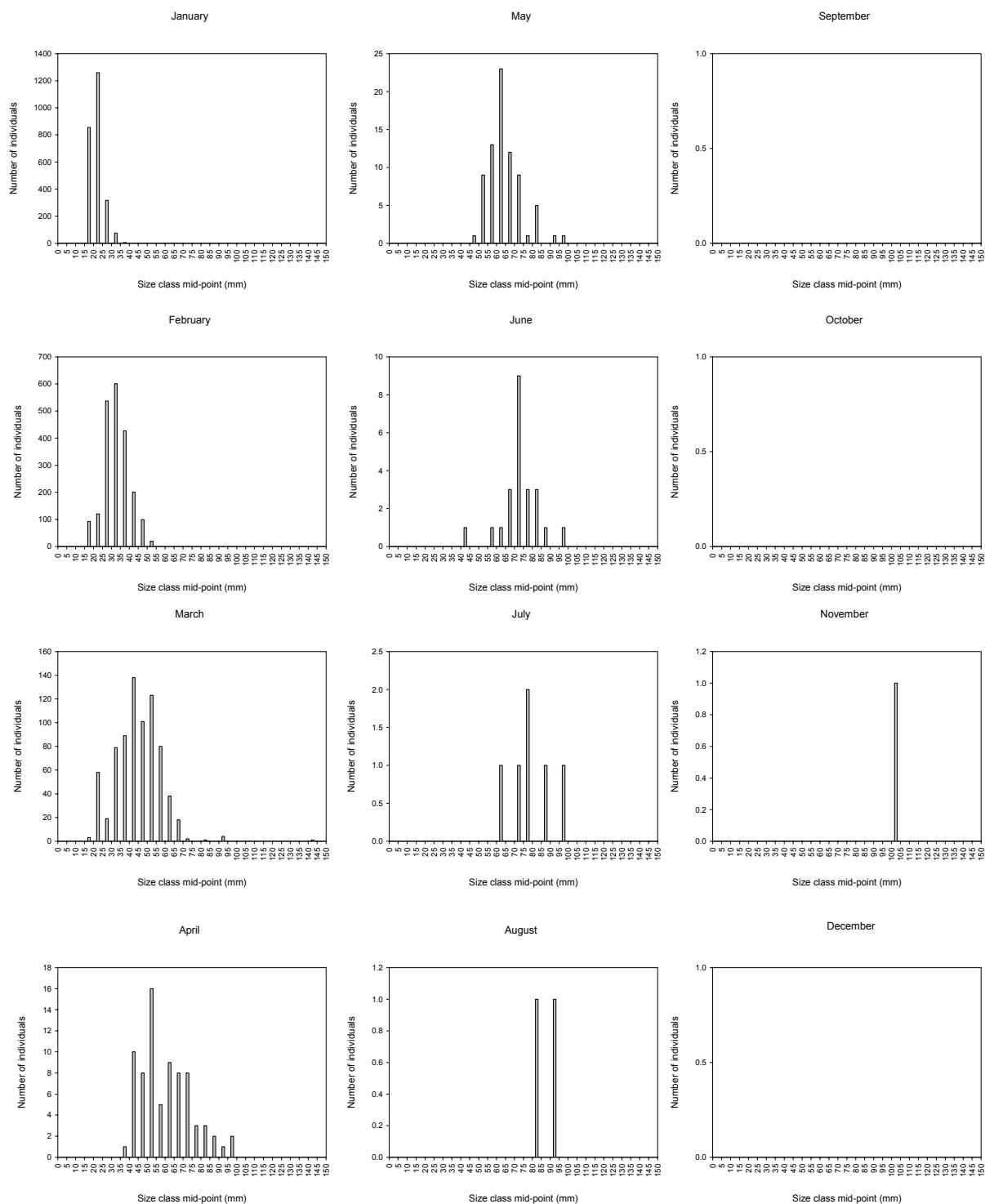


Fig. C31. Monthly length frequencies of Spot collected in seines and trawls.

Menticirrhus americanus (Southern kingfish)

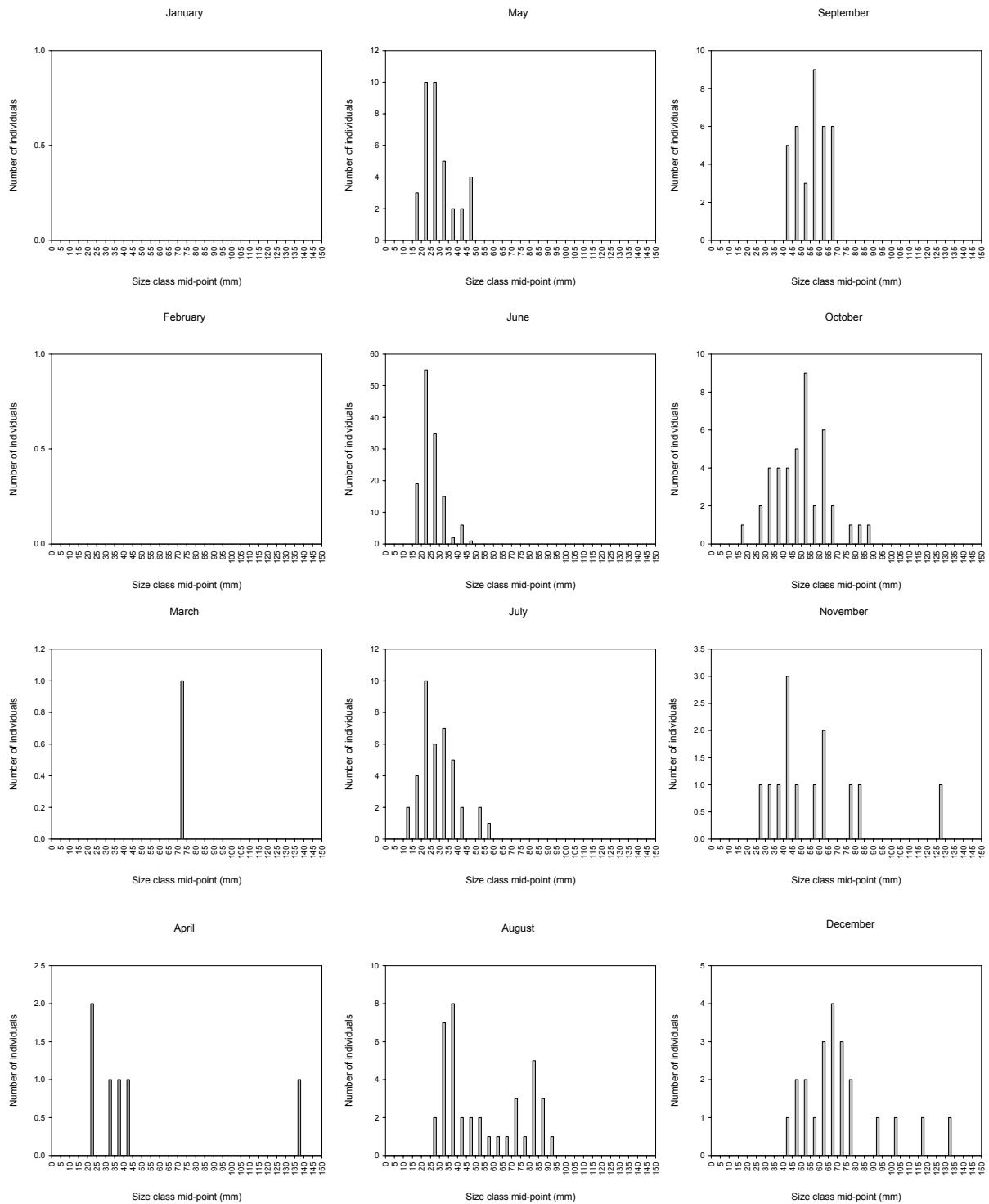


Fig. C32. Monthly length frequencies of Southern kingfish collected in seines and trawls.

Sciaenops ocellatus (Red drum)

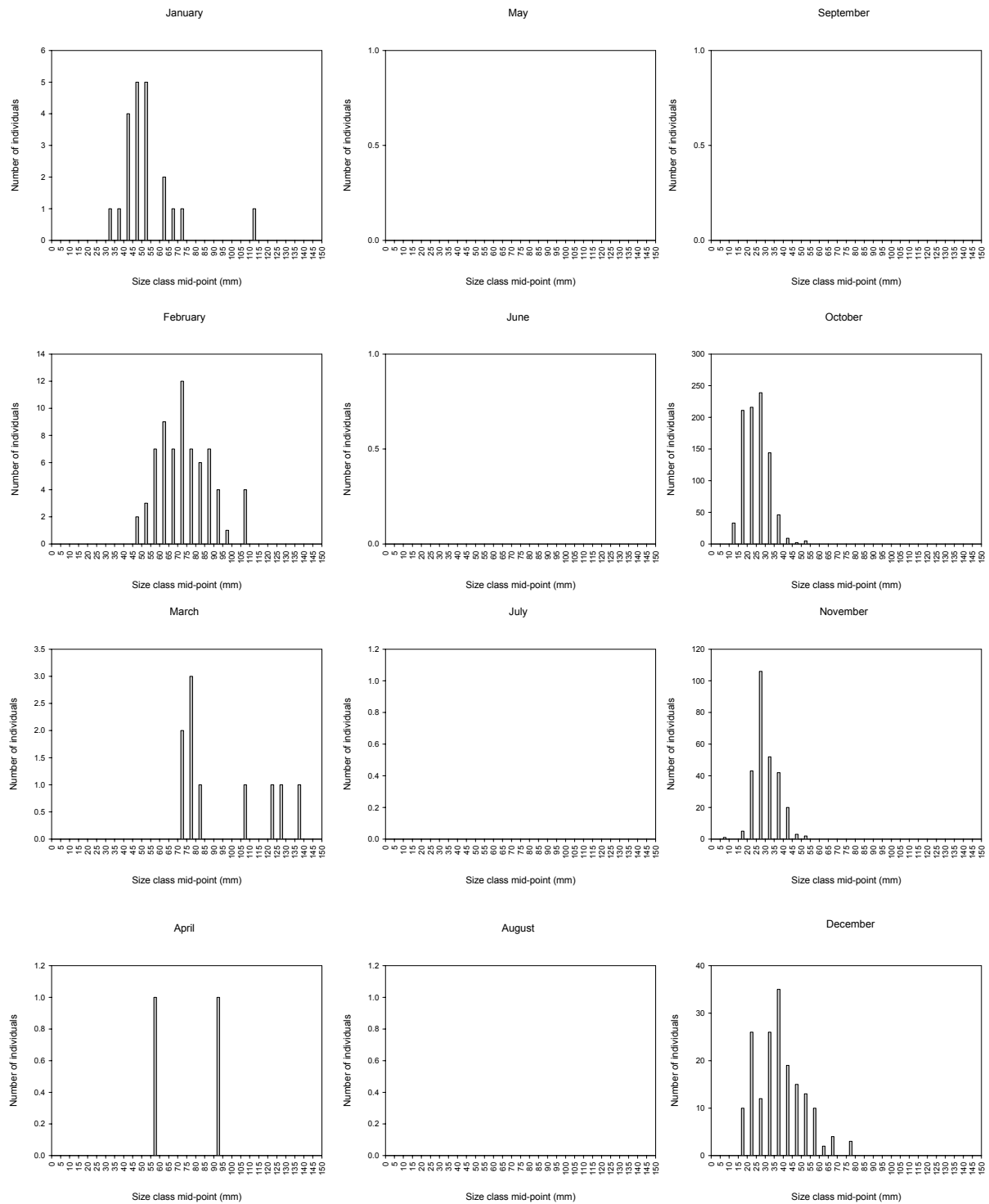


Fig. C33. Monthly length frequencies of Red drum collected in seines and trawls.

Tilapia spp. (Tilapias)

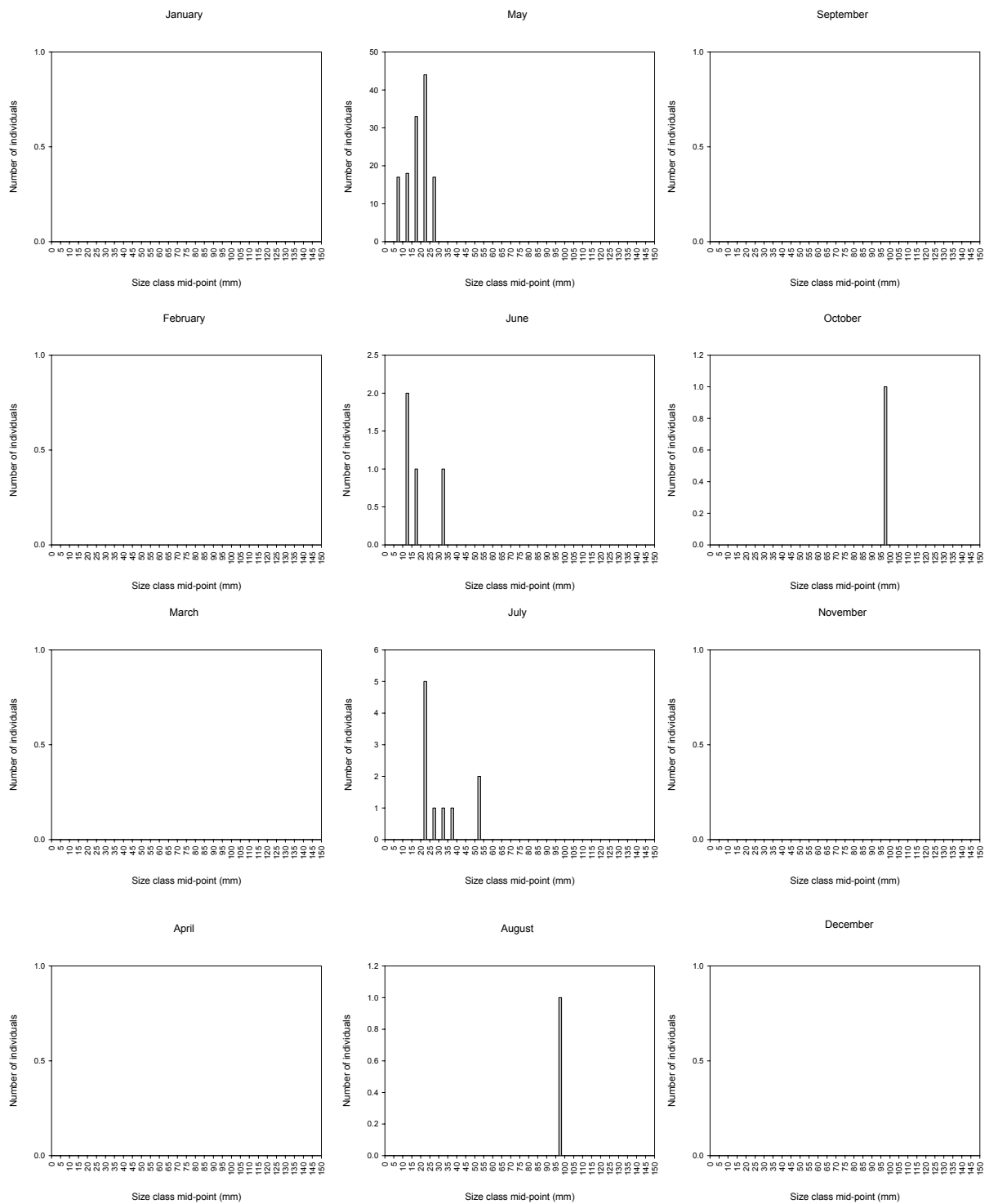


Fig. C34. Monthly length frequencies of *Tilapias* collected in seines and trawls.

Mugil cephalus (Striped mullet)

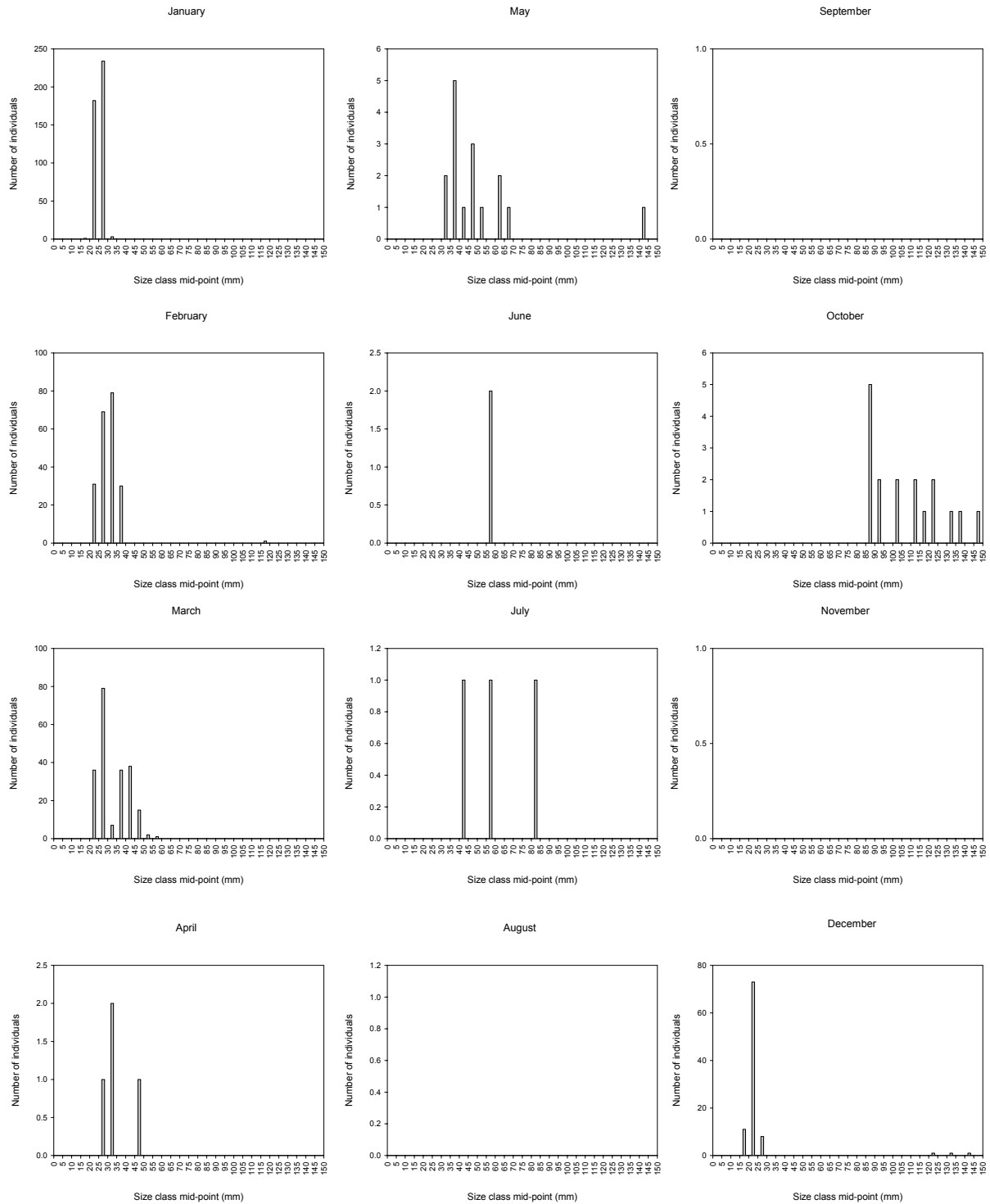


Fig. C35. Monthly length frequencies of Striped mullet collected in seines and trawls.

Gobiosoma spp. (*Gobiosoma gobies*)

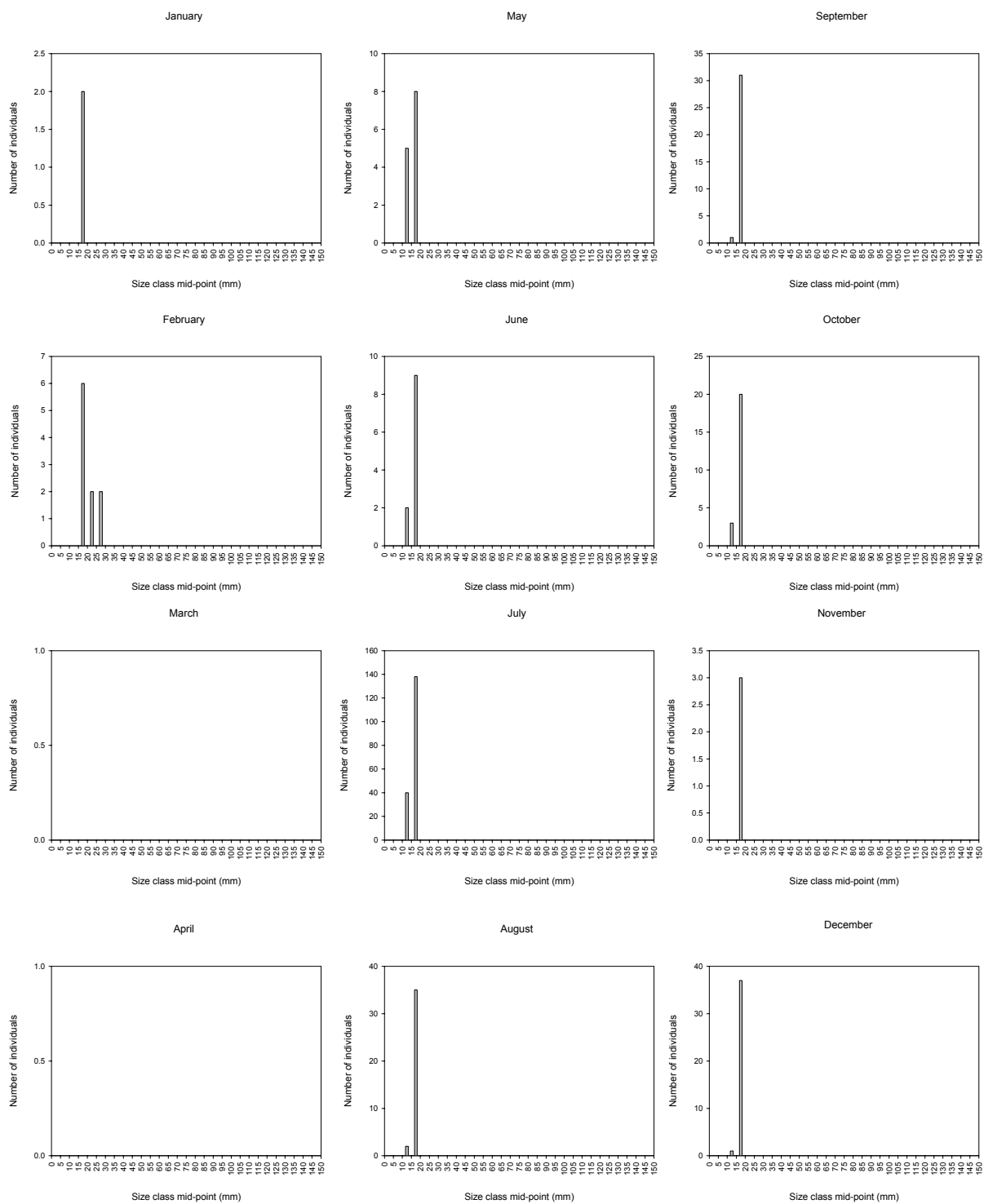


Fig. C36. Monthly length frequencies of *Gobiosoma gobies* collected in seines and trawls.

Gobiosoma bosc (Naked goby)

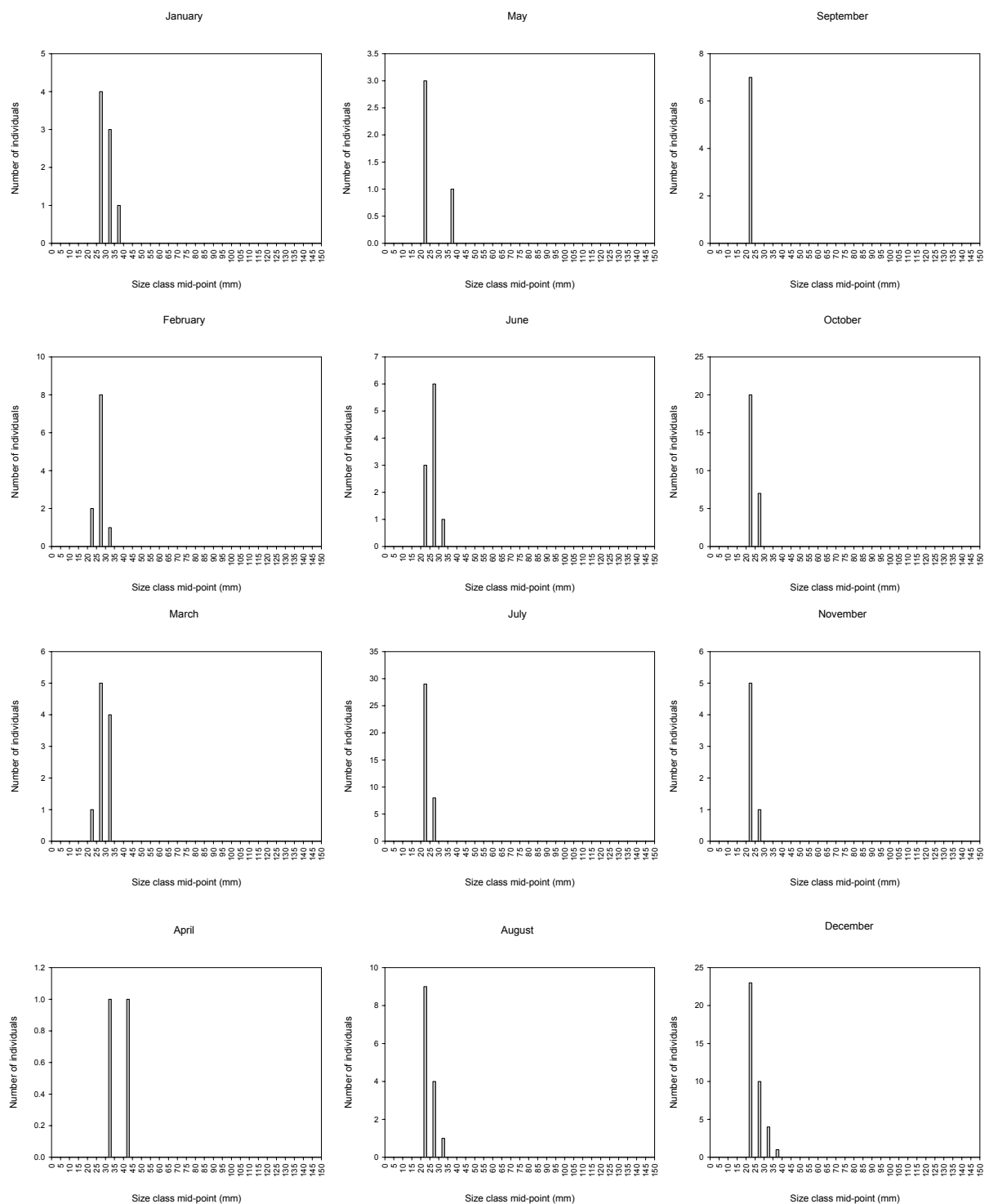


Fig. C37. Monthly length frequencies of Naked goby collected in seines and trawls.

Microgobius gulosus (Clown goby)

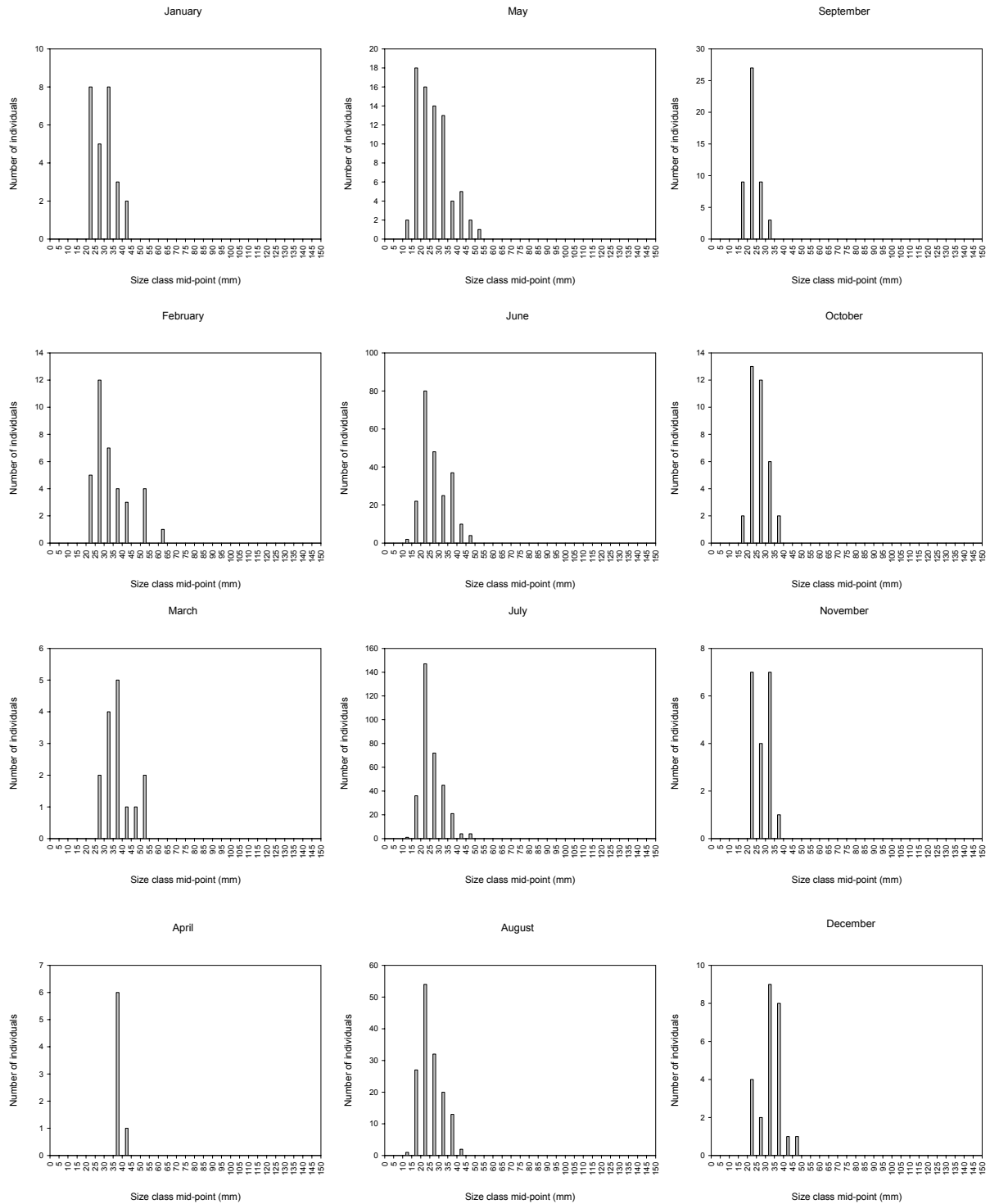


Fig. C38. Monthly length frequencies of Clown goby collected in seines and trawls.

Trinectes maculatus (Hogchoker)

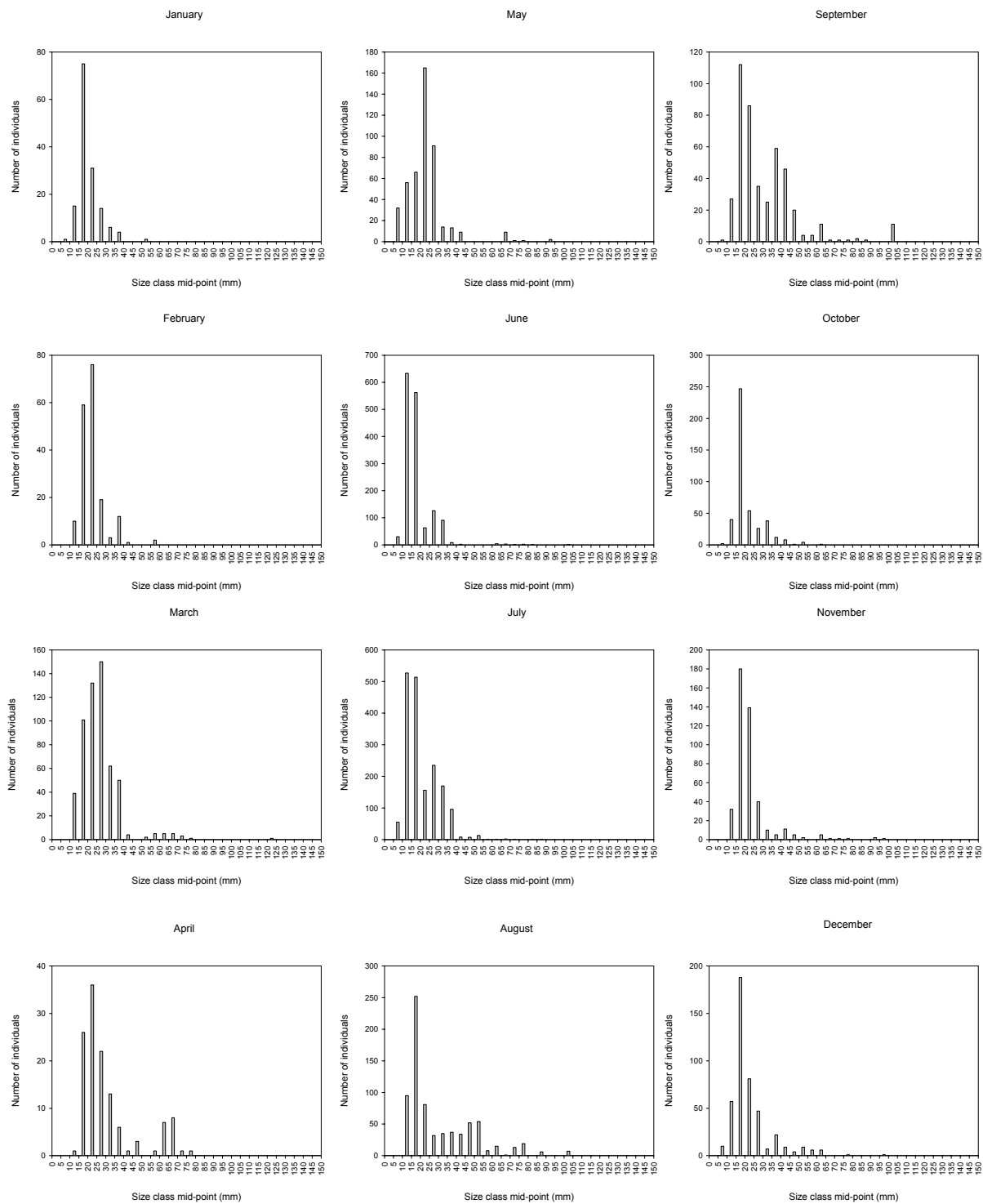


Fig. C39. Monthly length frequencies of Hogchoker collected in seines and trawls.

Appendix D:
Seine catch overview plots

Farfantepenaeus duorarum (Pink shrimp), Seines

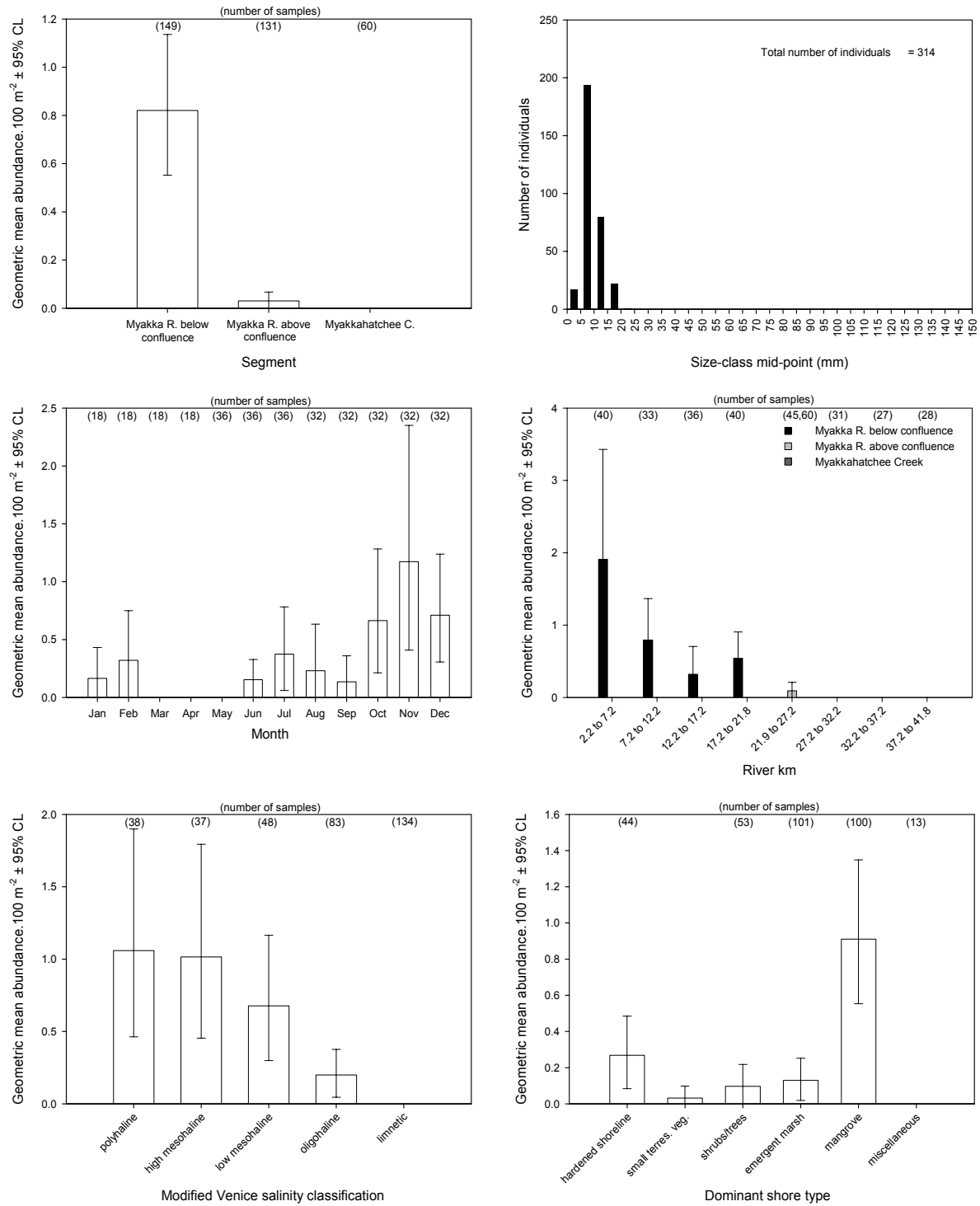


Fig. D1. Relative abundance of Pink shrimp in shoreline habitats.

Palaemonetes intermedius (Brackish grass shrimp), Seines

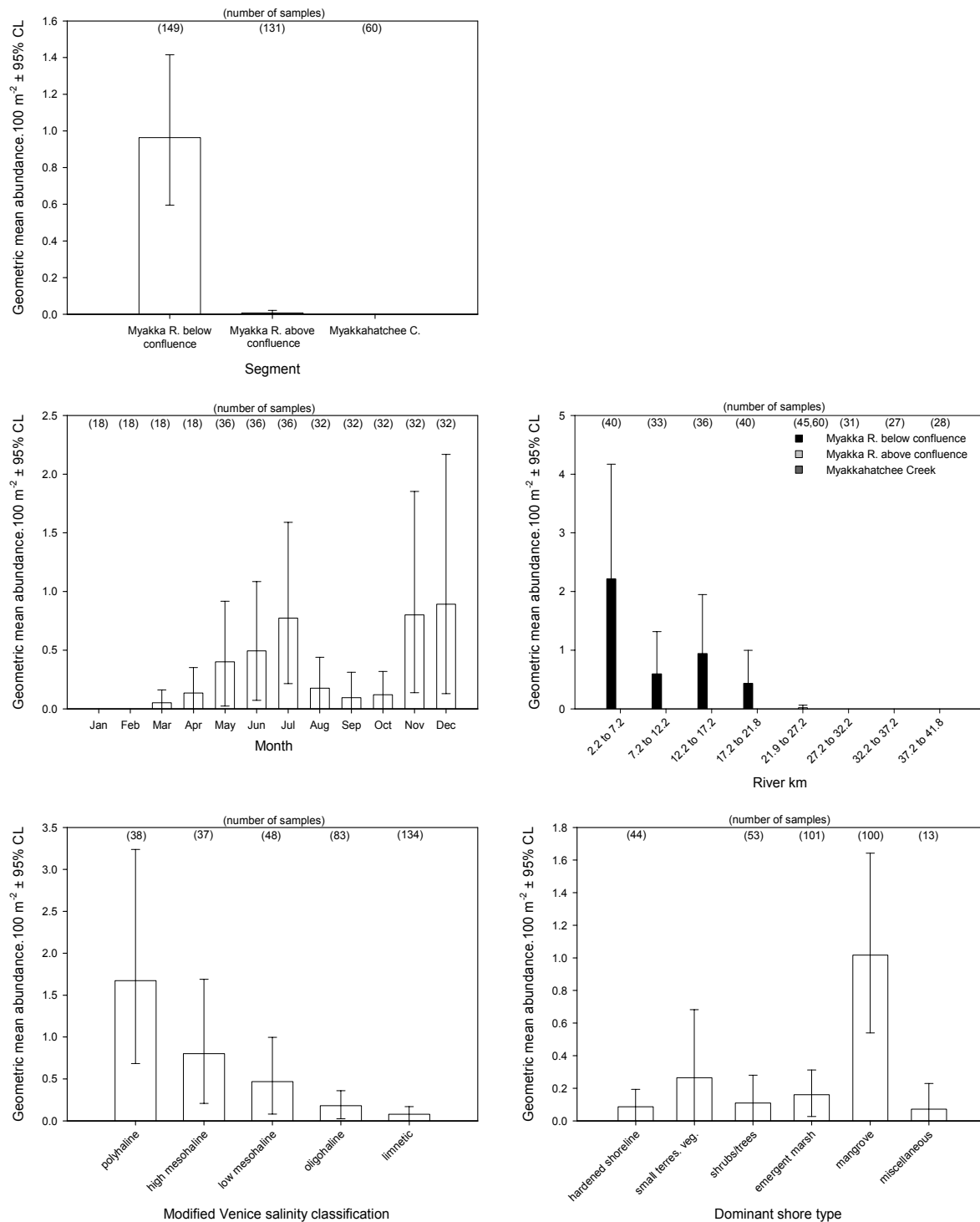


Fig. D2. Relative abundance of Brackish grass shrimp in shoreline habitats.

Palaemonetes pugio (Daggerblade grass shrimp), Seines

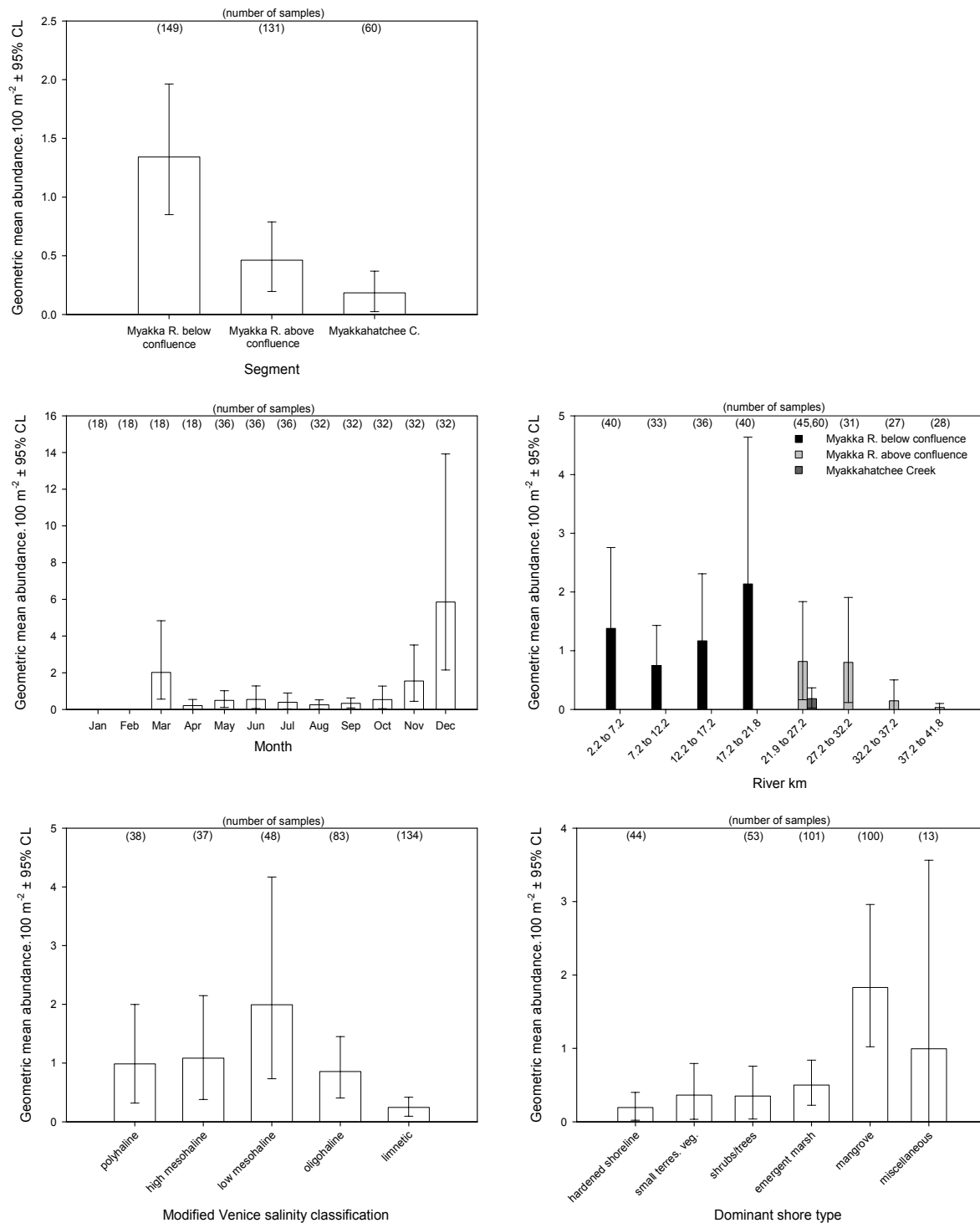


Fig. D3. Relative abundance of Daggerblade grass shrimp in shoreline habitats.

Callinectes sapidus (Blue crab), Seines

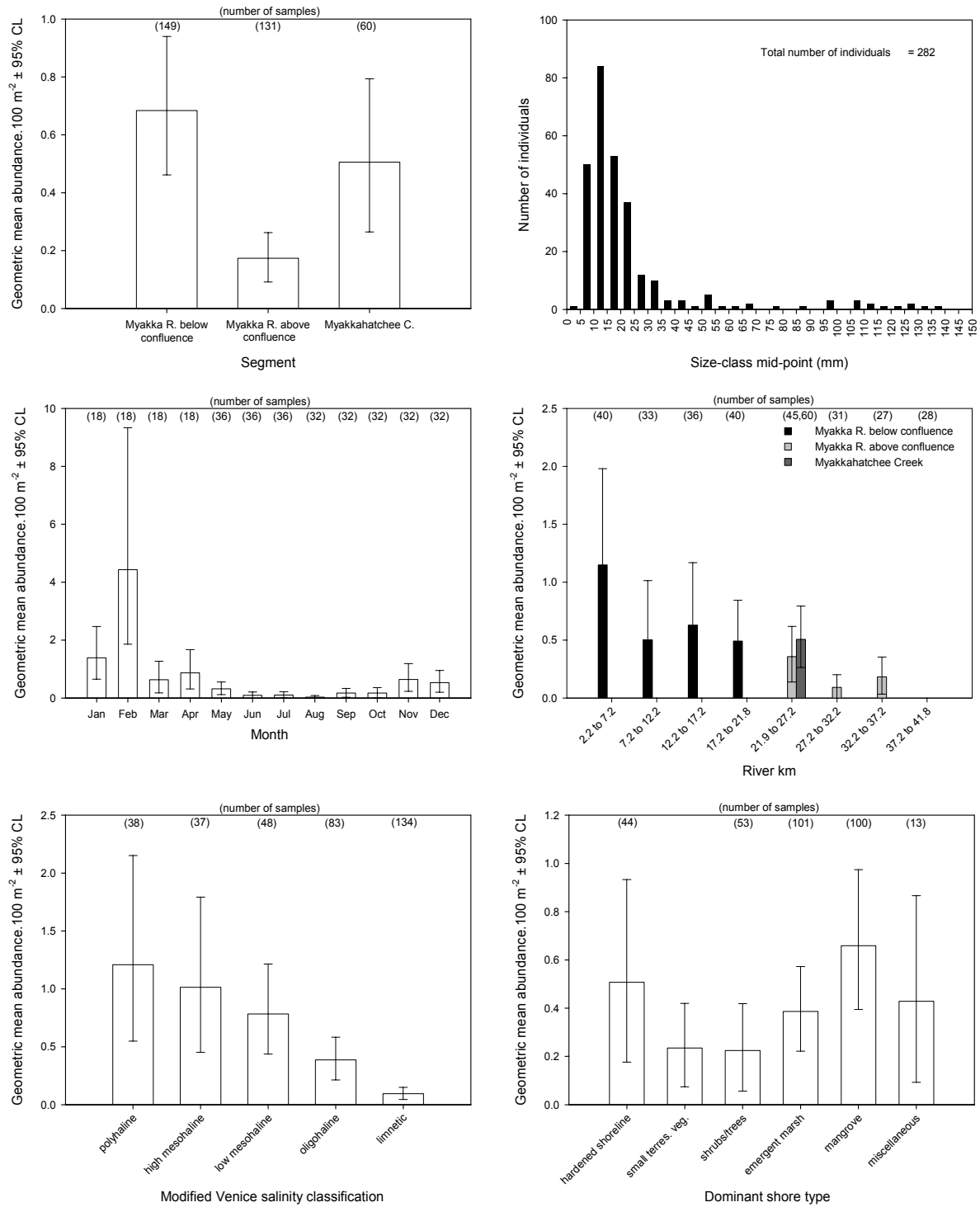


Fig. D4. Relative abundance of Blue crab in shoreline habitats.

***Brevoortia* spp. (Menhadens), Seines**

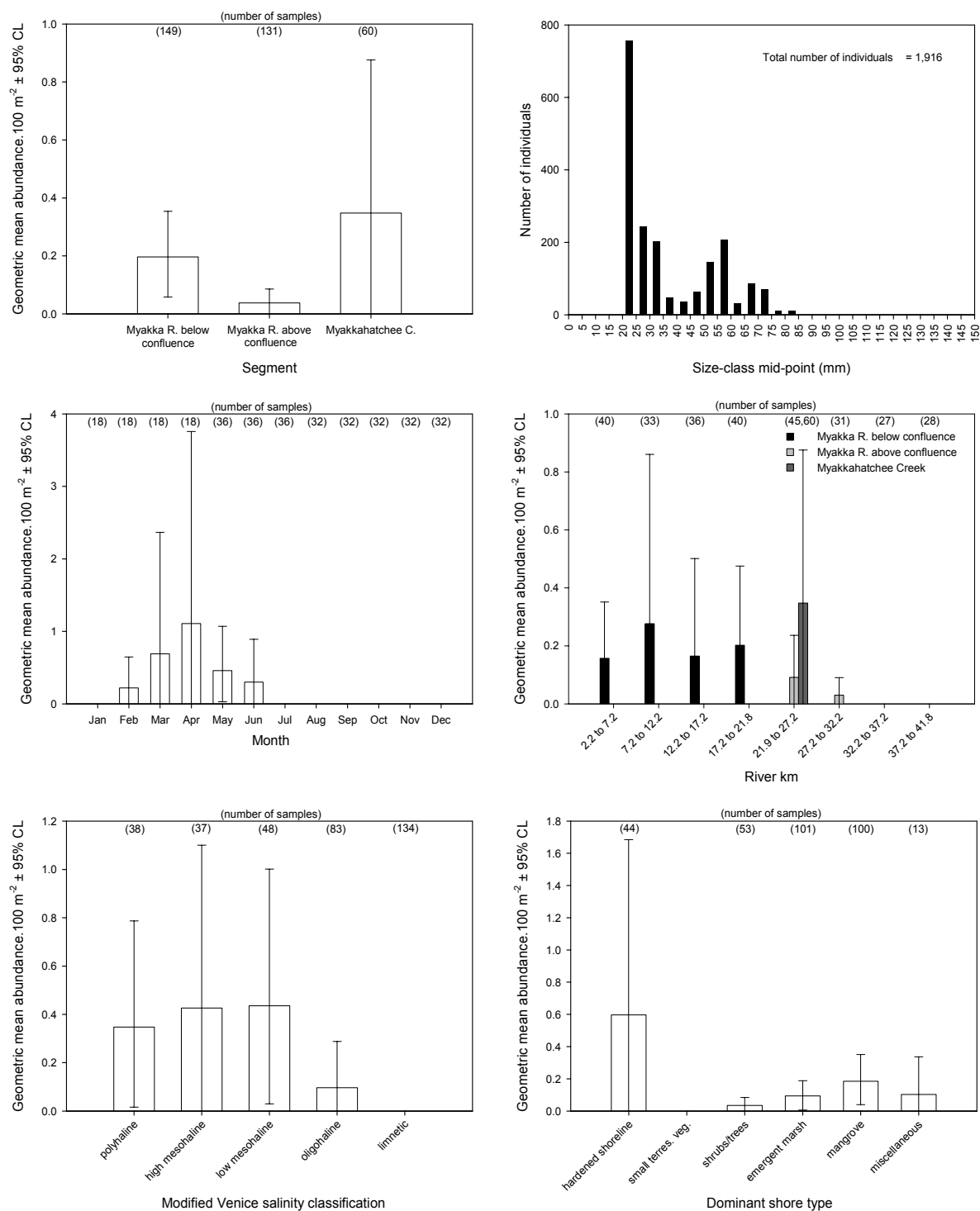


Fig. D5. Relative abundance of Menhadens in shoreline habitats.

Anchoa mitchilli (Bay anchovy), Seines

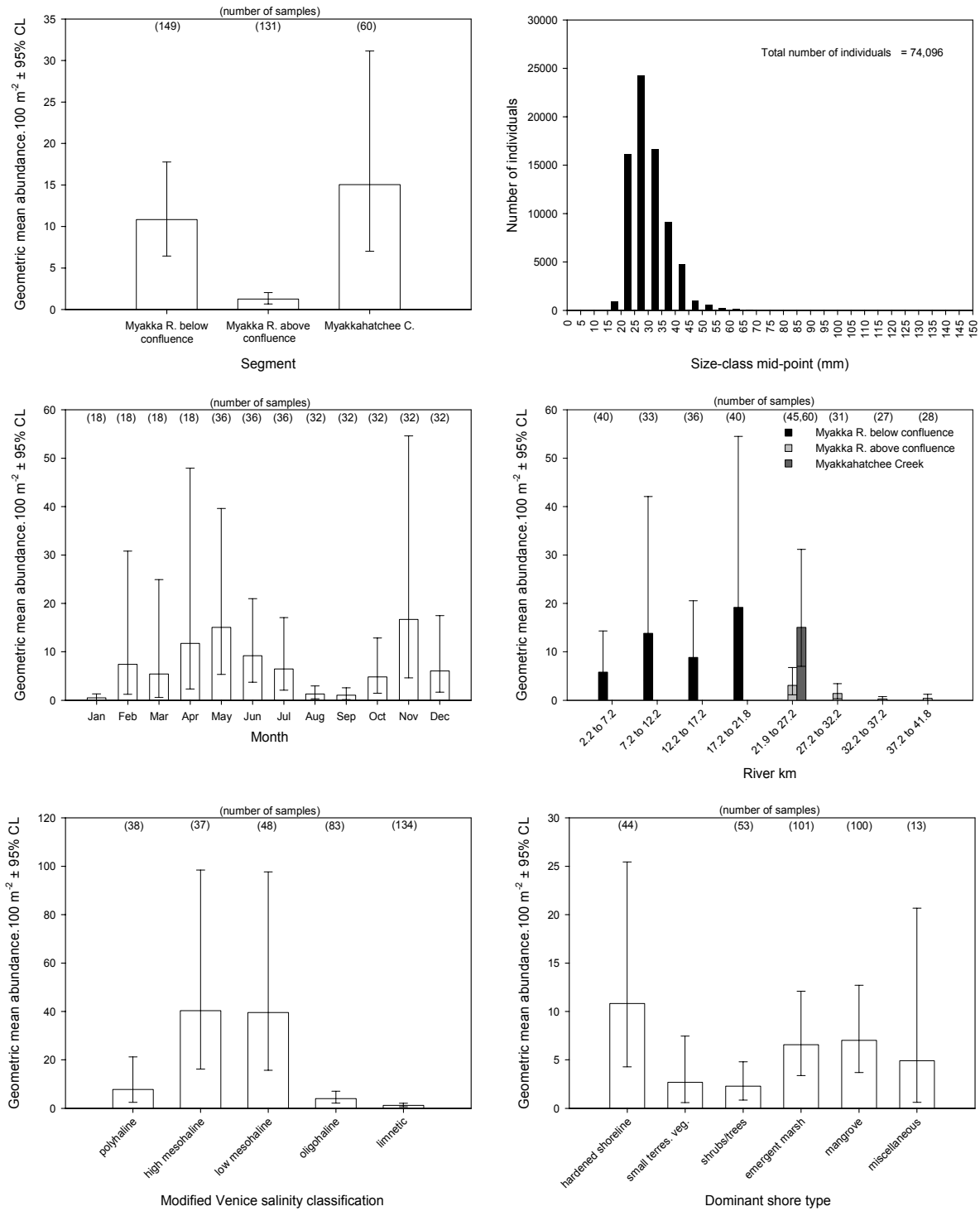


Fig. D6. Relative abundance of Bay anchovy in shoreline habitats.

Notropis petersoni (Coastal shiner), Seines

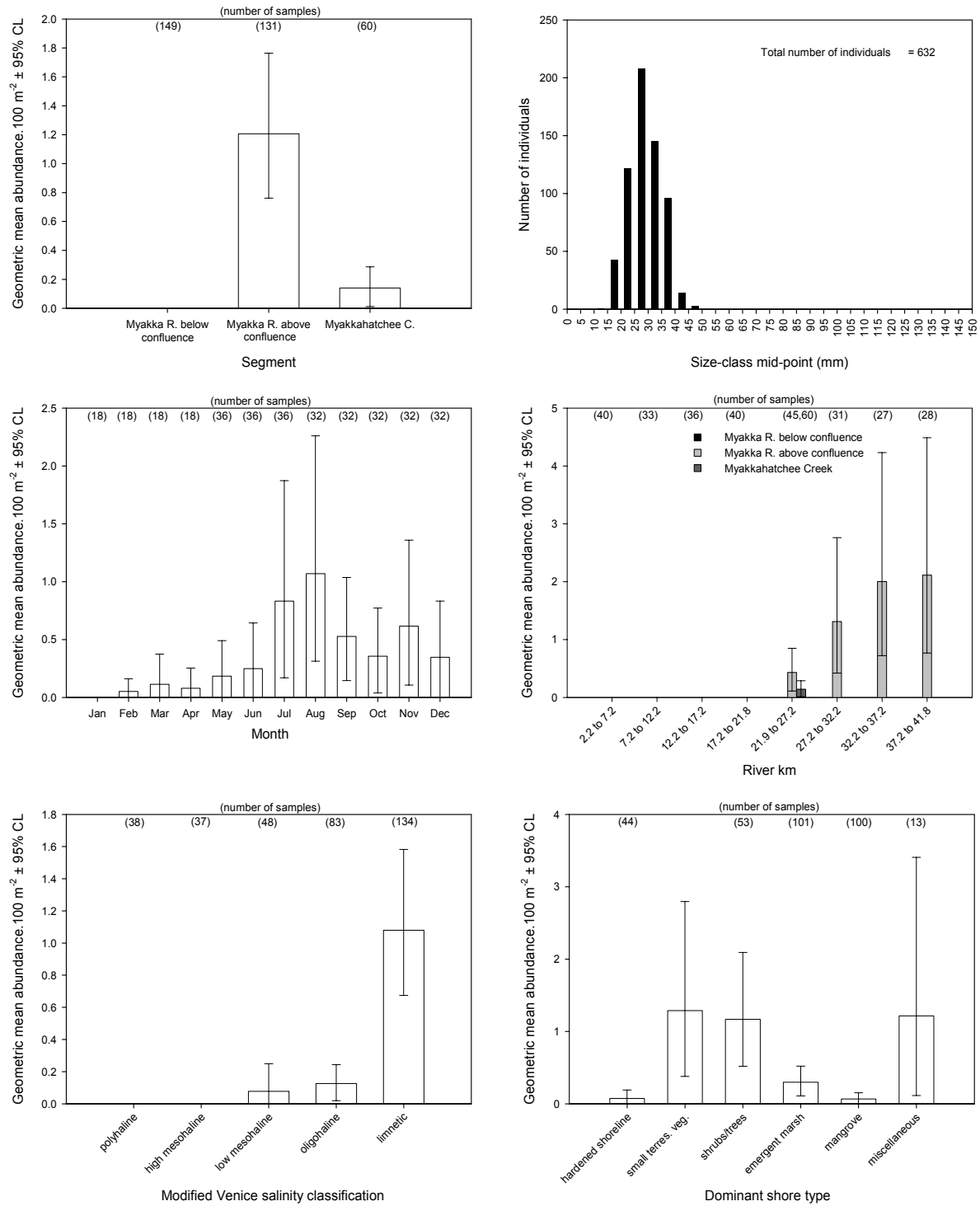


Fig. D7. Relative abundance of Coastal shiner in shoreline habitats.

Fundulus grandis (Gulf killifish), Seines

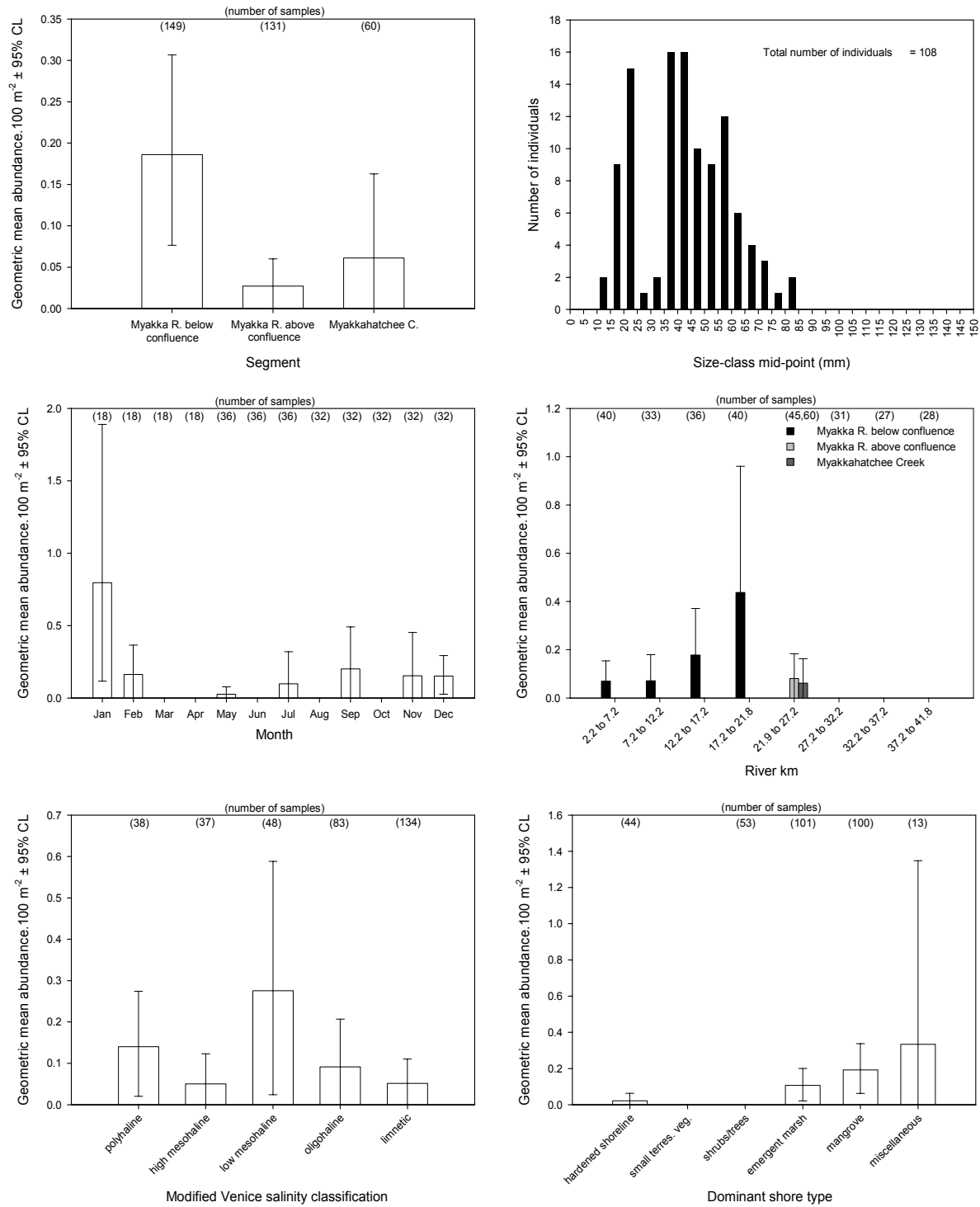


Fig. D8. Relative abundance of Gulf killifish in shoreline habitats.

Fundulus seminolis (Seminole killifish), Seines

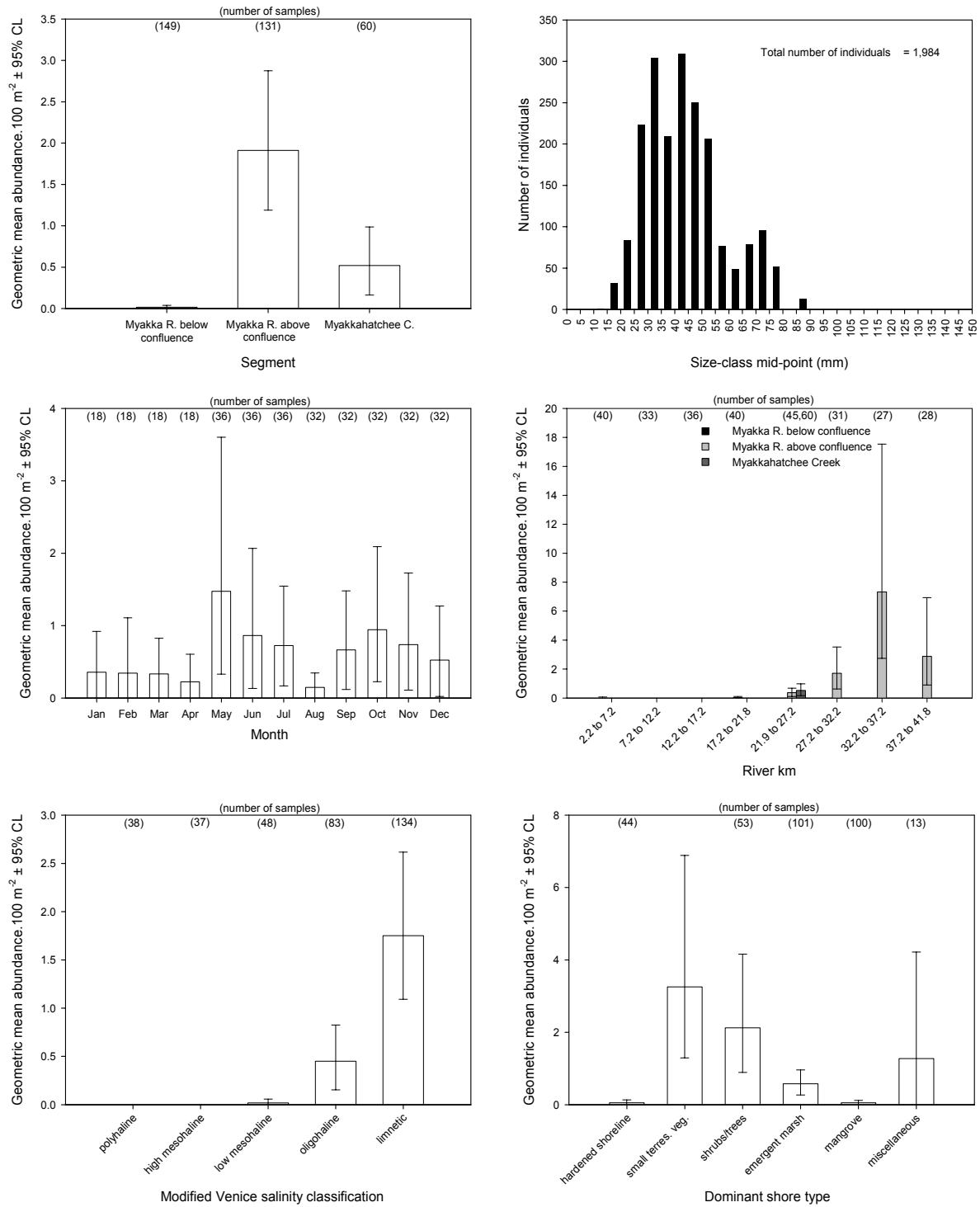


Fig. D9. Relative abundance of Seminole killifish in shoreline habitats.

Lucania parva (Rainwater killifish), Seines

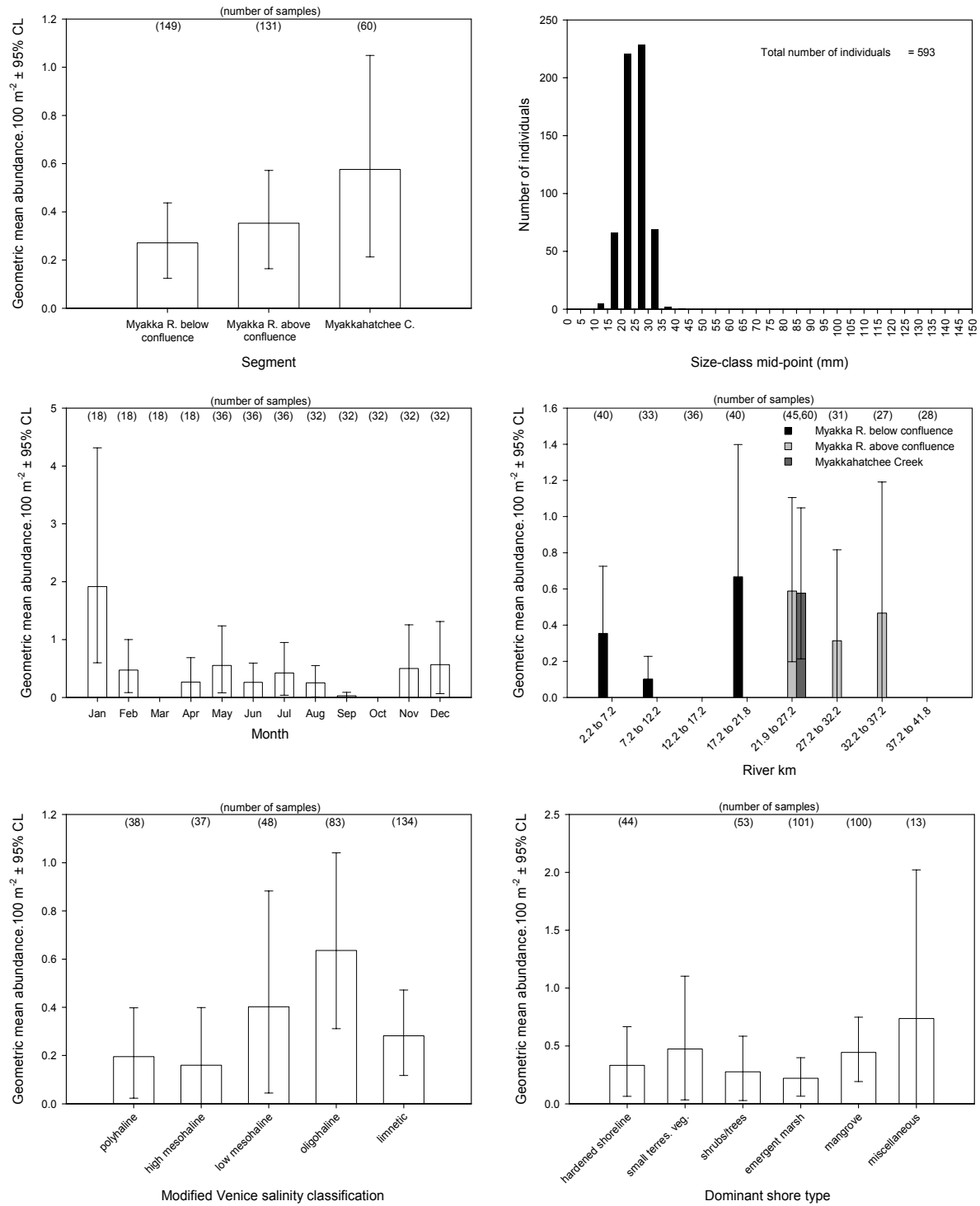


Fig. D10. Relative abundance of Rainwater killifish in shoreline habitats.

Lucania goodei (Bluefin killifish), Seines

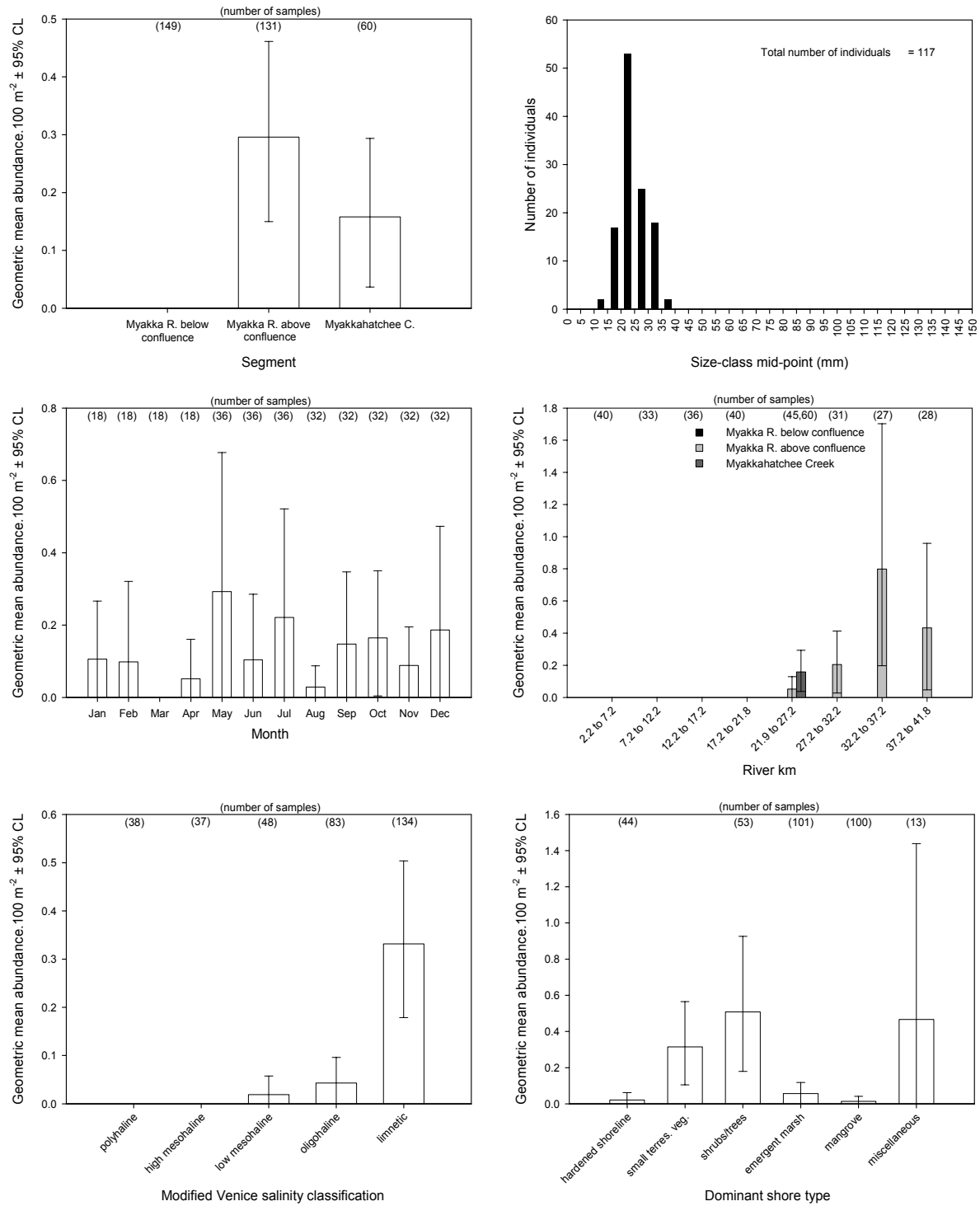


Fig. D11. Relative abundance of Bluefin killifish in shoreline habitats.

Jordanella floridae (Flagfish), Seines

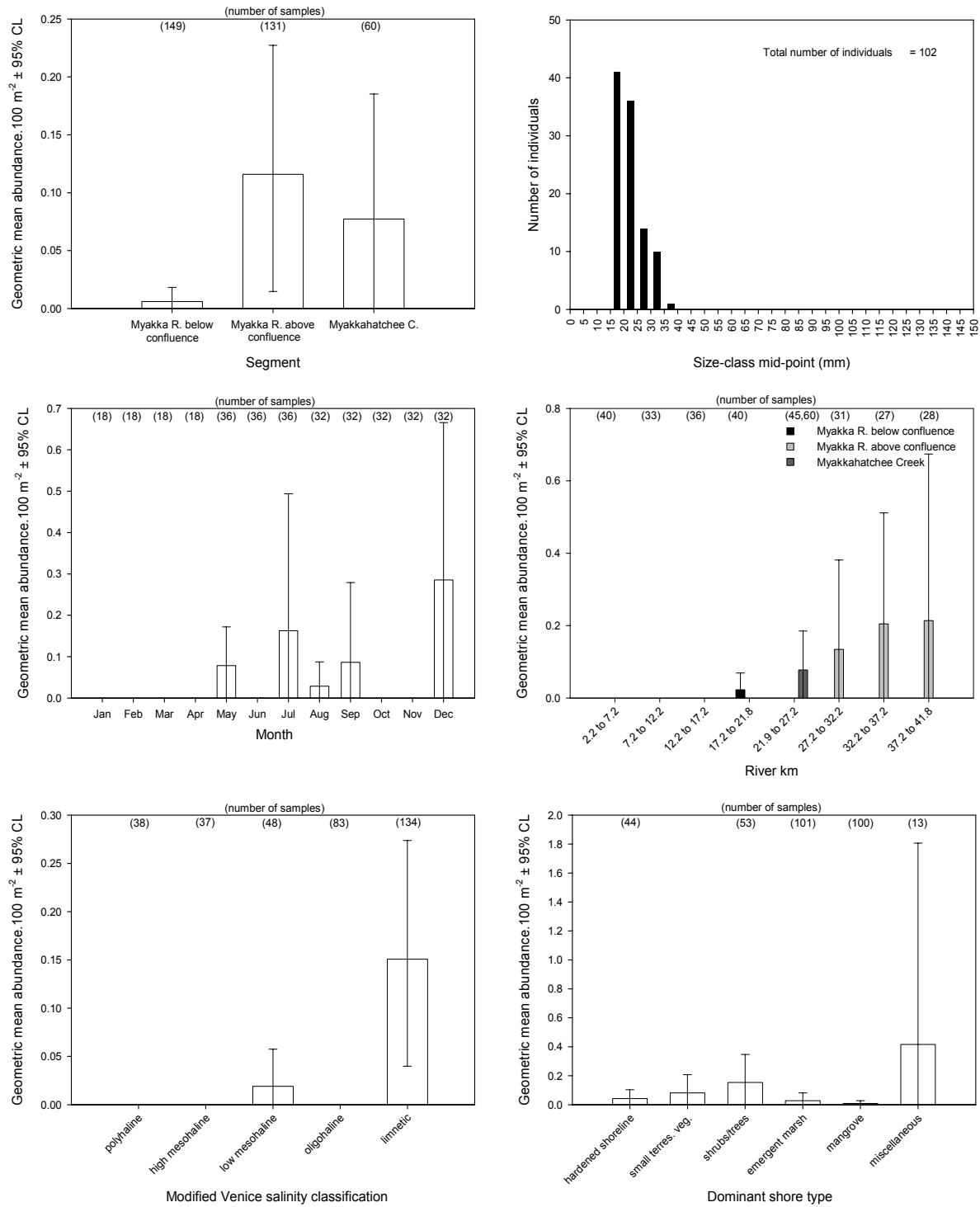


Fig. D12. Relative abundance of Flagfish in shoreline habitats.

Gambusia holbrooki (Eastern mosquitofish), Seines

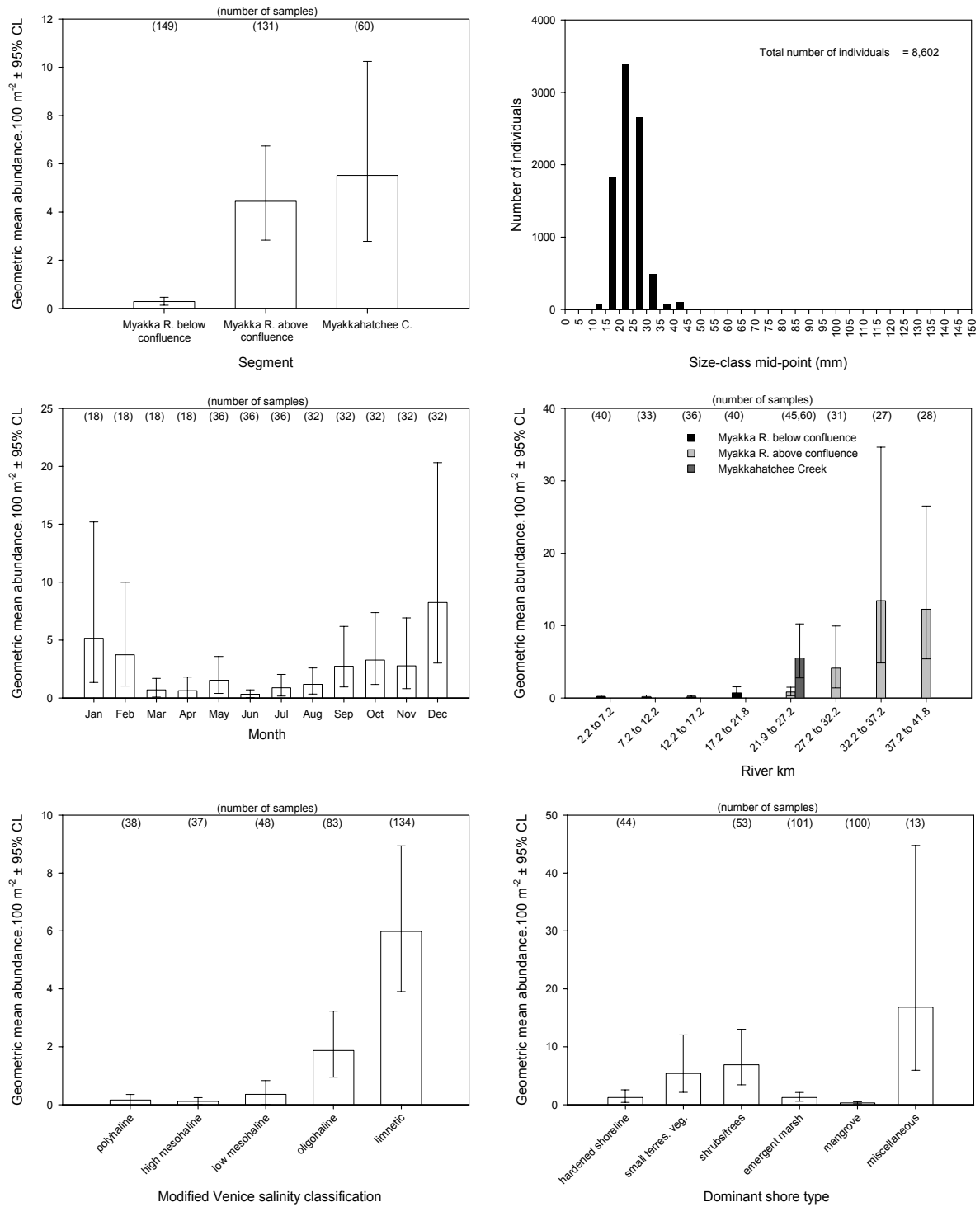


Fig. D13. Relative abundance of Eastern mosquitofish in shoreline habitats.

Poecilia latipinna (Sailfin molly), Seines

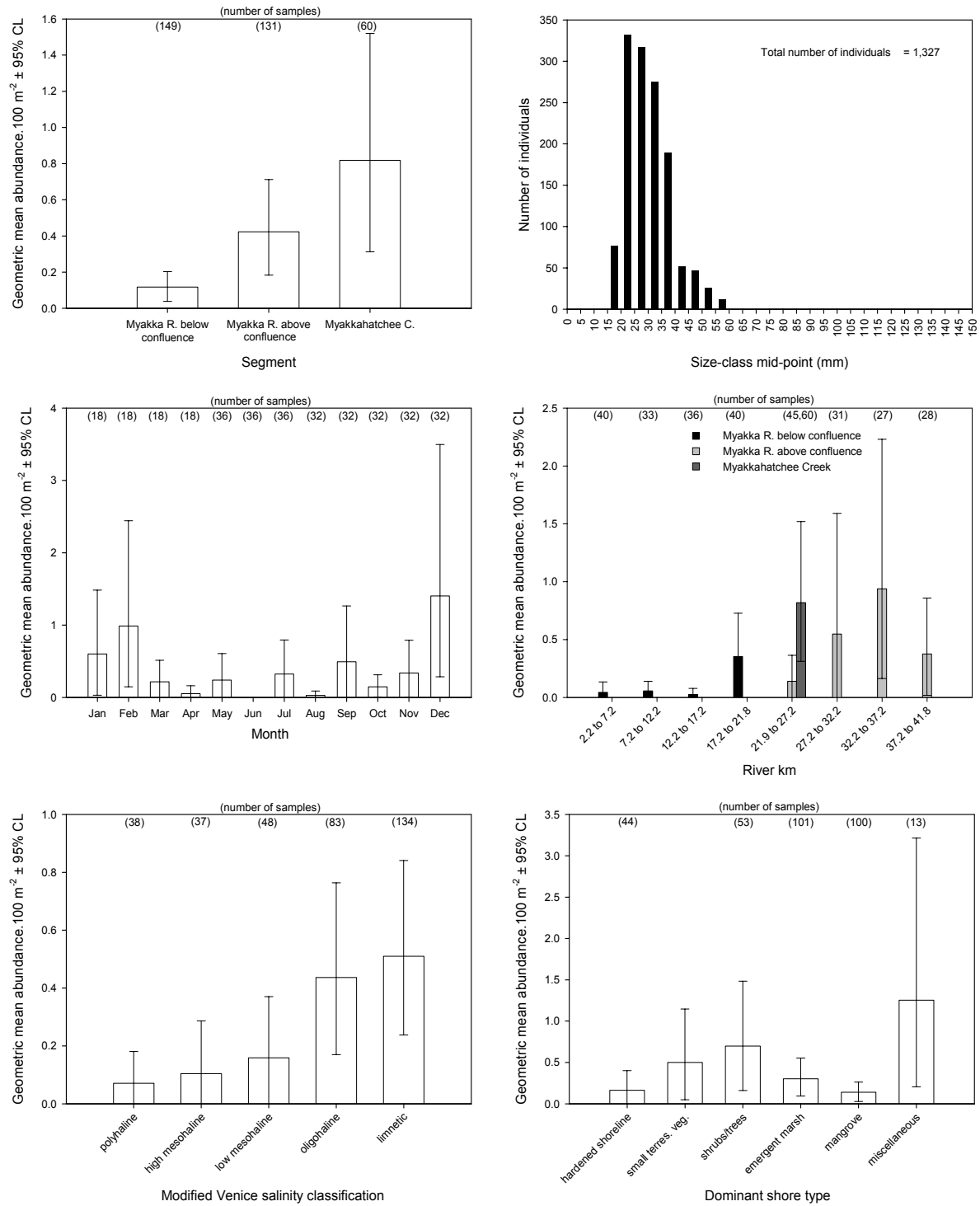


Fig. D14. Relative abundance of Sailfin molly in shoreline habitats.

Membras martinica (Rough silverside), Seines

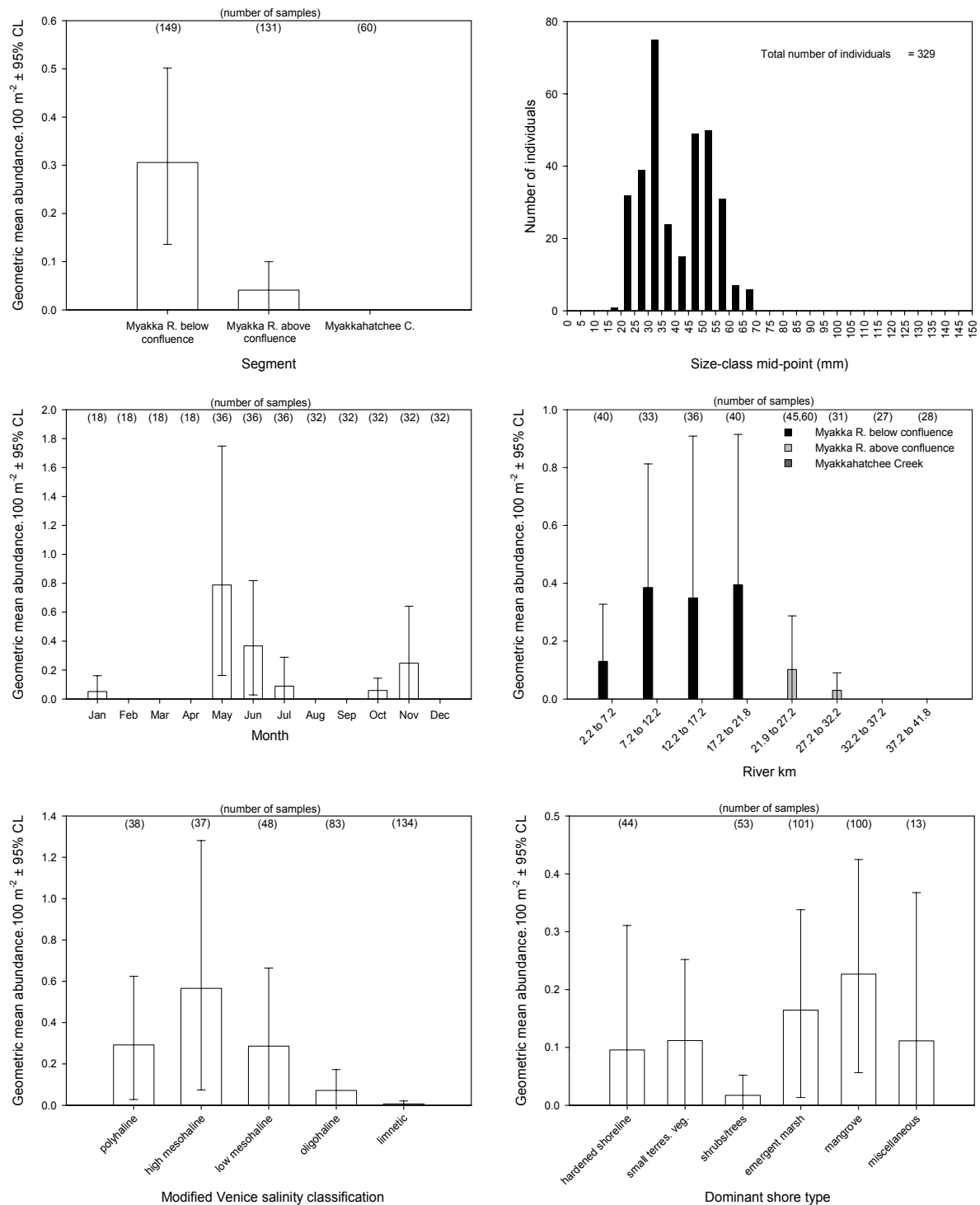


Fig. D15. Relative abundance of Rough silverside in shoreline habitats.

Menidia spp. (Siversides), Seines

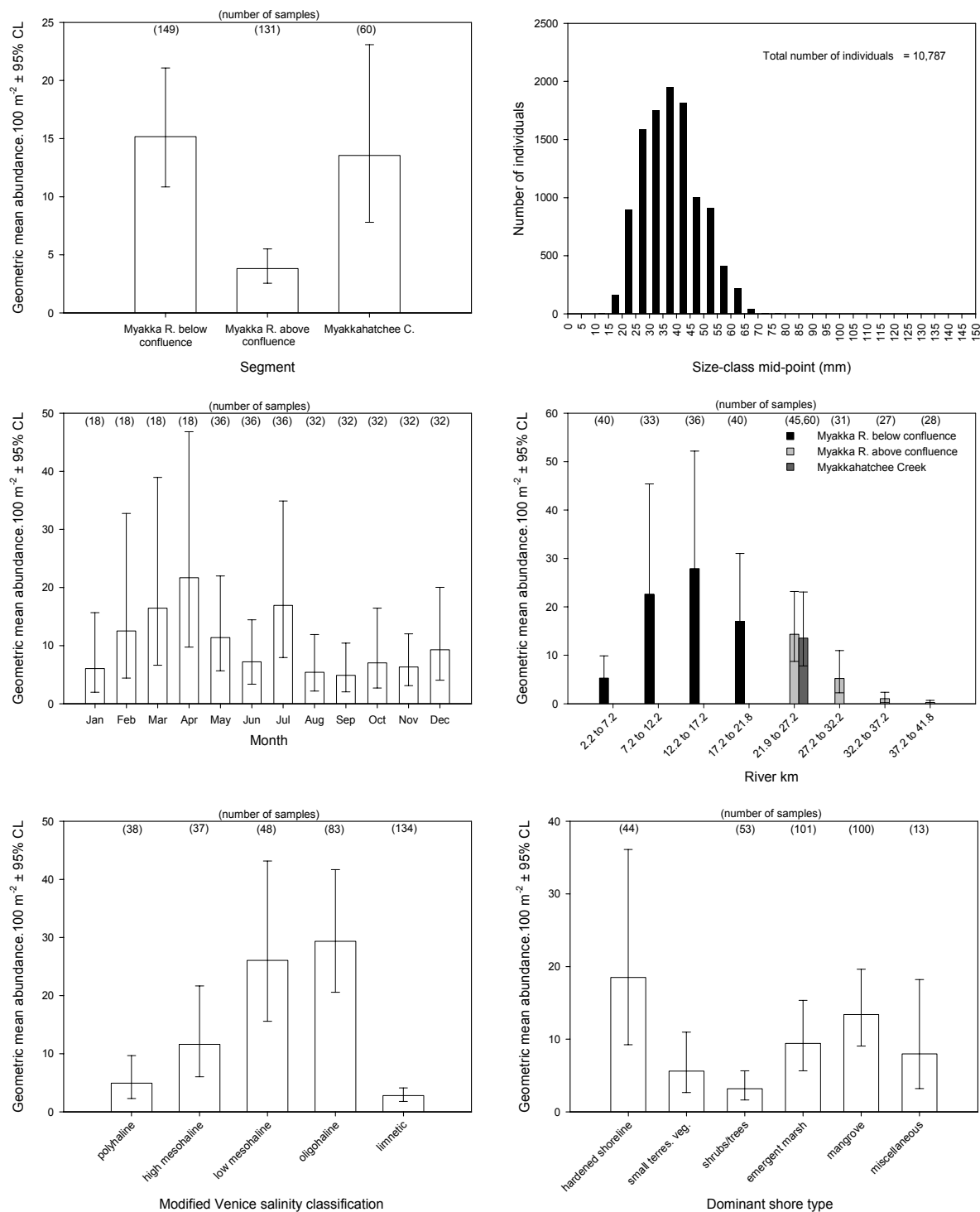


Fig. D16. Relative abundance of Siversides in shoreline habitats.

Labidesthes sicculus (Brook silverside), Seines

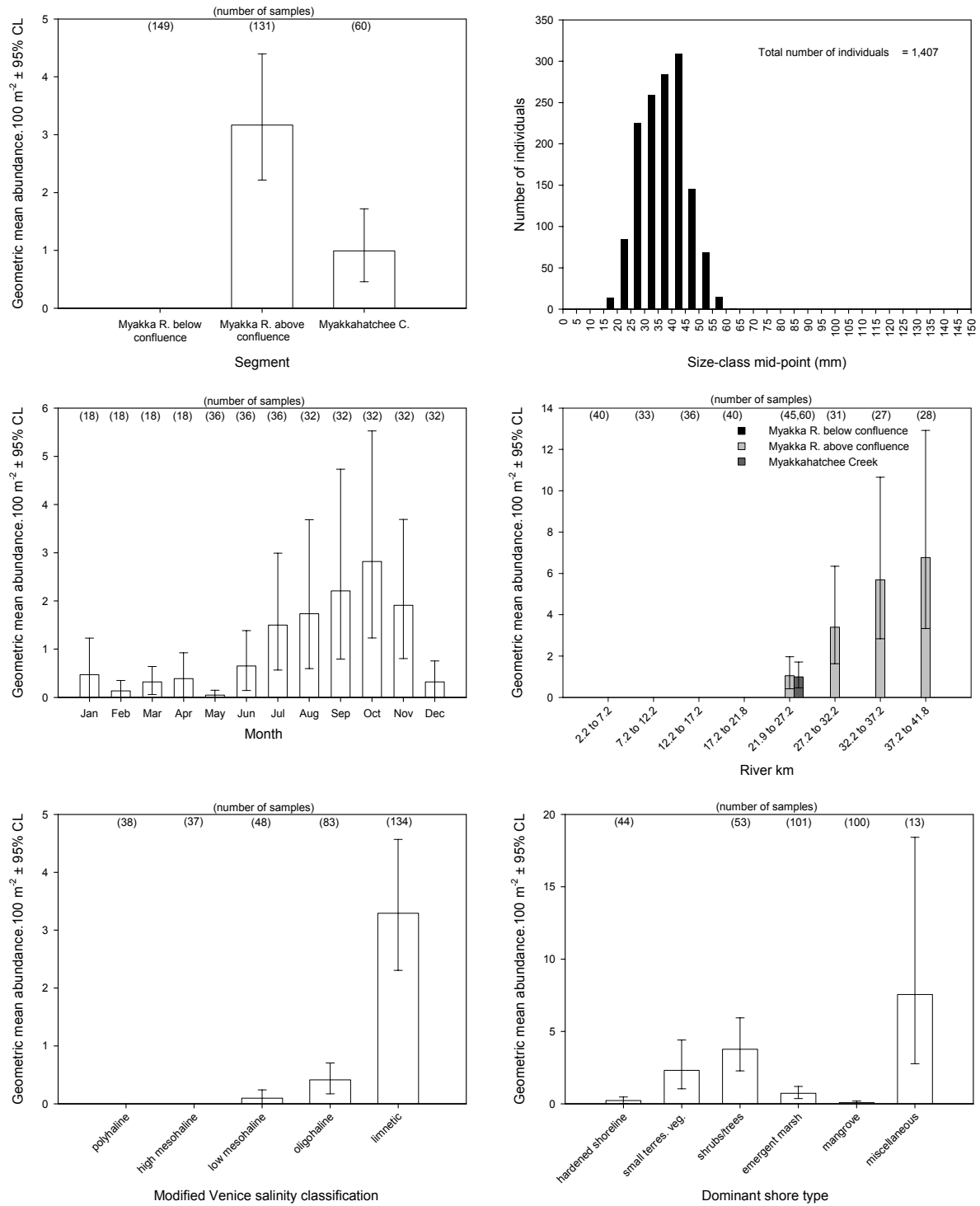


Fig. D17. Relative abundance of Brook silverside in shoreline habitats.

Lepomis macrochirus (Bluegill), Seines

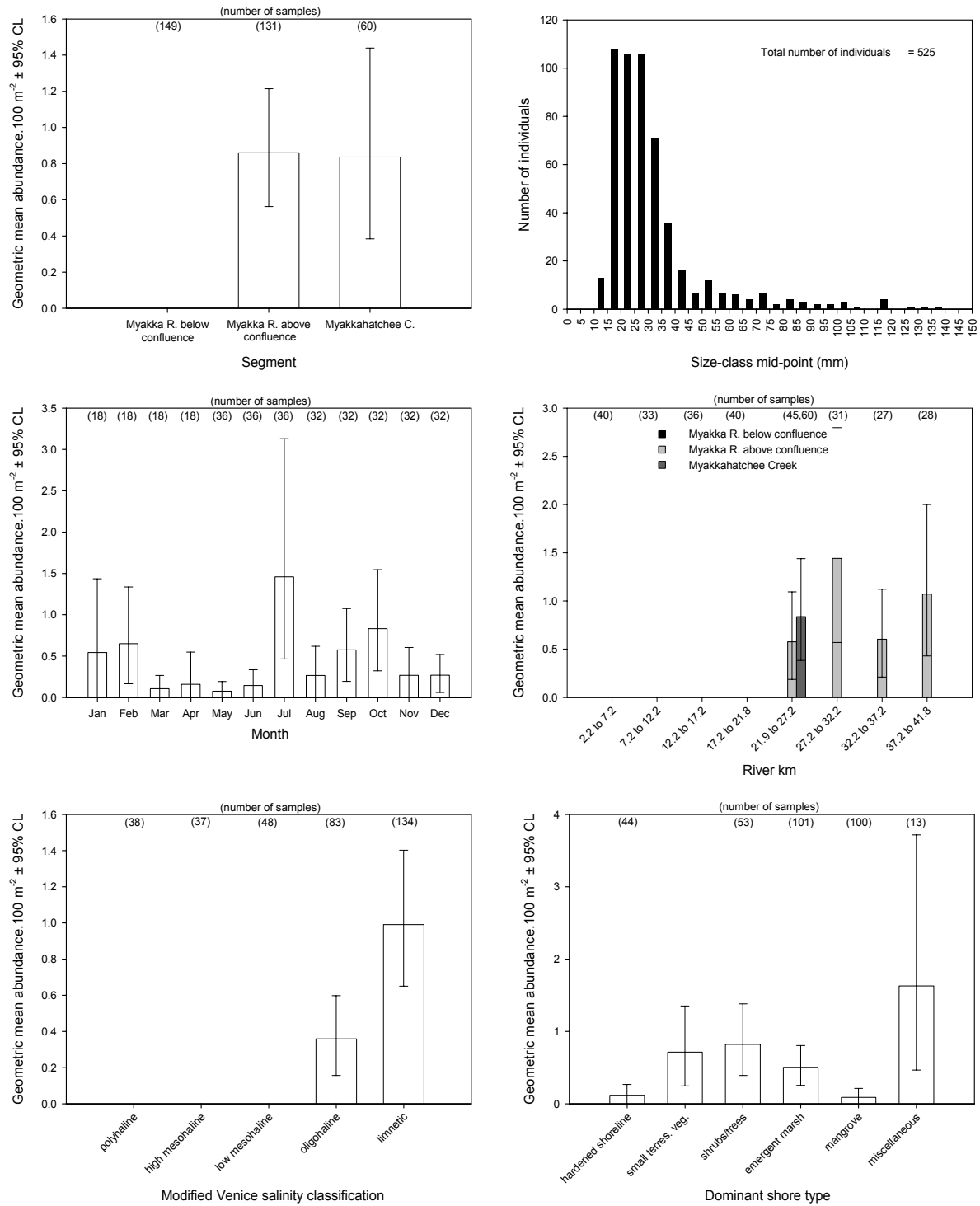


Fig. D18. Relative abundance of Bluegill in shoreline habitats.

Lepomis marginatus (Dollar sunfish), Seines

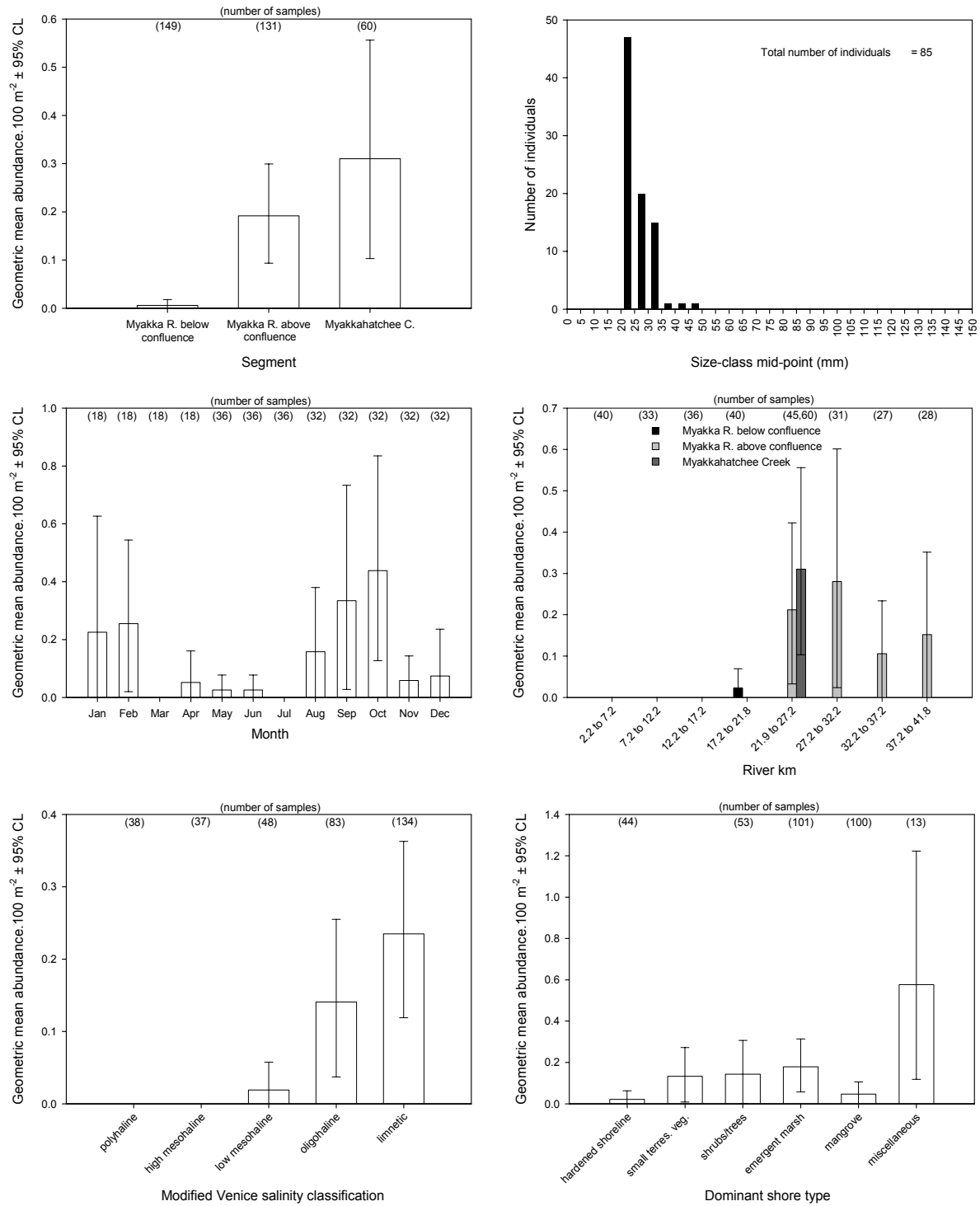


Fig. D19. Relative abundance of Dollar sunfish in shoreline habitats.

Lepomis microlophus (Redear sunfish), Seines

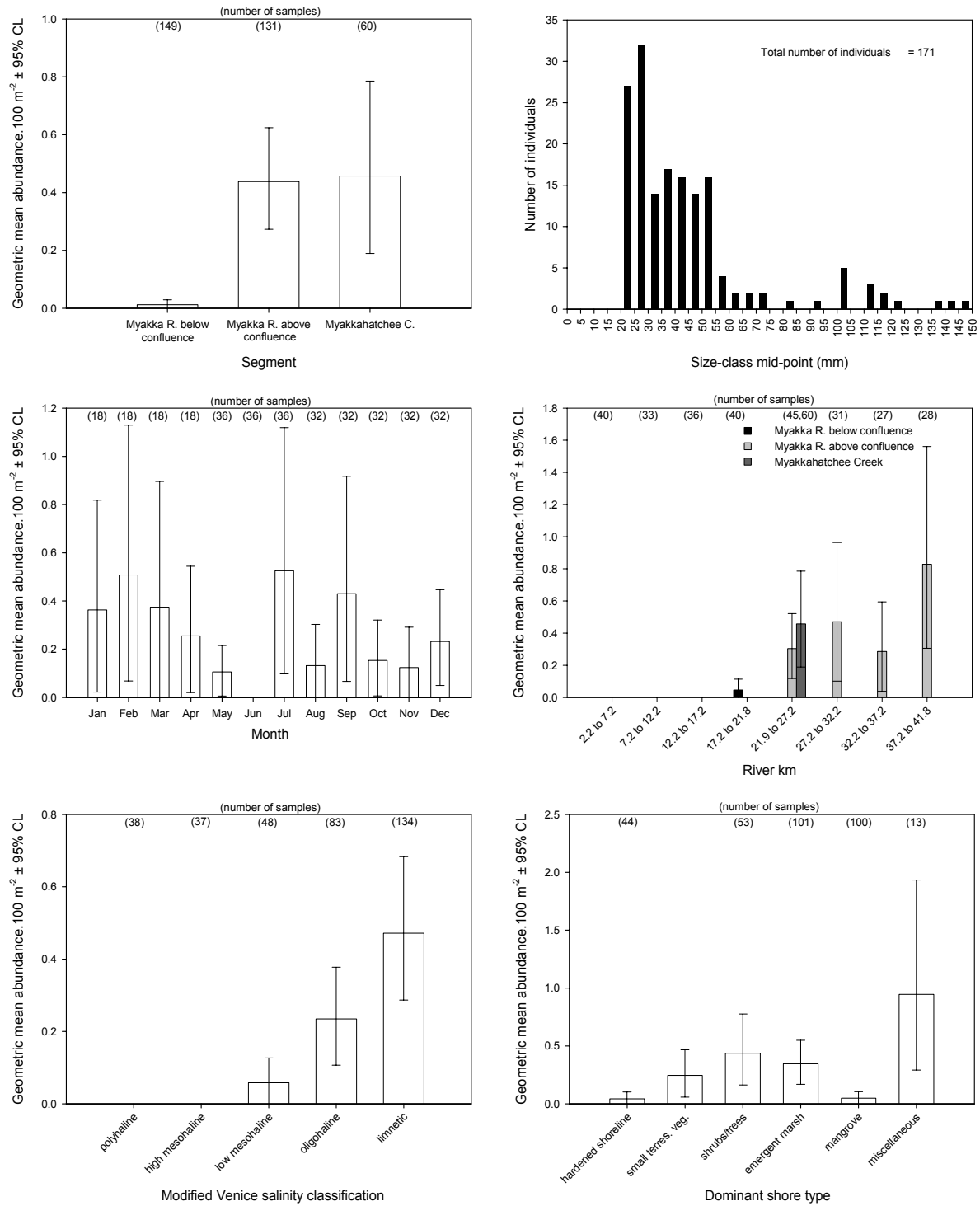


Fig. D20. Relative abundance of Redear sunfish in shoreline habitats.

Oligoplites saurus (Leatherjack), Seines

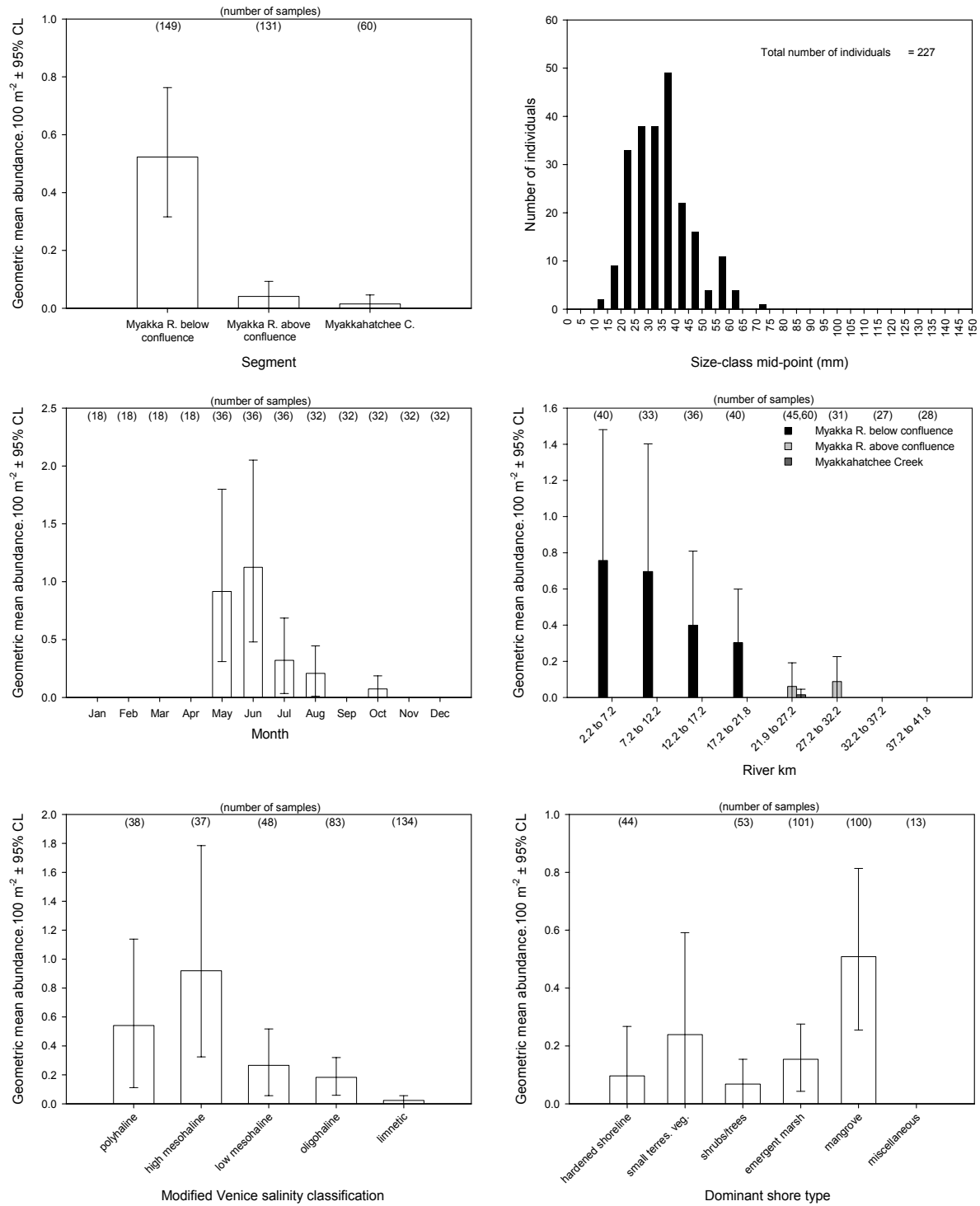


Fig. D21. Relative abundance of Leatherjack in shoreline habitats.

Eucinostomus spp. (*Eucinostomus mojarras*), Seines

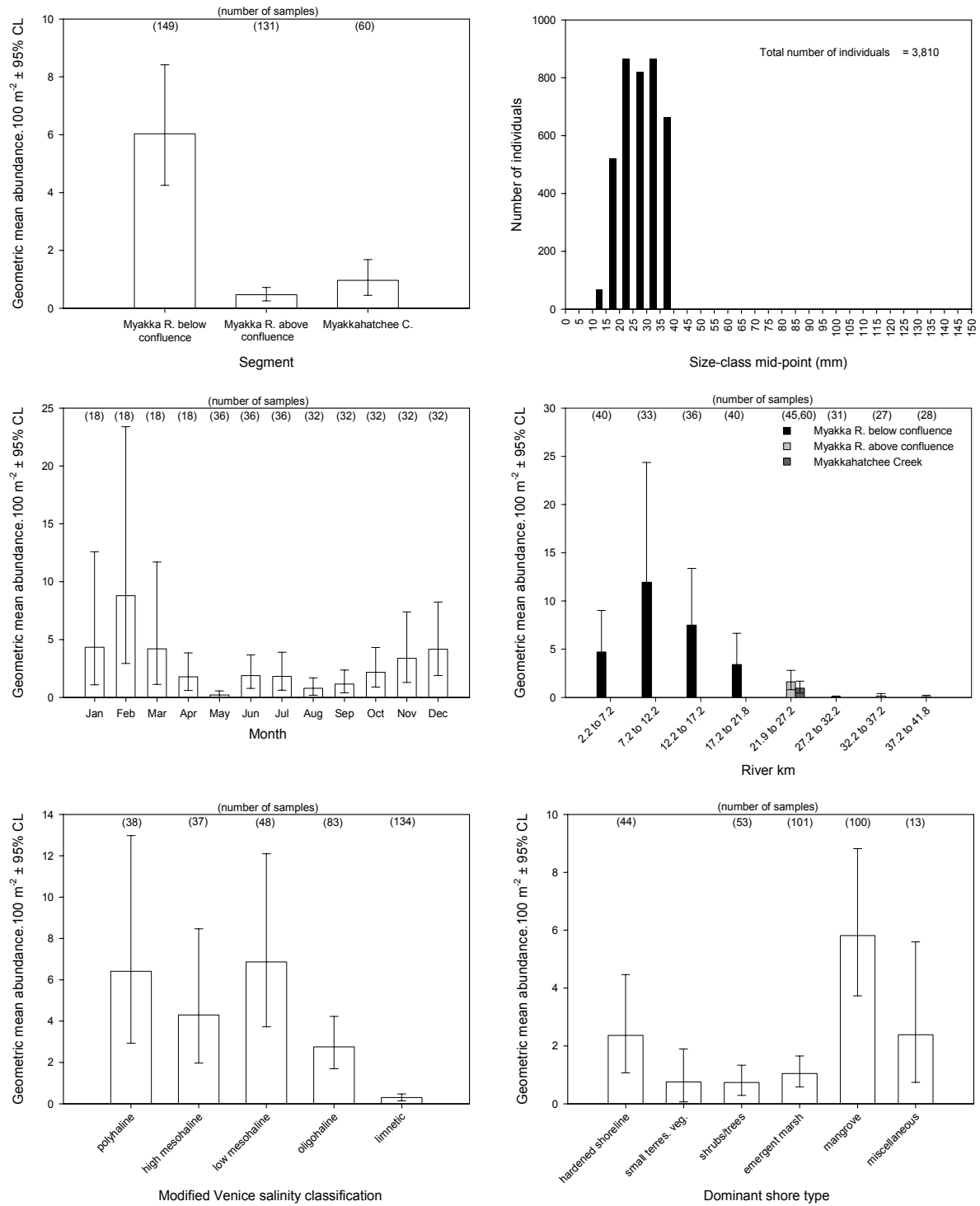


Fig. D22. Relative abundance of *Eucinostomus mojarras* in shoreline habitats.

Eucinostomus gula (Silver jenny), Seines

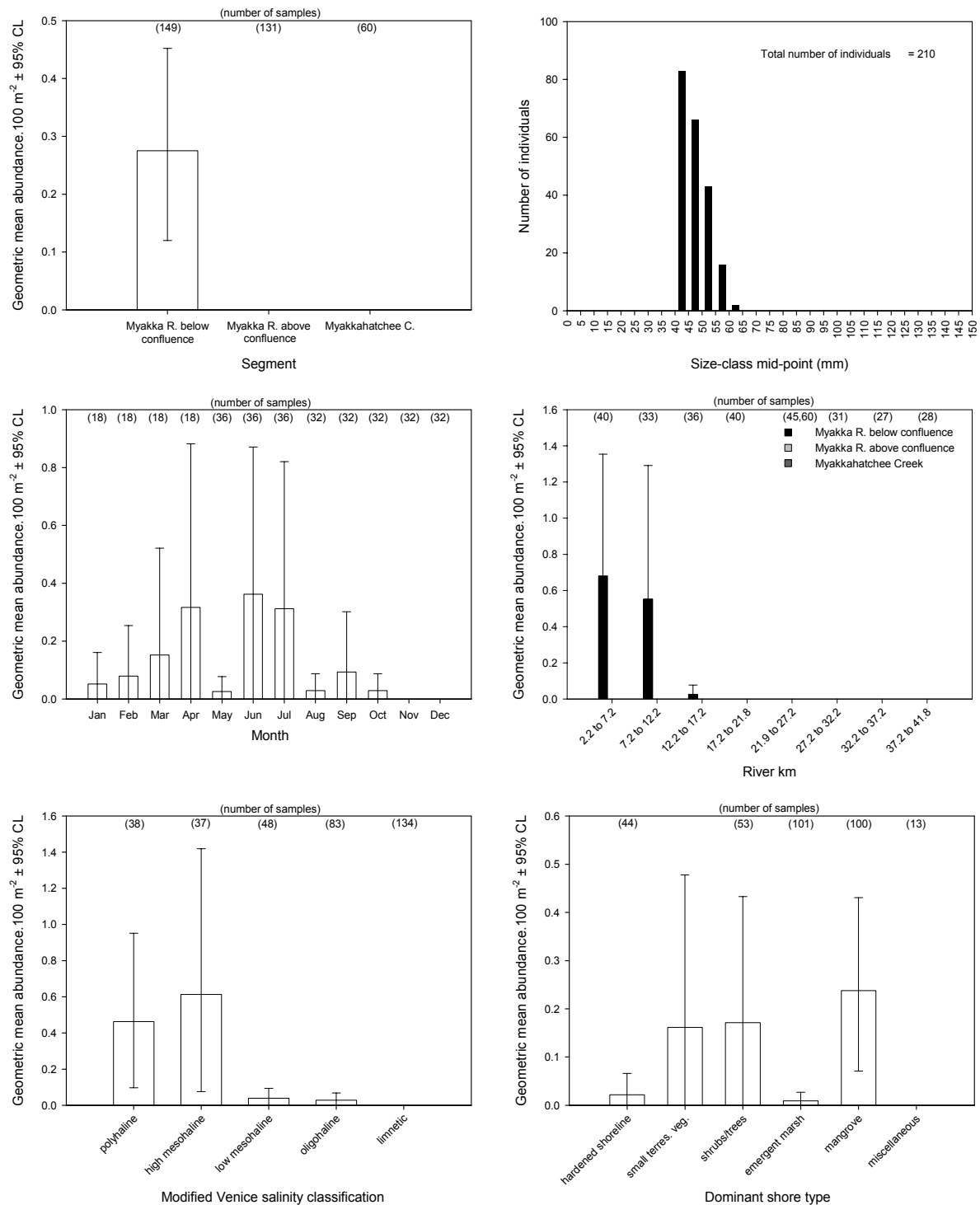


Fig. D23. Relative abundance of Silver jenny in shoreline habitats.

Eucinostomus harengulus (Tidewater mojarra), Seines

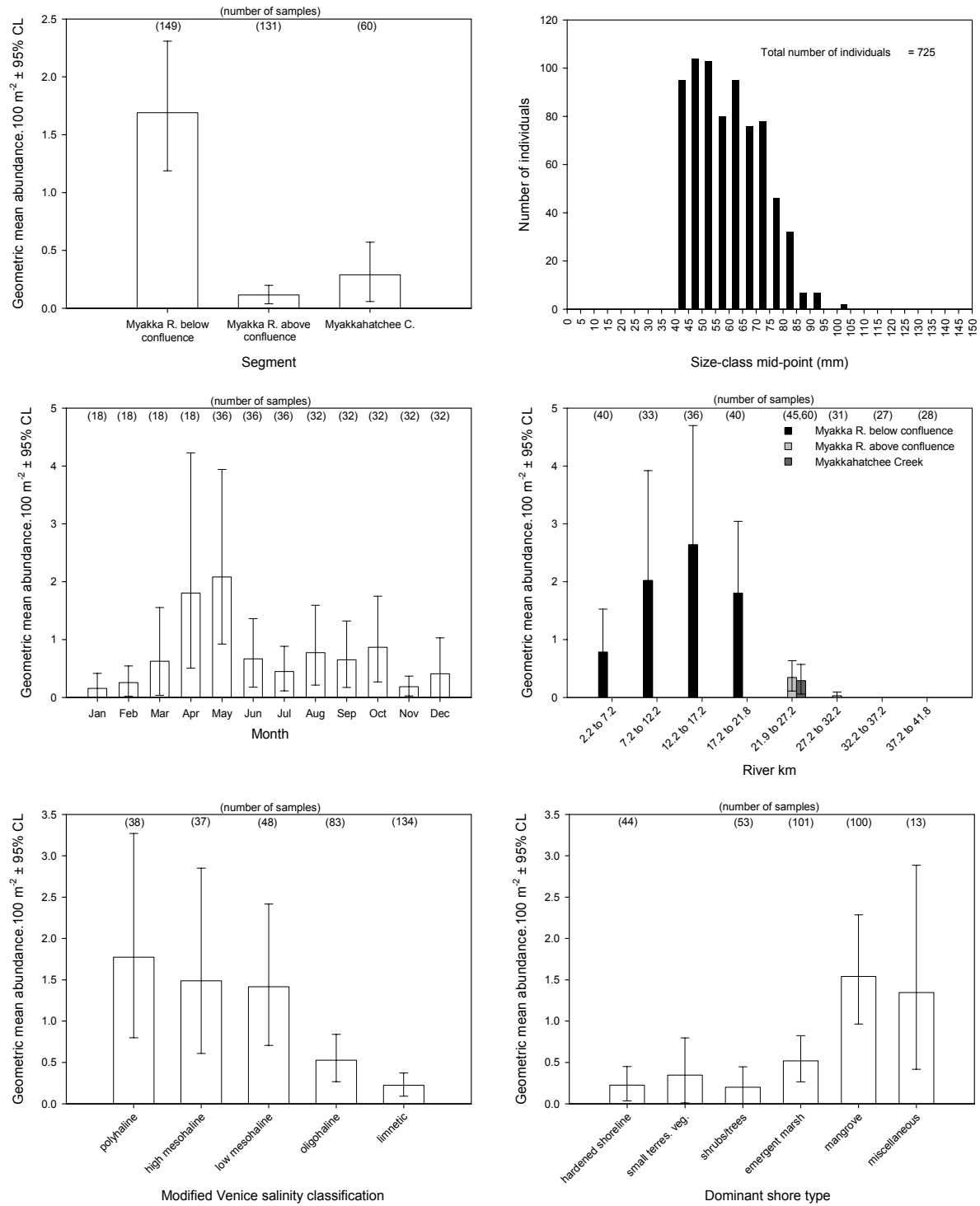


Fig. D24. Relative abundance of Tidewater mojarra in shoreline habitats.

Eugerres plumieri (Striped mojarra), Seines

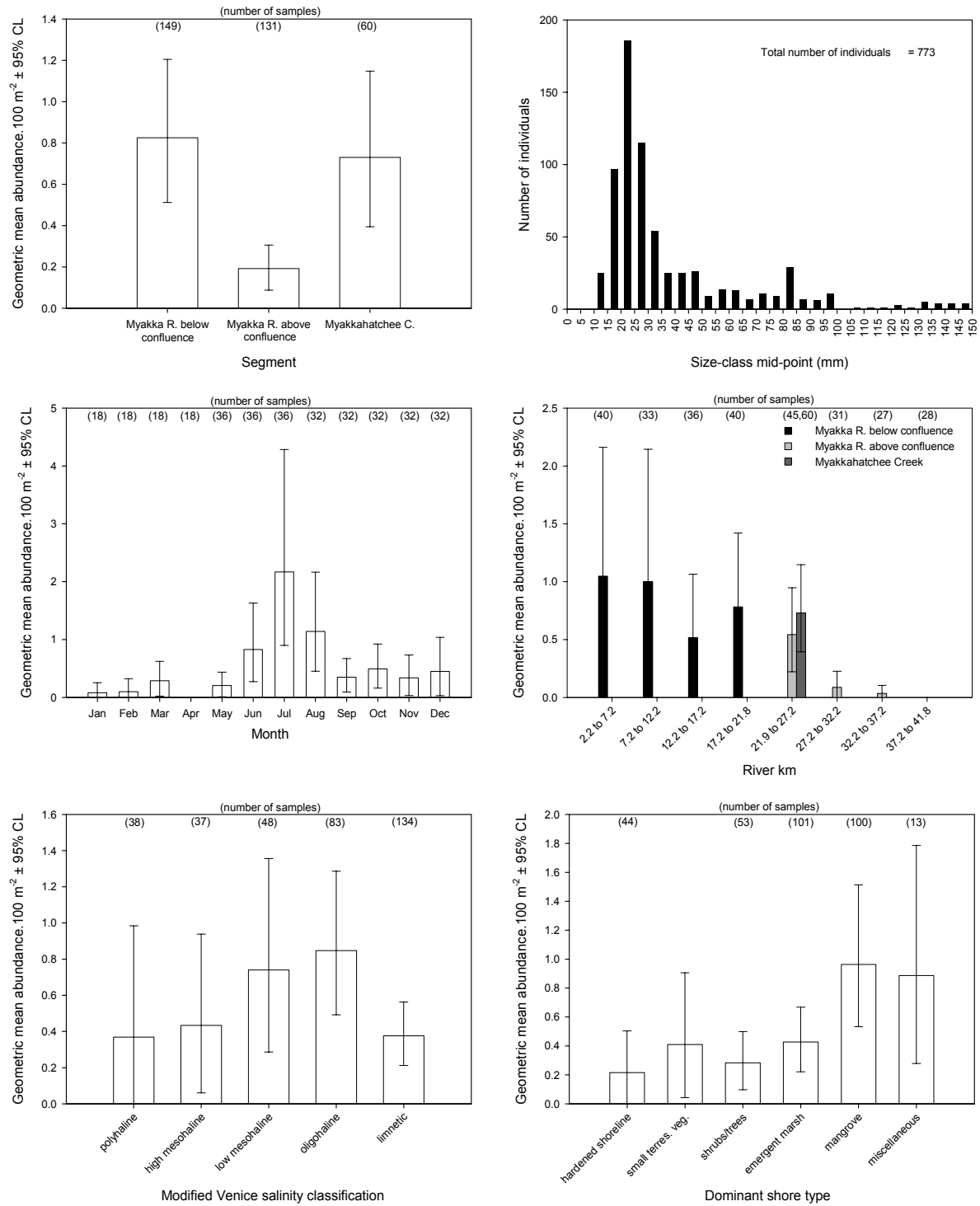


Fig. D25. Relative abundance of Striped mojarra in shoreline habitats.

Lagodon rhomboides (Pinfish), Seines

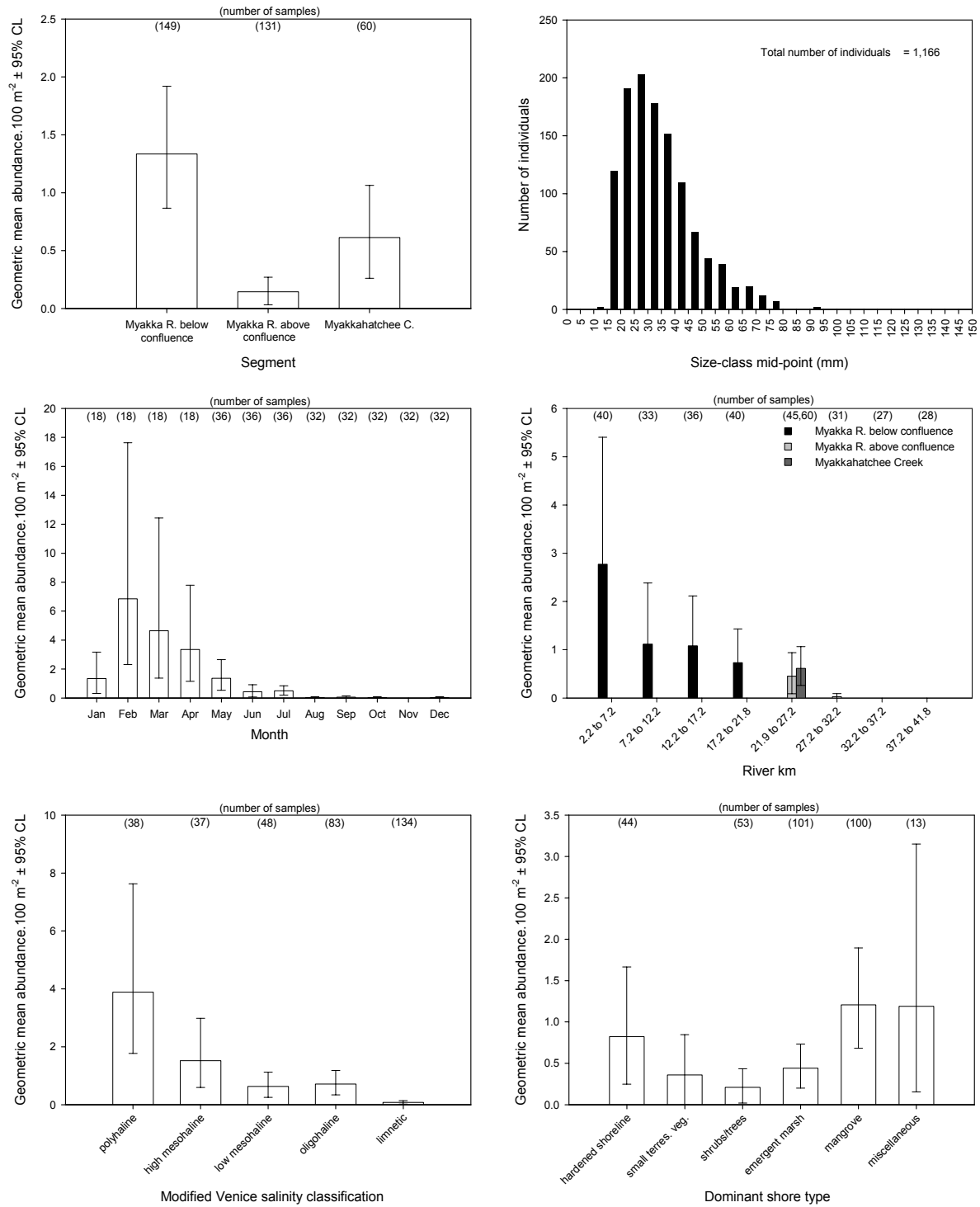


Fig. D26. Relative abundance of Pinfish in shoreline habitats.

Cynoscion nebulosus (Spotted seatrout), Seines

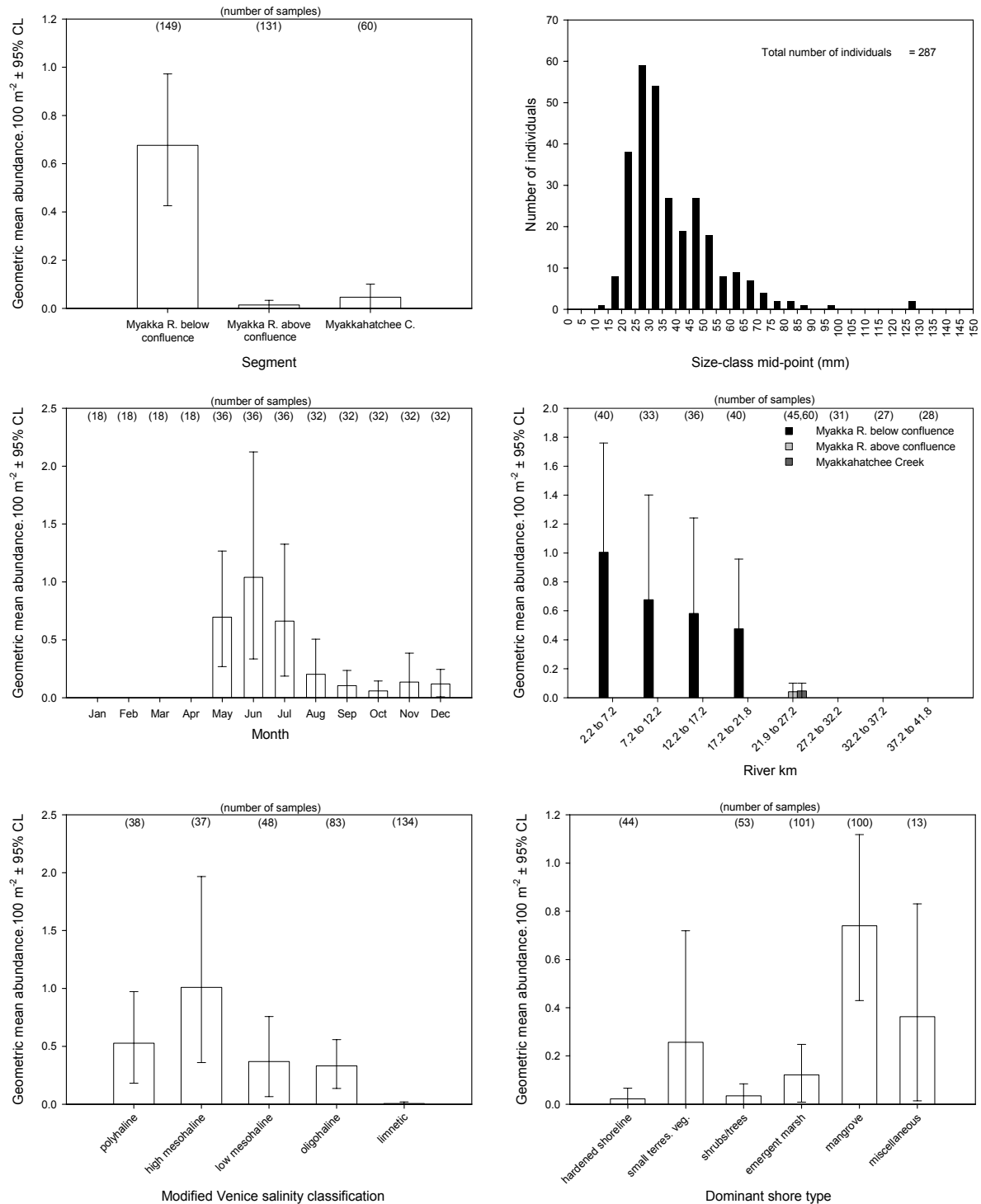


Fig. D27. Relative abundance of Spotted seatrout in shoreline habitats.

Cynoscion arenarius (Sand seatrout), Seines

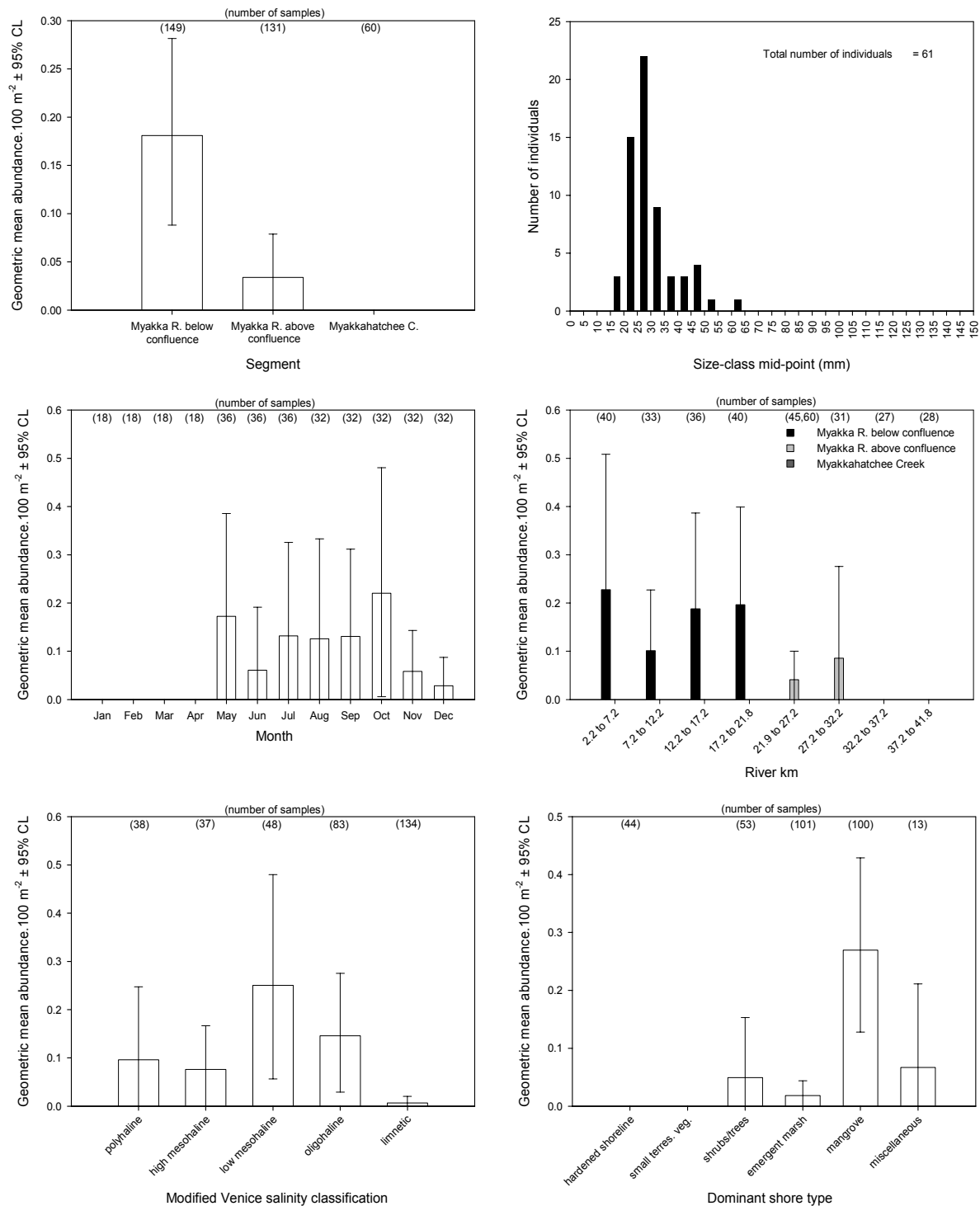


Fig. D28. Relative abundance of Sand seatrout in shoreline habitats.

Bairdiella chrysoura (Silver perch), Seines

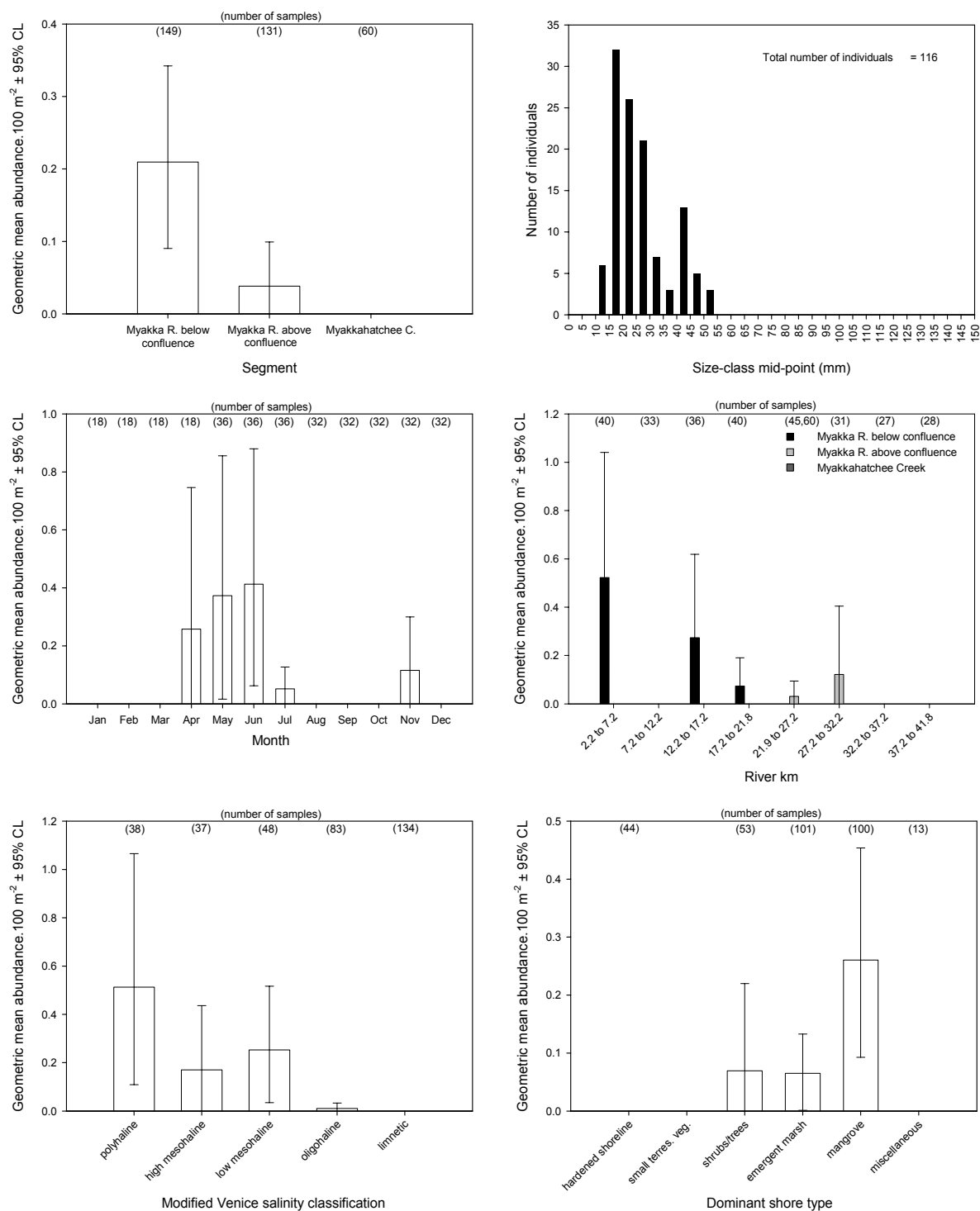


Fig. D29. Relative abundance of Silver perch in shoreline habitats.

Leiostomus xanthurus (Spot), Seines

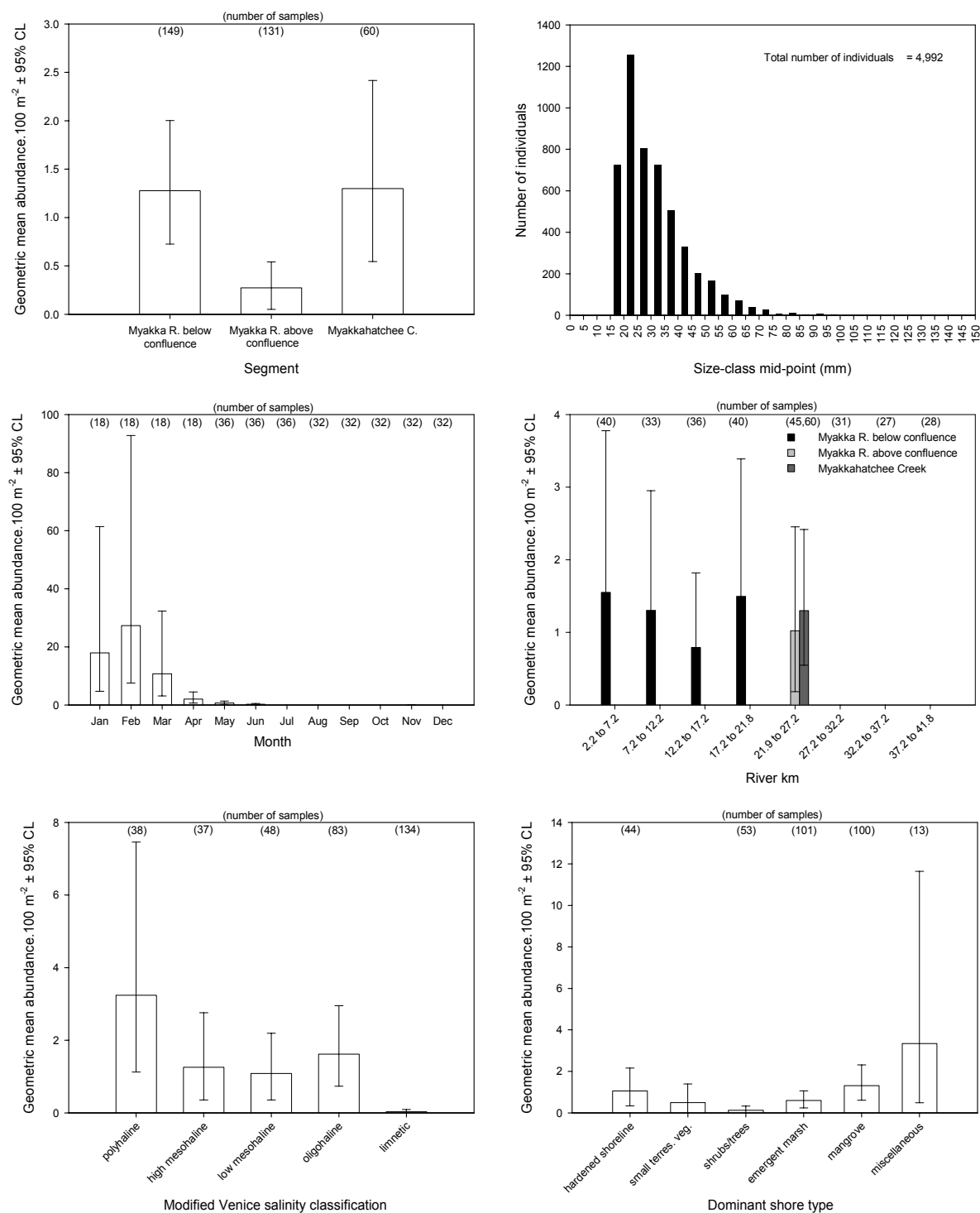


Fig. D30. Relative abundance of Spot in shoreline habitats.

Menticirrhus americanus (Southern kingfish), Seines

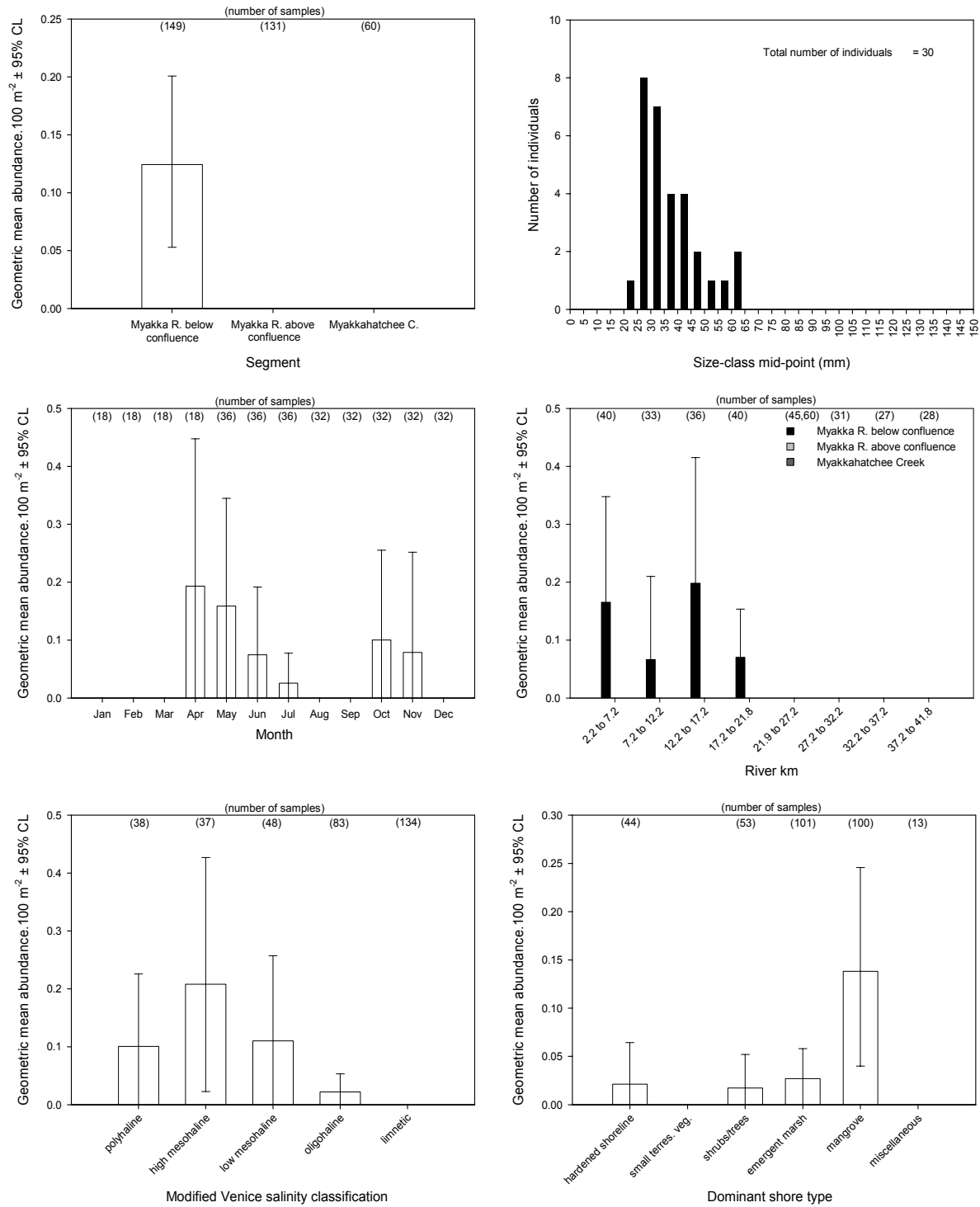


Fig. D31. Relative abundance of Southern kingfish in shoreline habitats.

Sciaenops ocellatus (Red drum), Seines

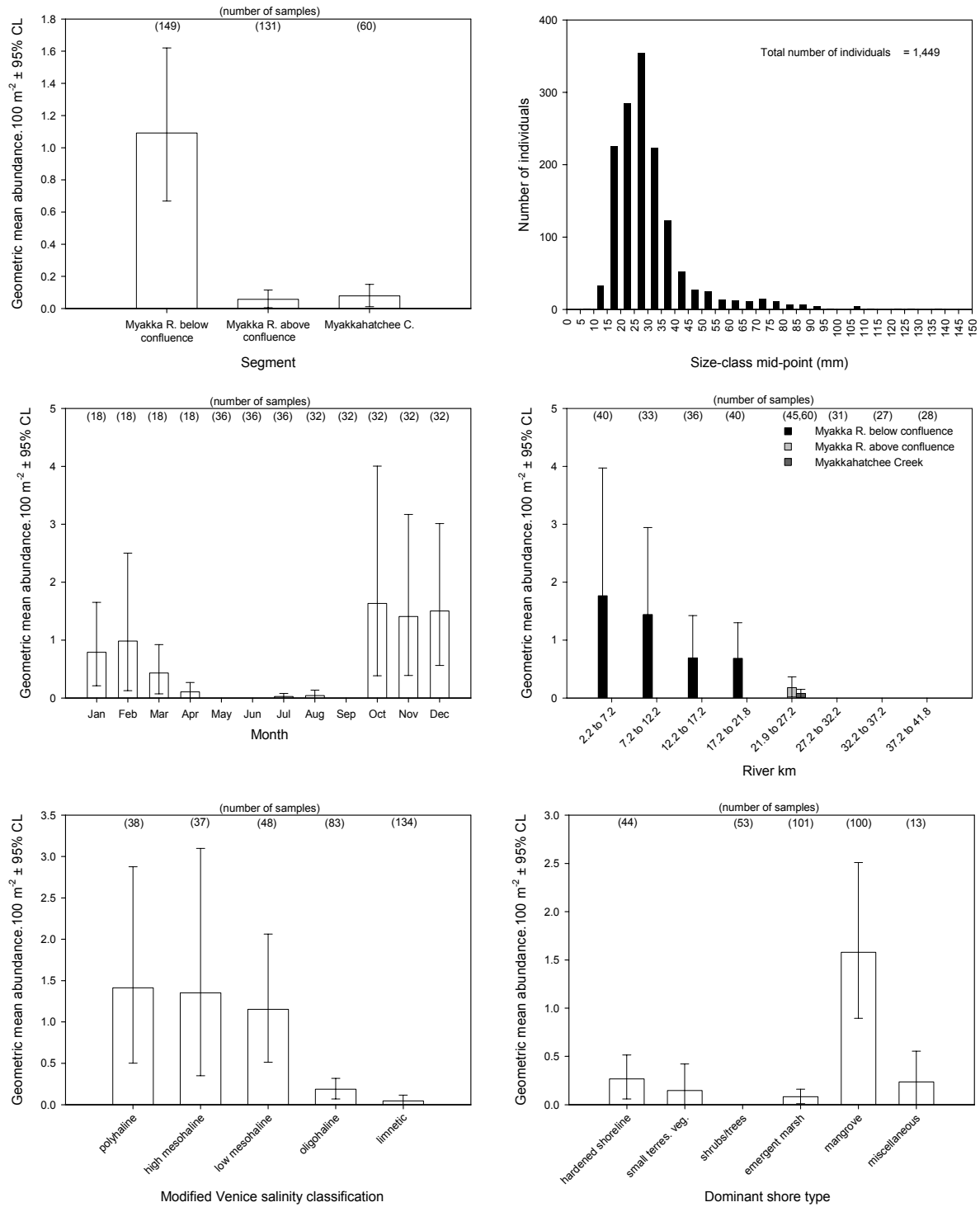


Fig. D32. Relative abundance of Red drum in shoreline habitats.

Tilapia spp. (Tilapias), Seines

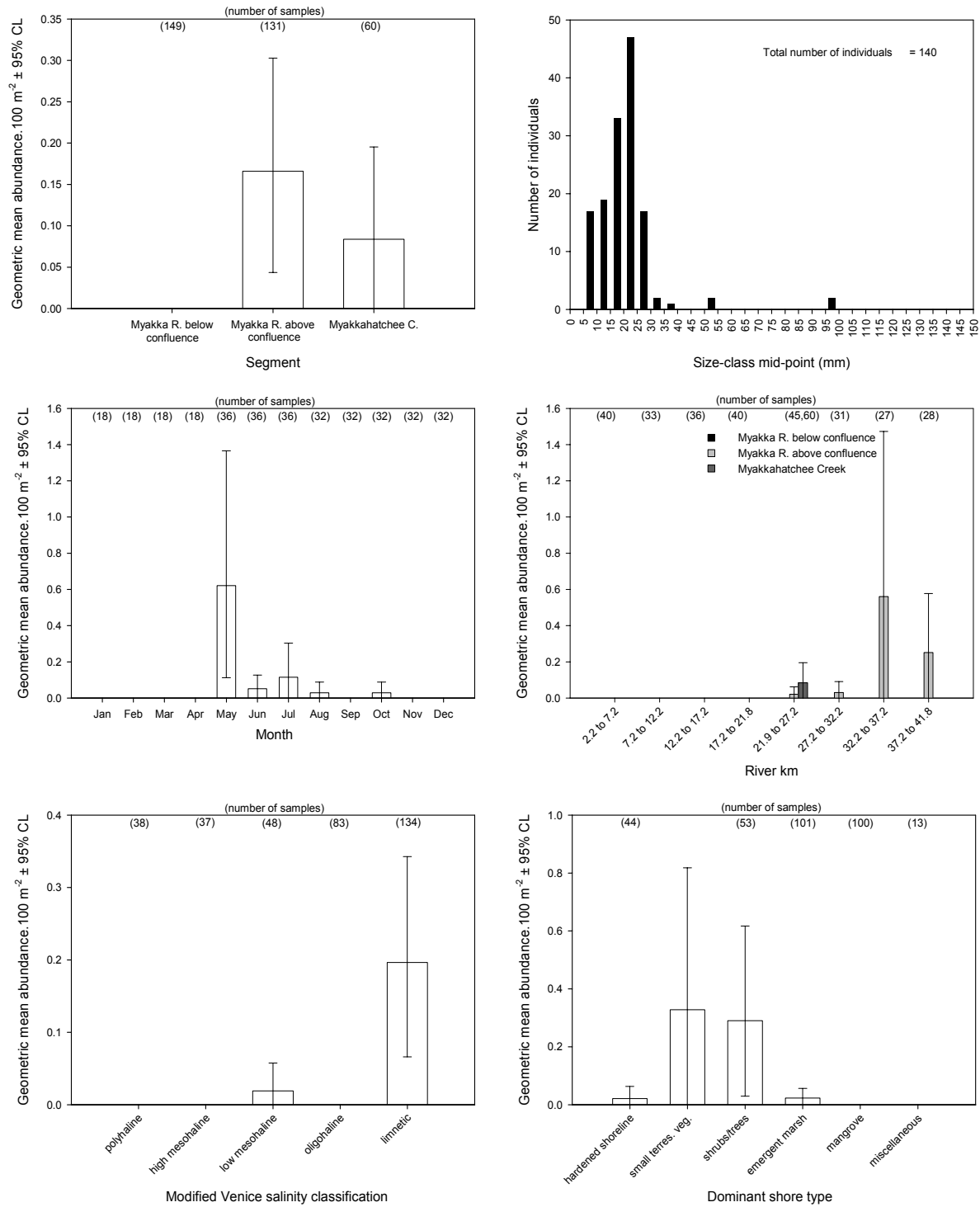


Fig. D33. Relative abundance of *Tilapias* in shoreline habitats.

Mugil cephalus (Striped mullet), Seines

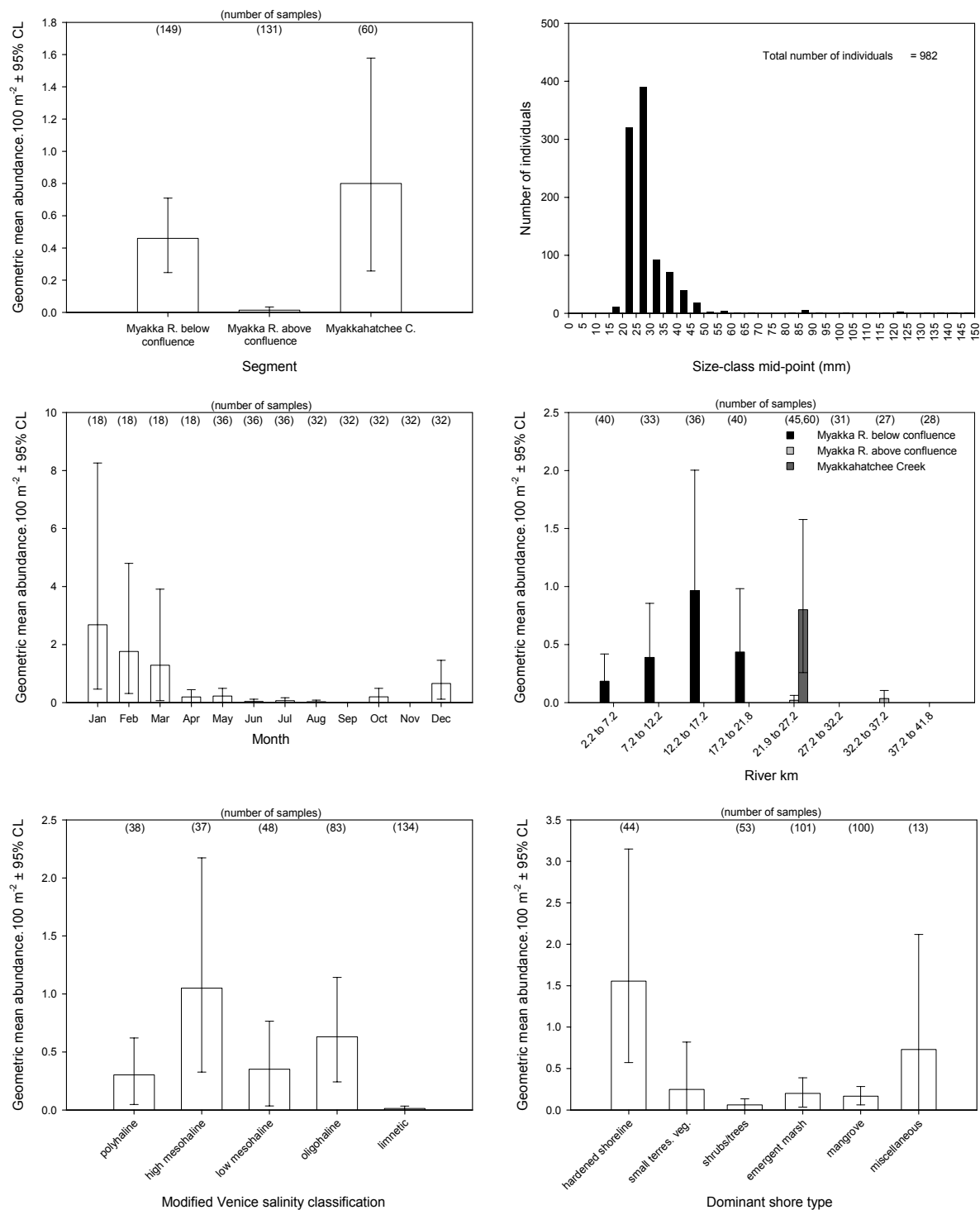


Fig. D34. Relative abundance of Striped mullet in shoreline habitats.

***Gobiosoma* spp. (Gobiosoma gobies), Seines**

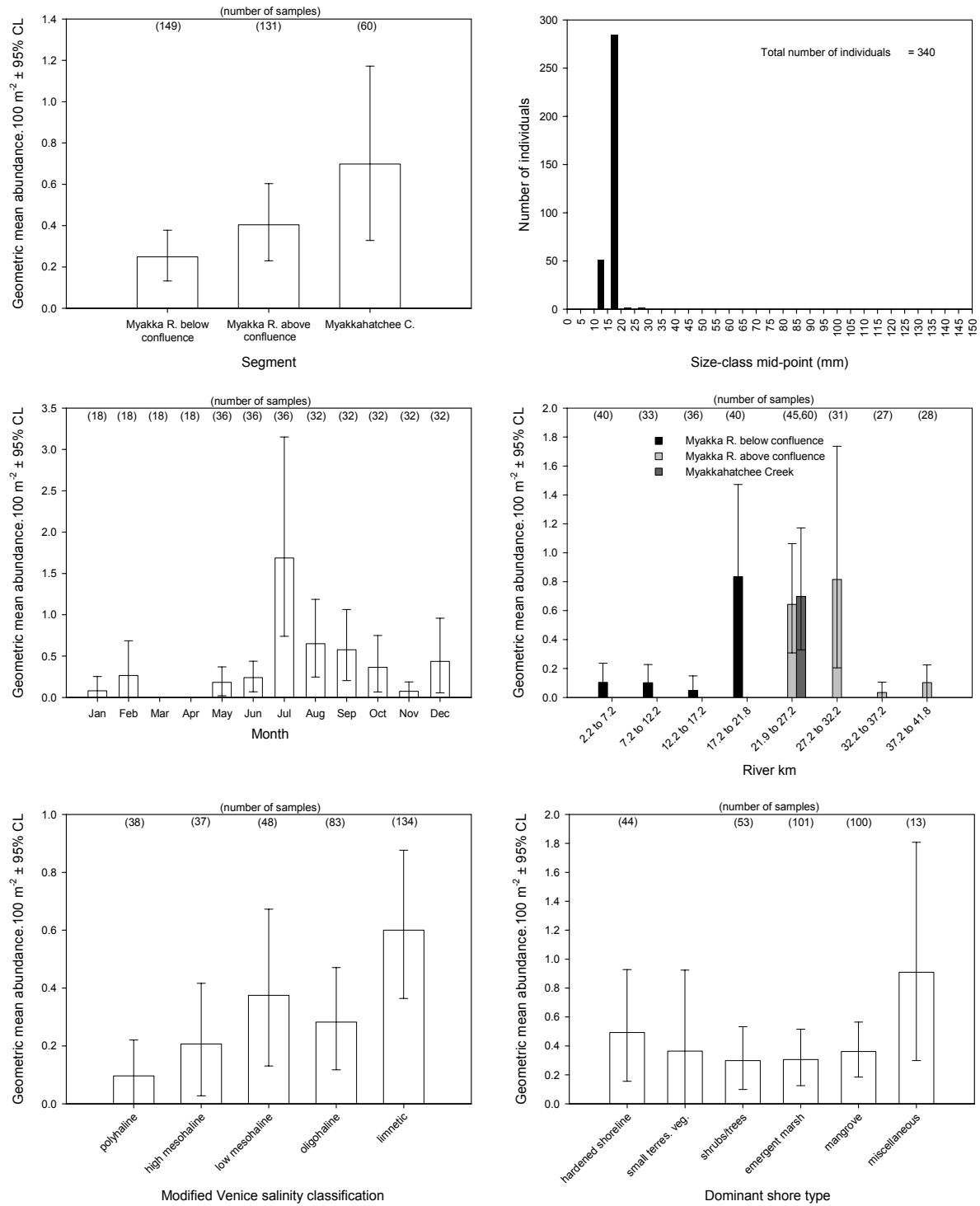


Fig. D35. Relative abundance of *Gobiosoma* gobies in shoreline habitats.

Gobiosoma bosc (Naked goby), Seines

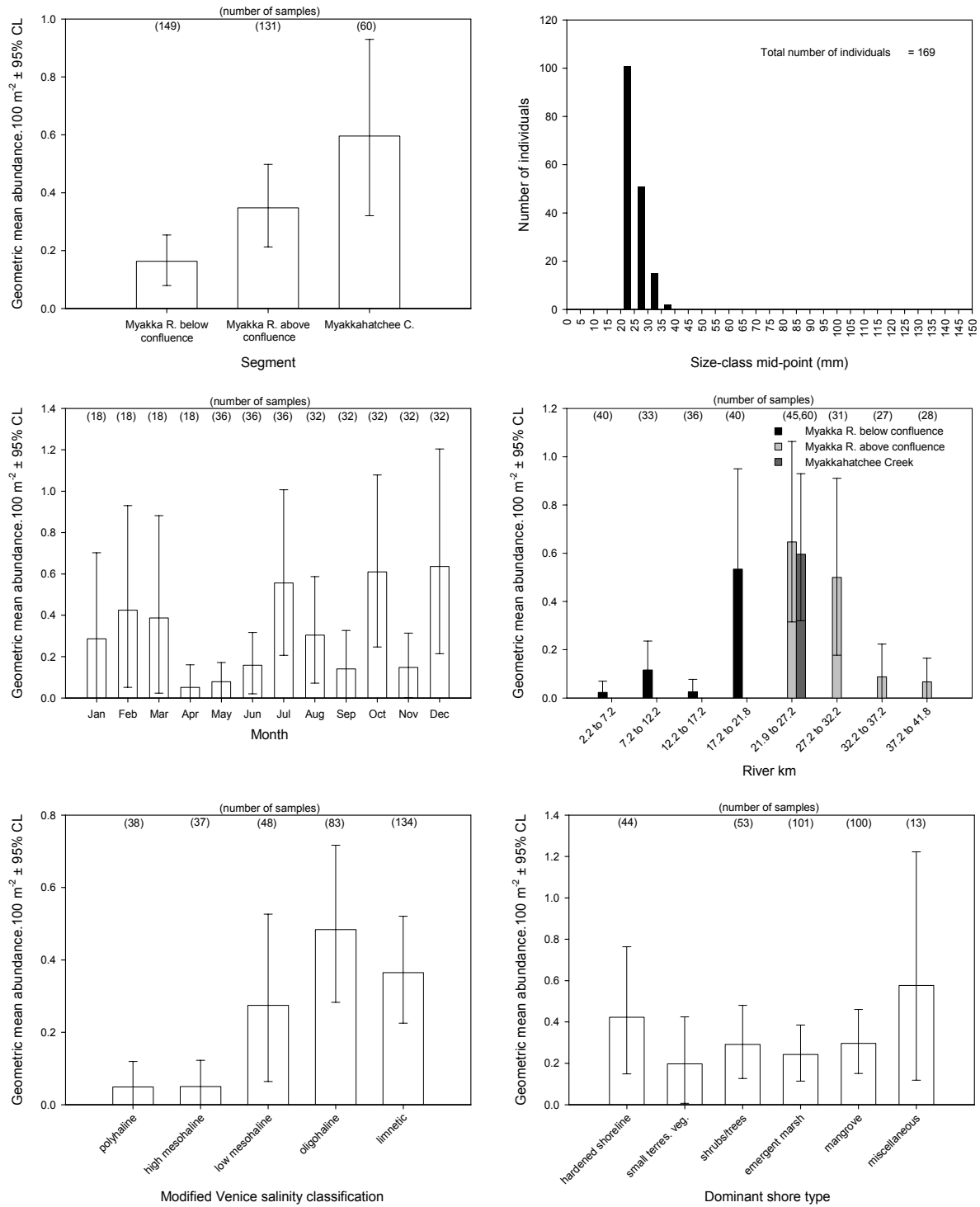


Fig. D36. Relative abundance of Naked goby in shoreline habitats.

Microgobius gulosus (Clown goby), Seines

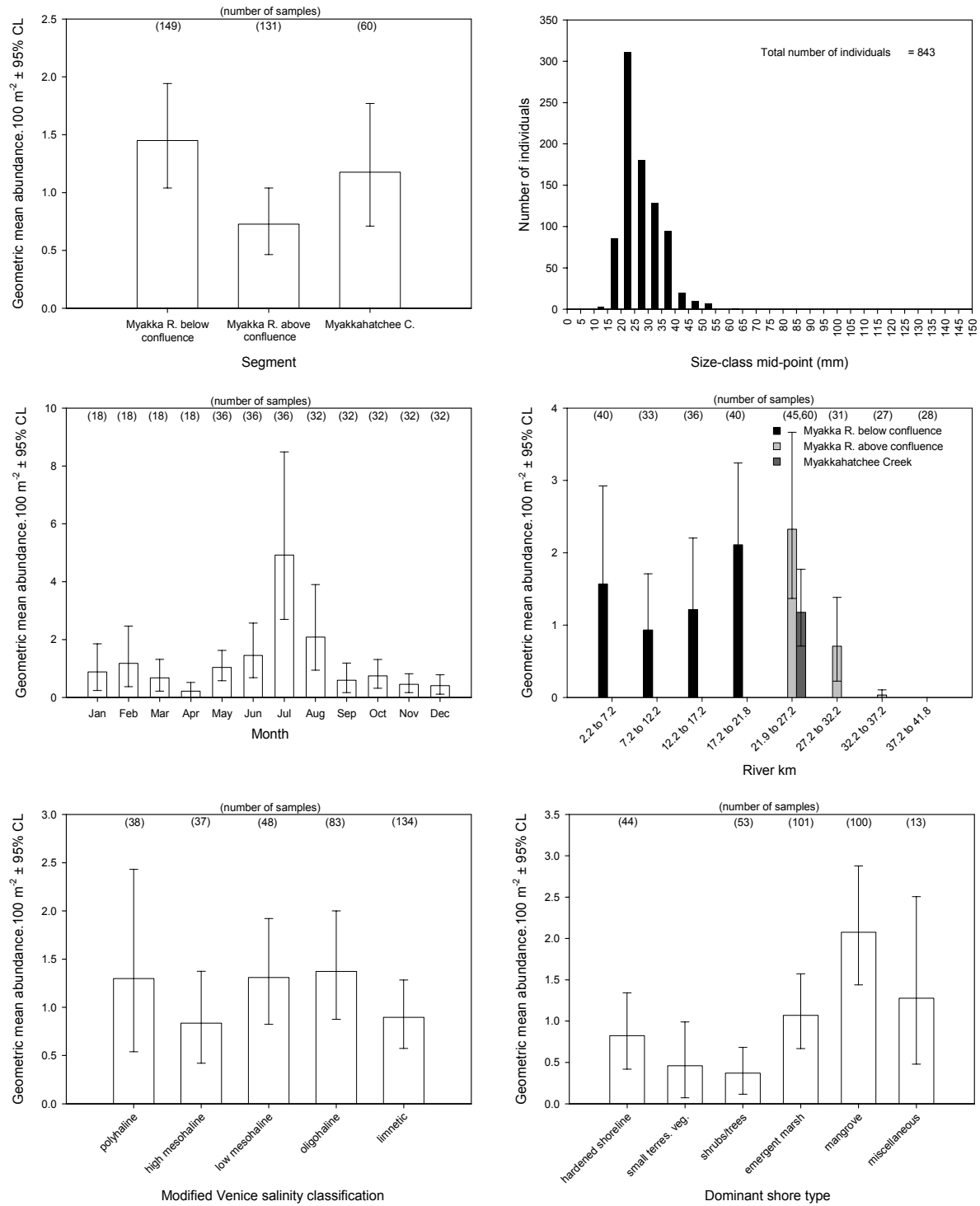


Fig. D37. Relative abundance of Clown goby in shoreline habitats.

Trinectes maculatus (Hogchoker), Seines

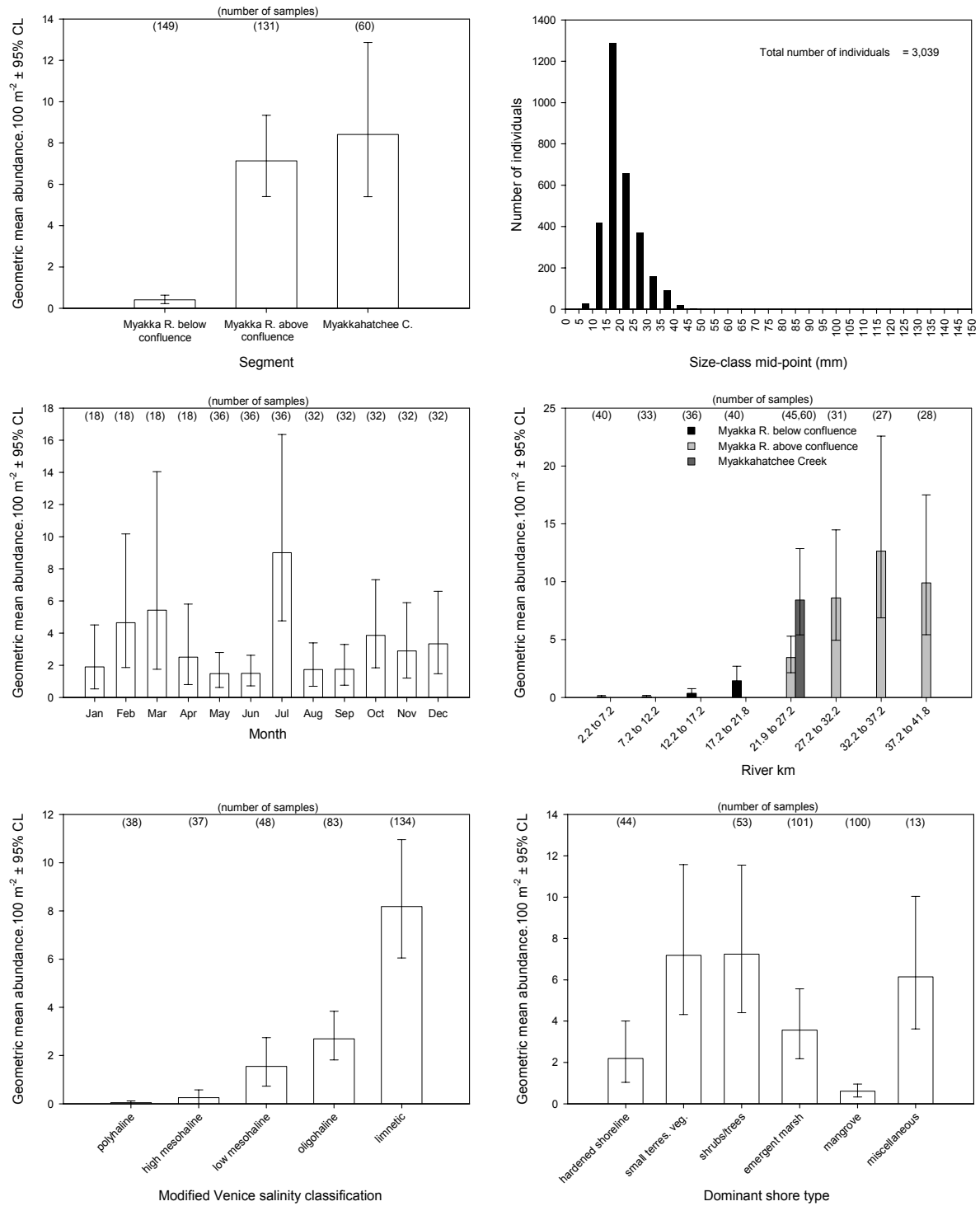


Fig. D38. Relative abundance of Hogchoker in shoreline habitats.

Appendix E:
Trawl catch overview plots

Farfantepenaeus duorarum (Pink shrimp), Trawls

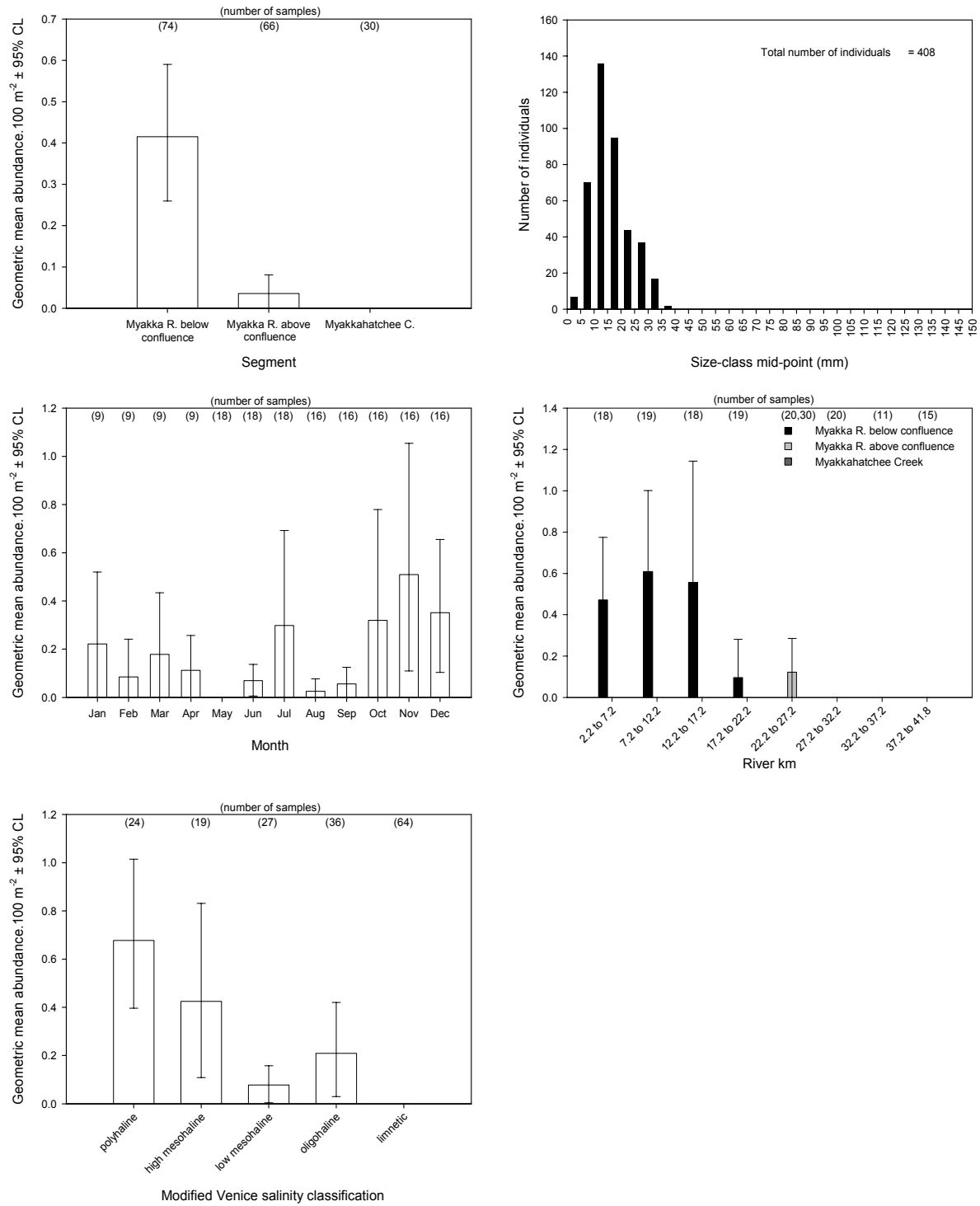


Fig. E1. Relative abundance of Pink shrimp in channel habitats.

Callinectes sapidus (Blue crab), Trawls

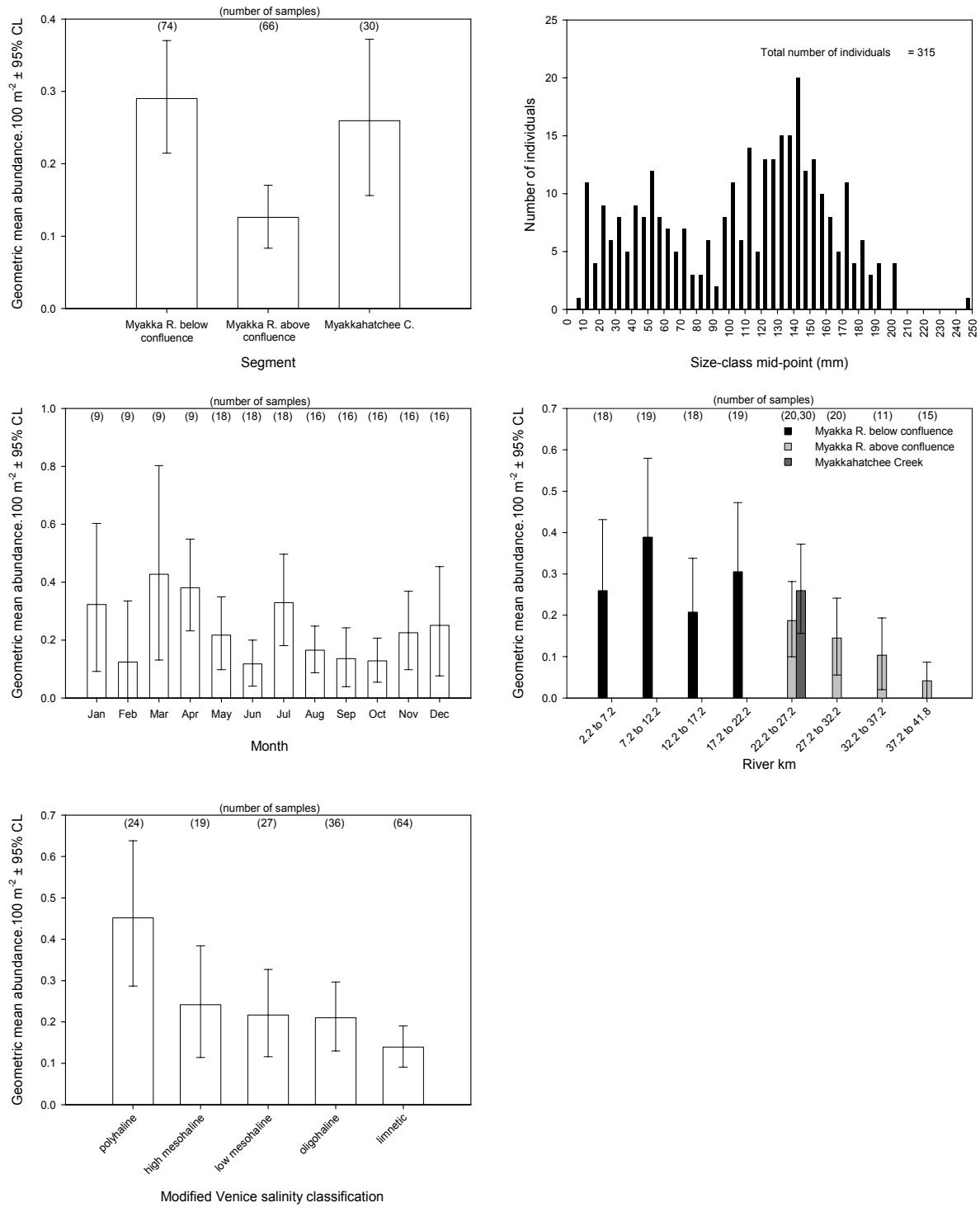


Fig. E2. Relative abundance of Blue crab in channel habitats.

Anchoa mitchilli (Bay anchovy), Trawls

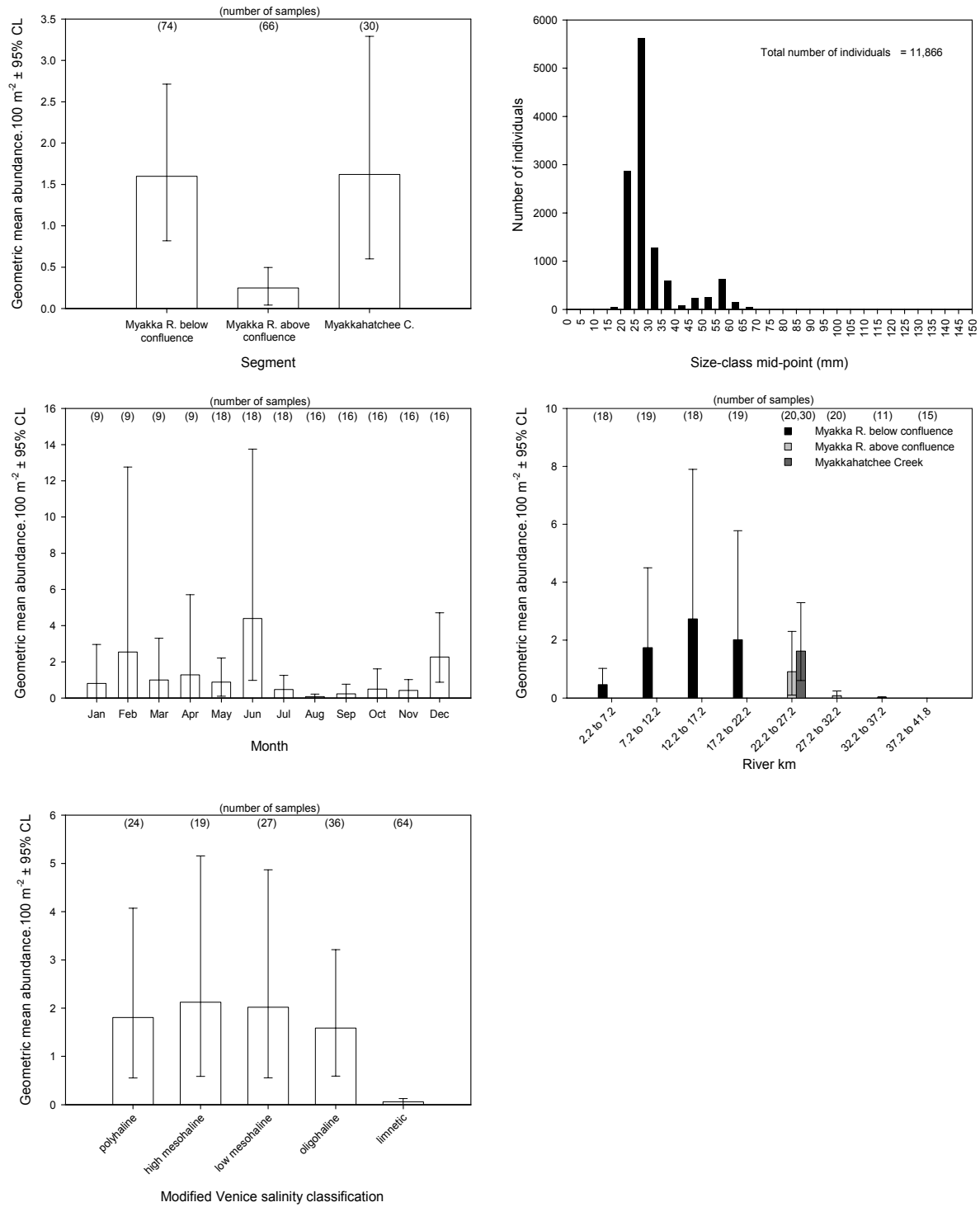


Fig. E3. Relative abundance of Bay anchovy in channel habitats.

Ictalurus punctatus (Channel catfish), Trawls

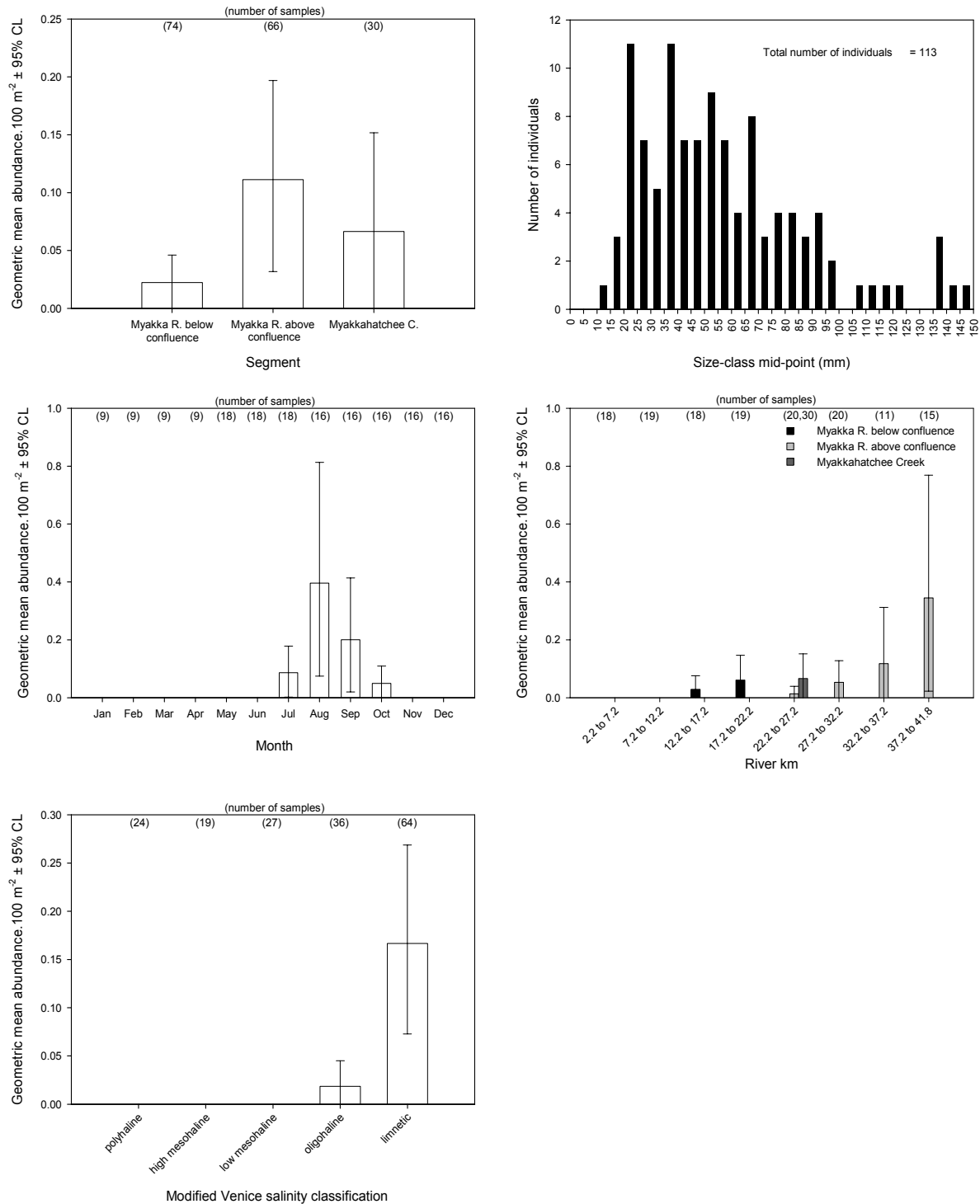


Fig. E4. Relative abundance of Channel catfish in channel habitats.

Ariopsis felis (Hardhead catfish), Trawls

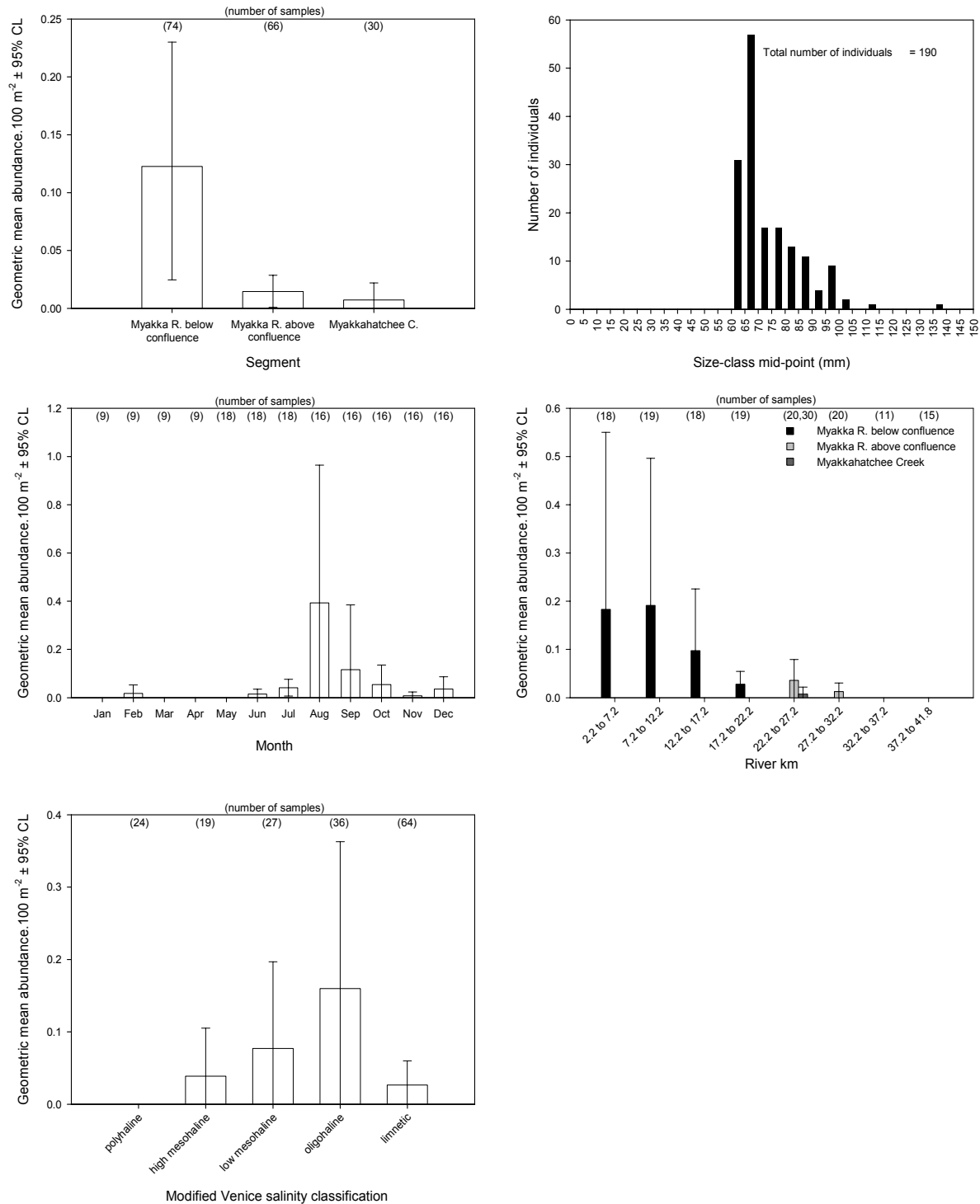


Fig. E5. Relative abundance of Hardhead catfish in channel habitats.

Prionotus tribulus (Bighead searobin), Trawls

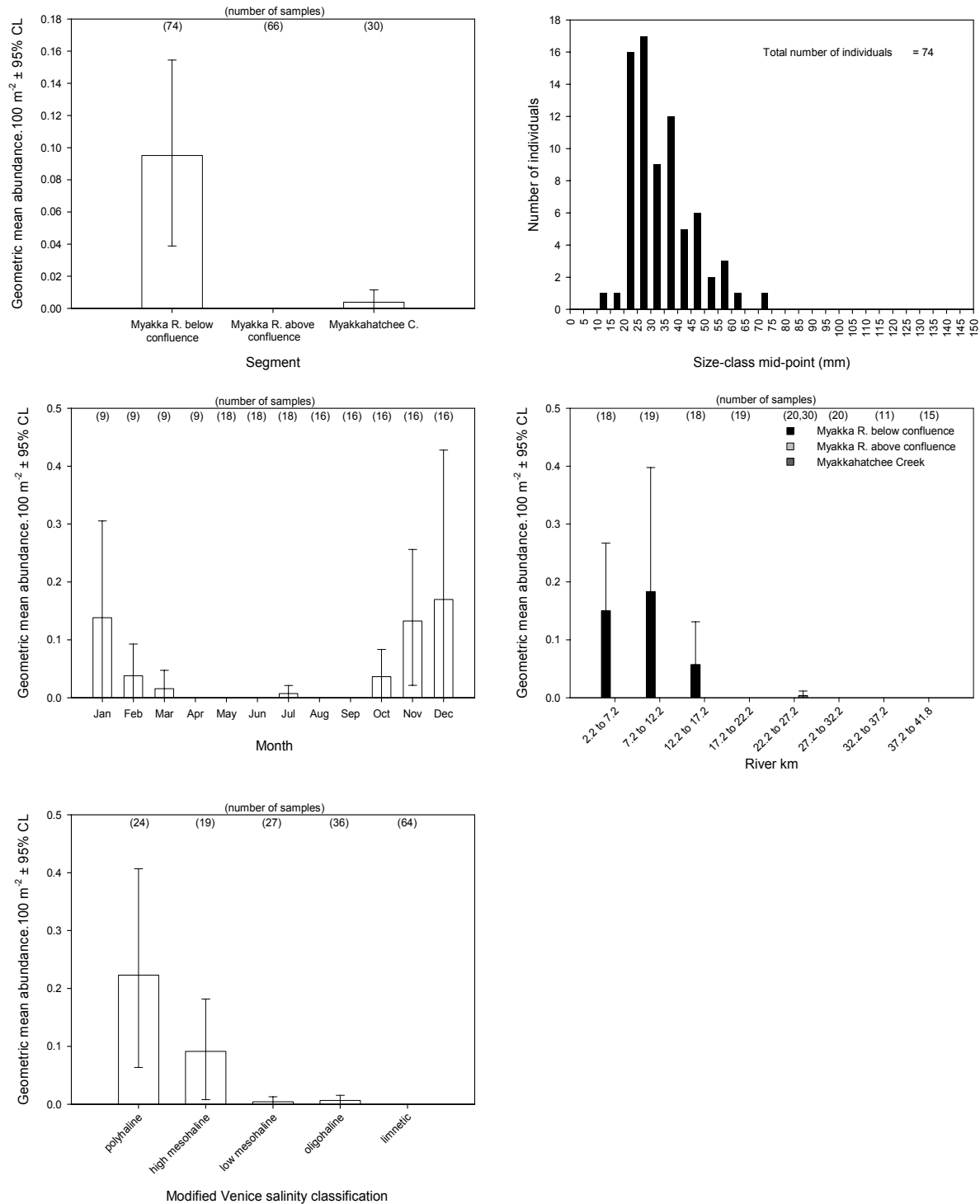


Fig. E6. Relative abundance of Bighead searobin in channel habitats.

Lepomis macrochirus (Bluegill), Trawls

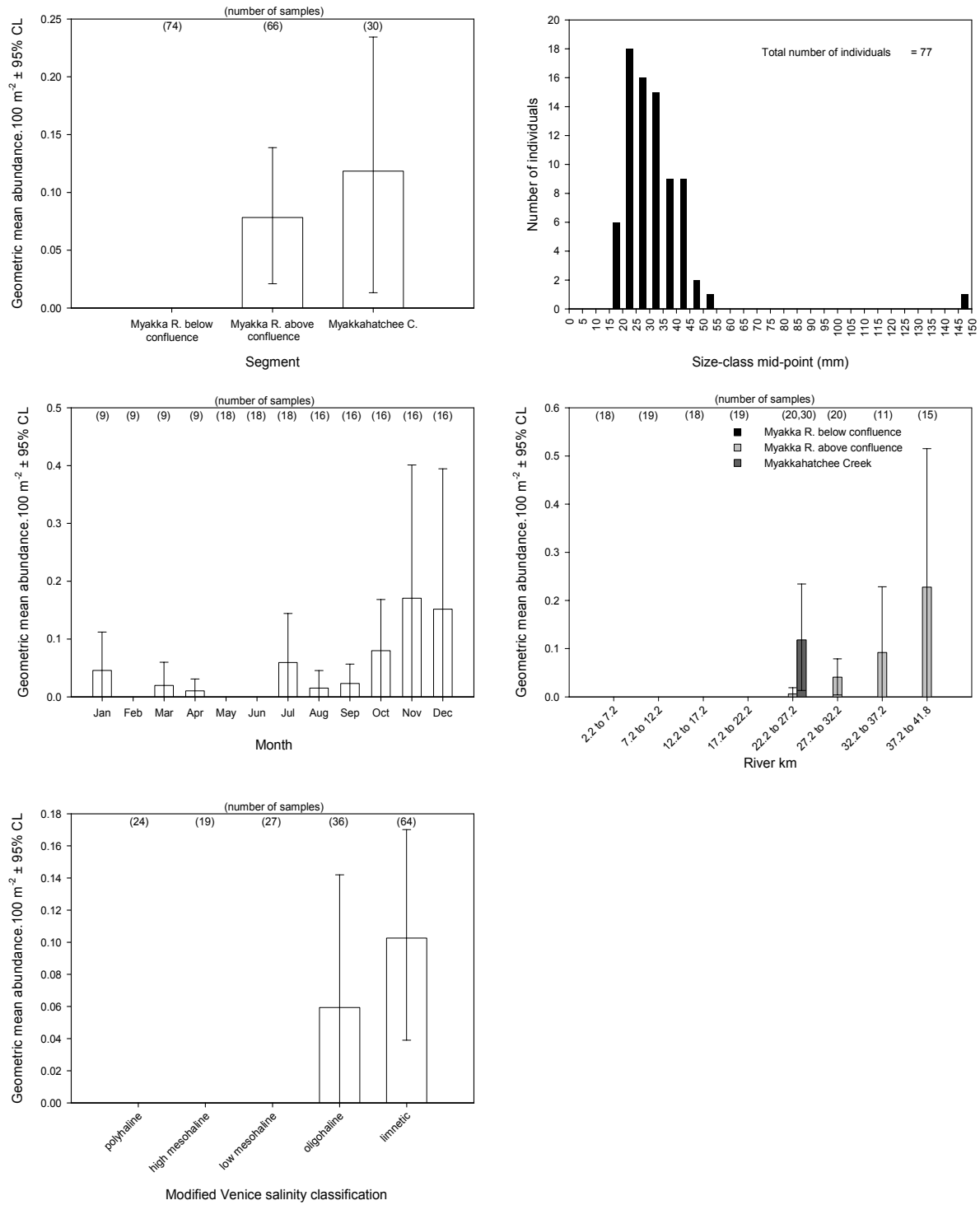


Fig. E7. Relative abundance of Bluegill in channel habitats.

Eucinostomus spp. (*Eucinostomus mojarra*s), Trawls

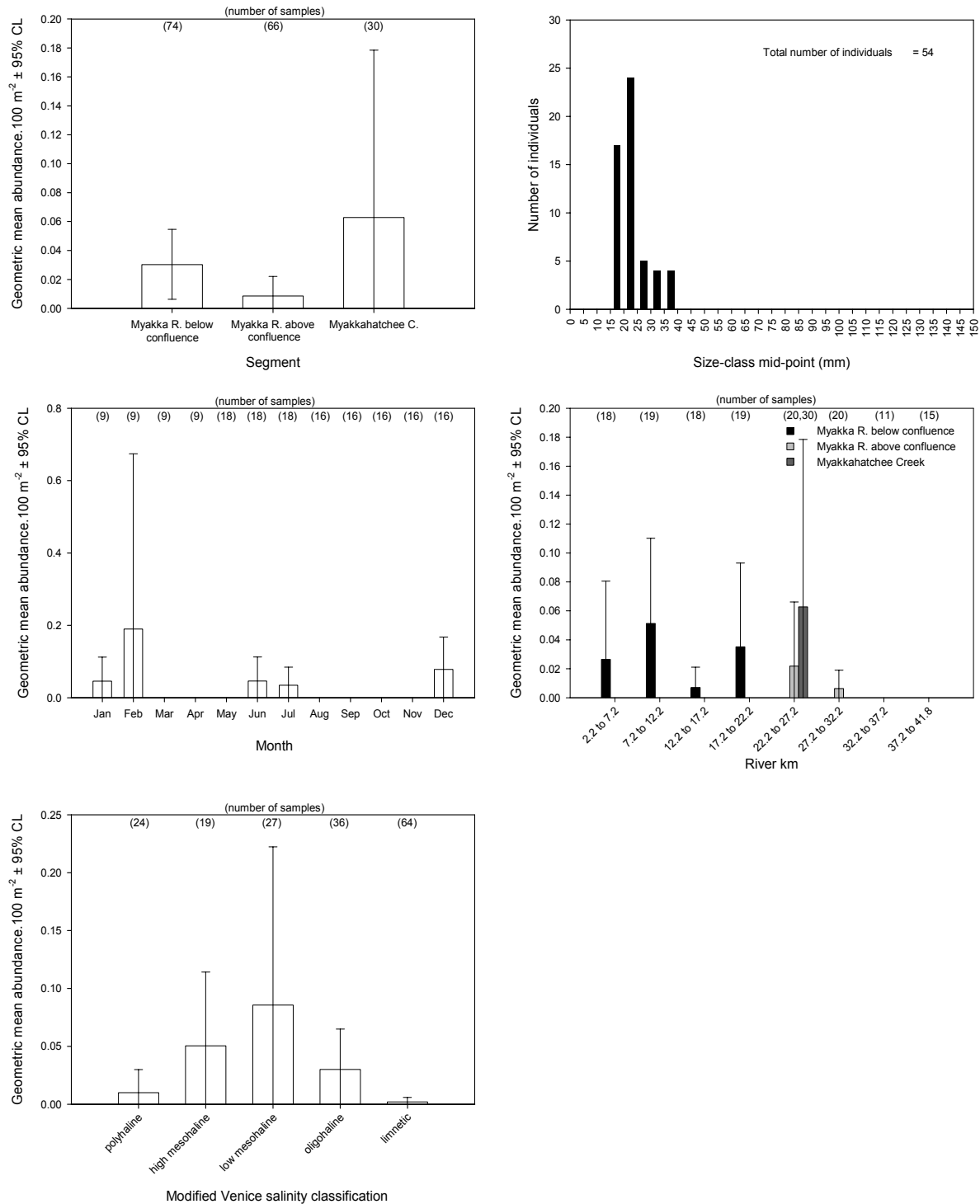


Fig. E8. Relative abundance of *Eucinostomus mojarra* in channel habitats.

Eucinostomus gula (Silver jenny), Trawls

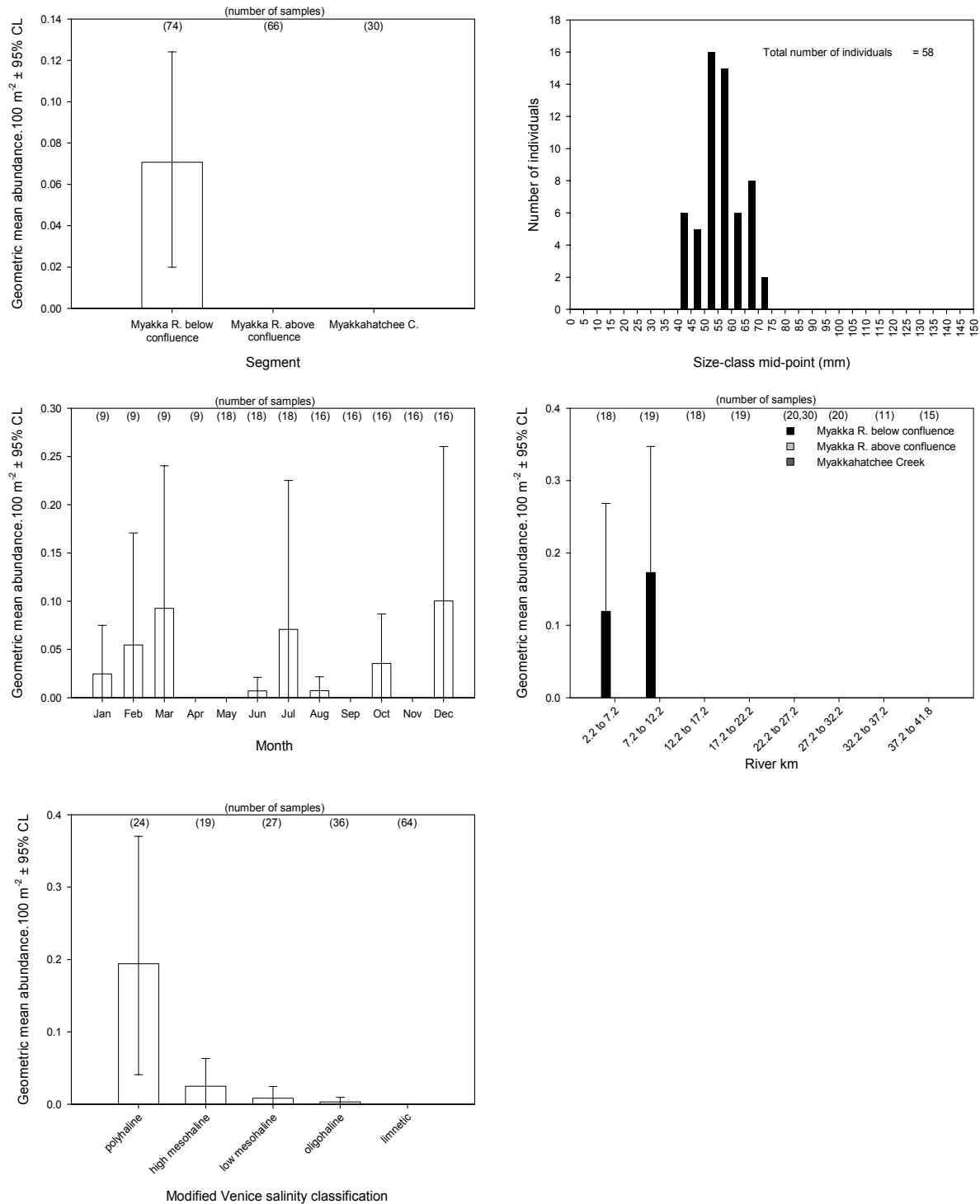


Fig. E9. Relative abundance of Silver jenny in channel habitats.

Eugerres plumieri (Striped mojarra), Trawls

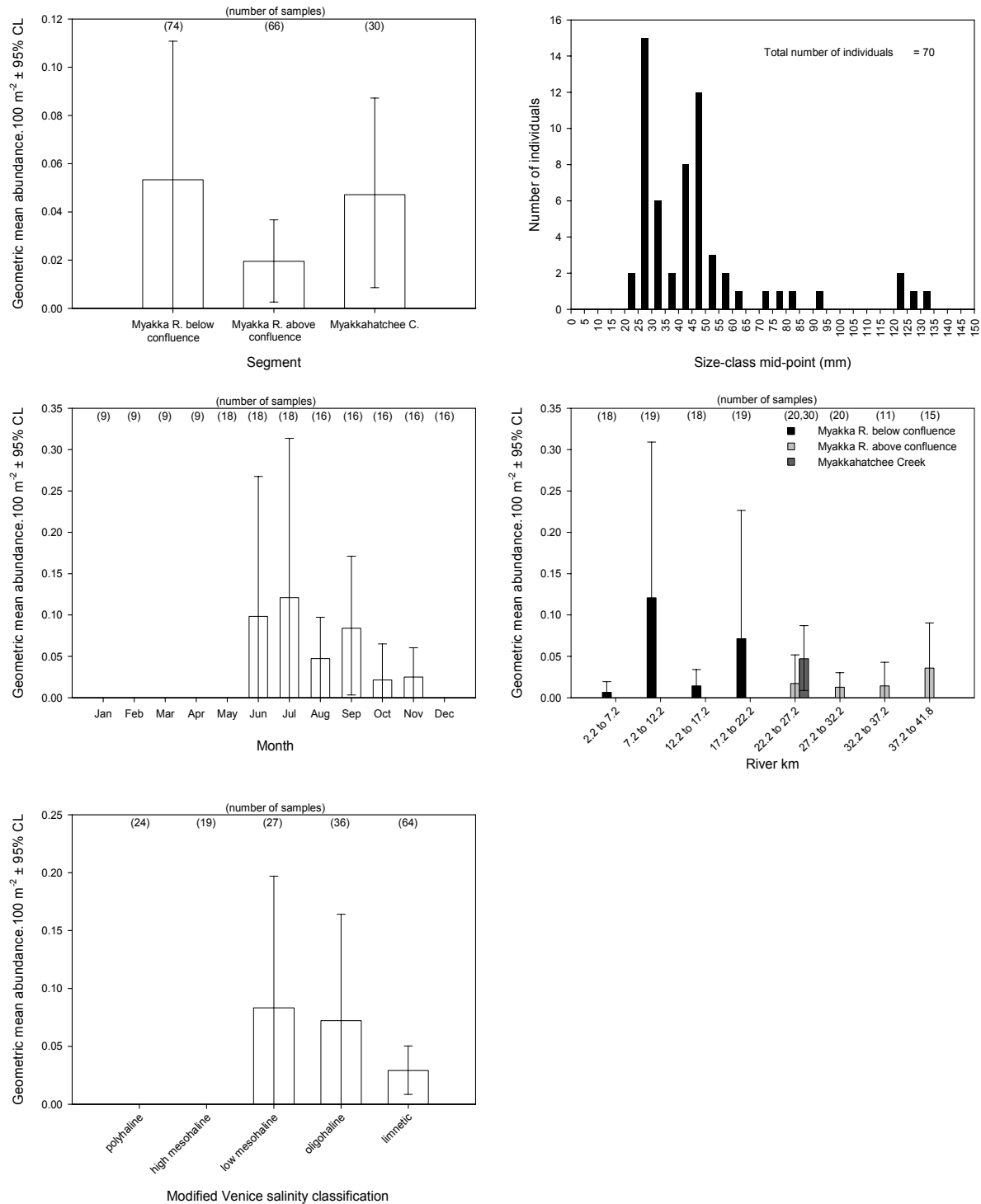


Fig. E10. Relative abundance of Striped mojarra in channel habitats.

Cynoscion arenarius (Sand seatrout), Trawls

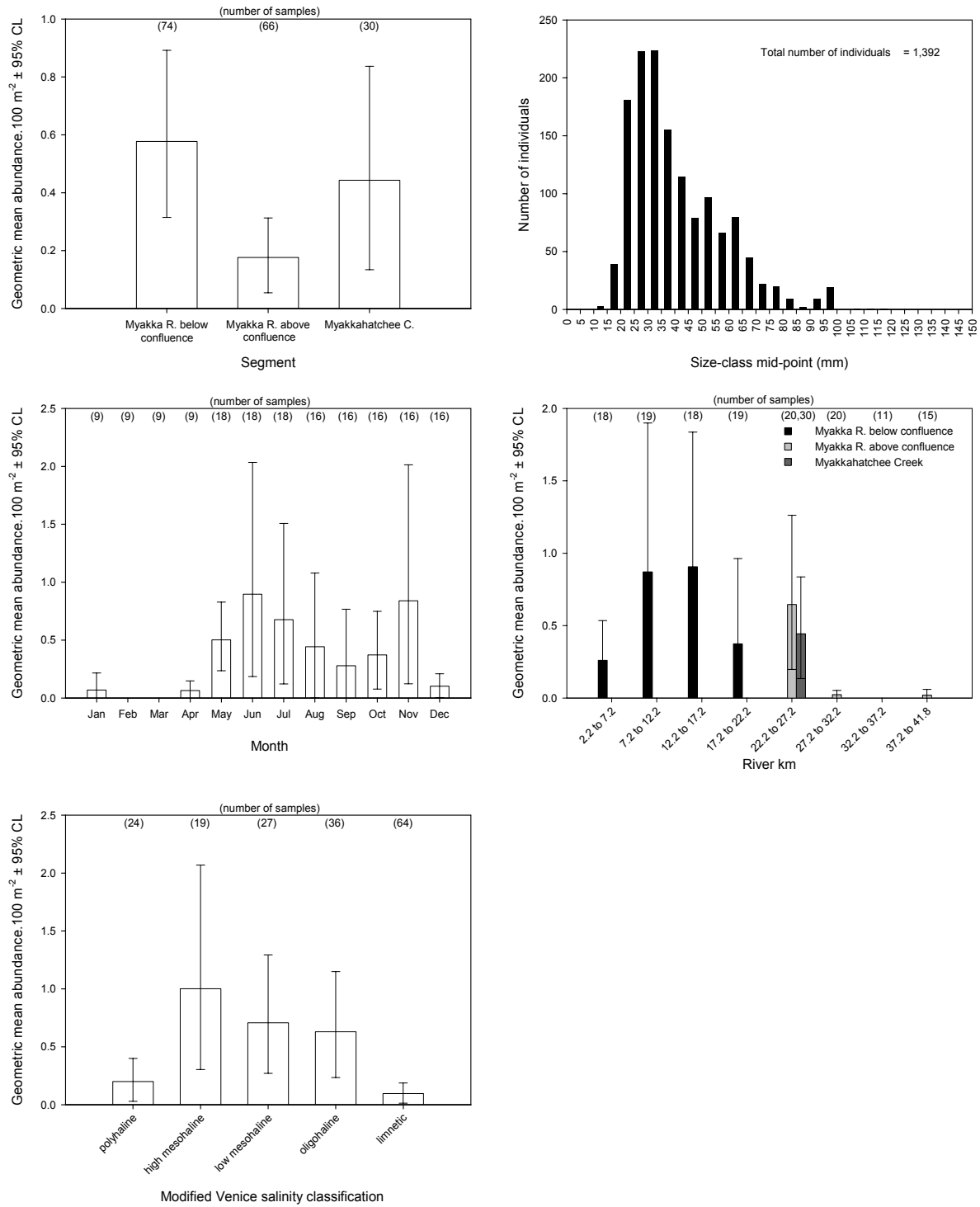


Fig. E11. Relative abundance of Sand seatrout in channel habitats.

Bairdiella chrysoura (Silver perch), Trawls

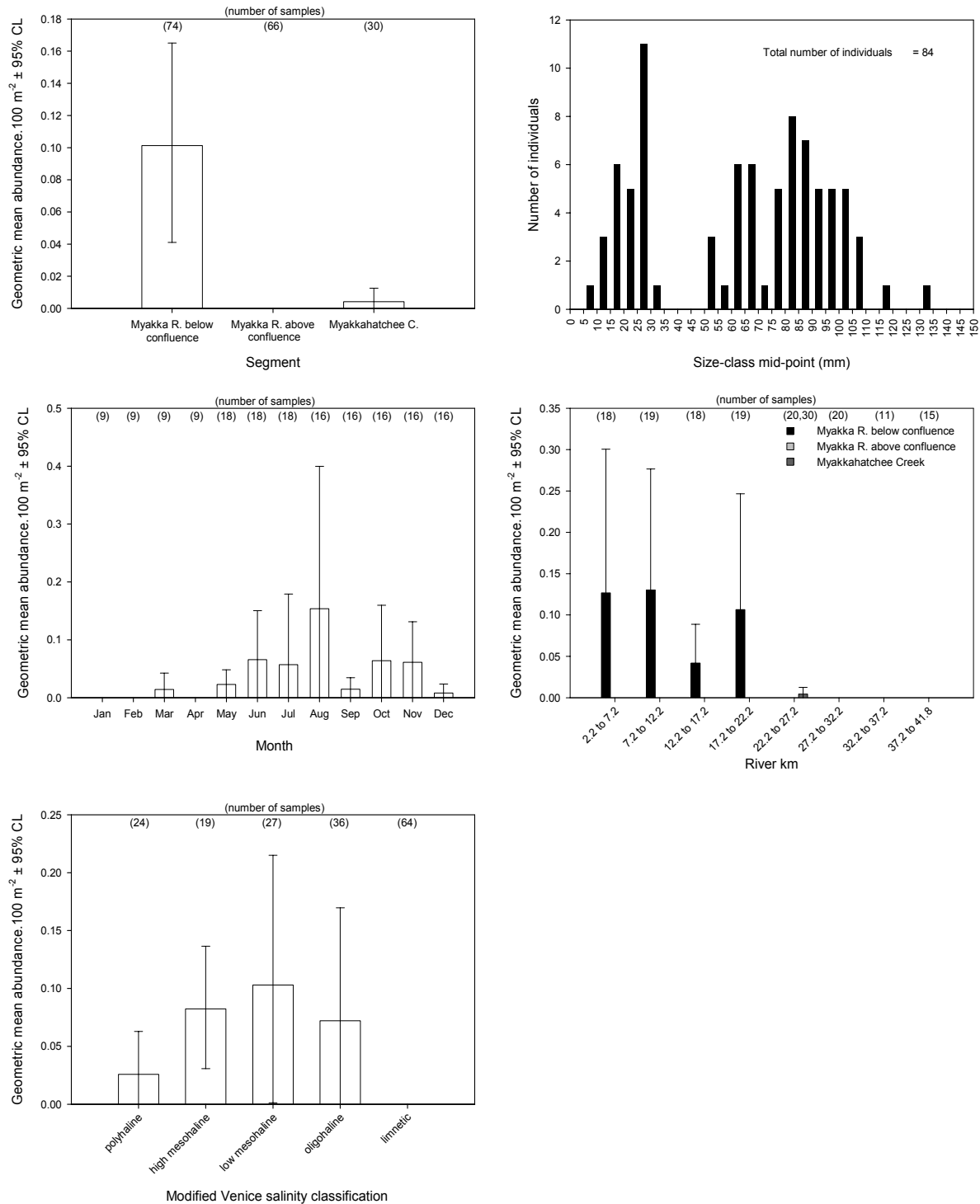


Fig. E12. Relative abundance of Silver perch in channel habitats.

Leiostomus xanthurus (Spot), Trawls

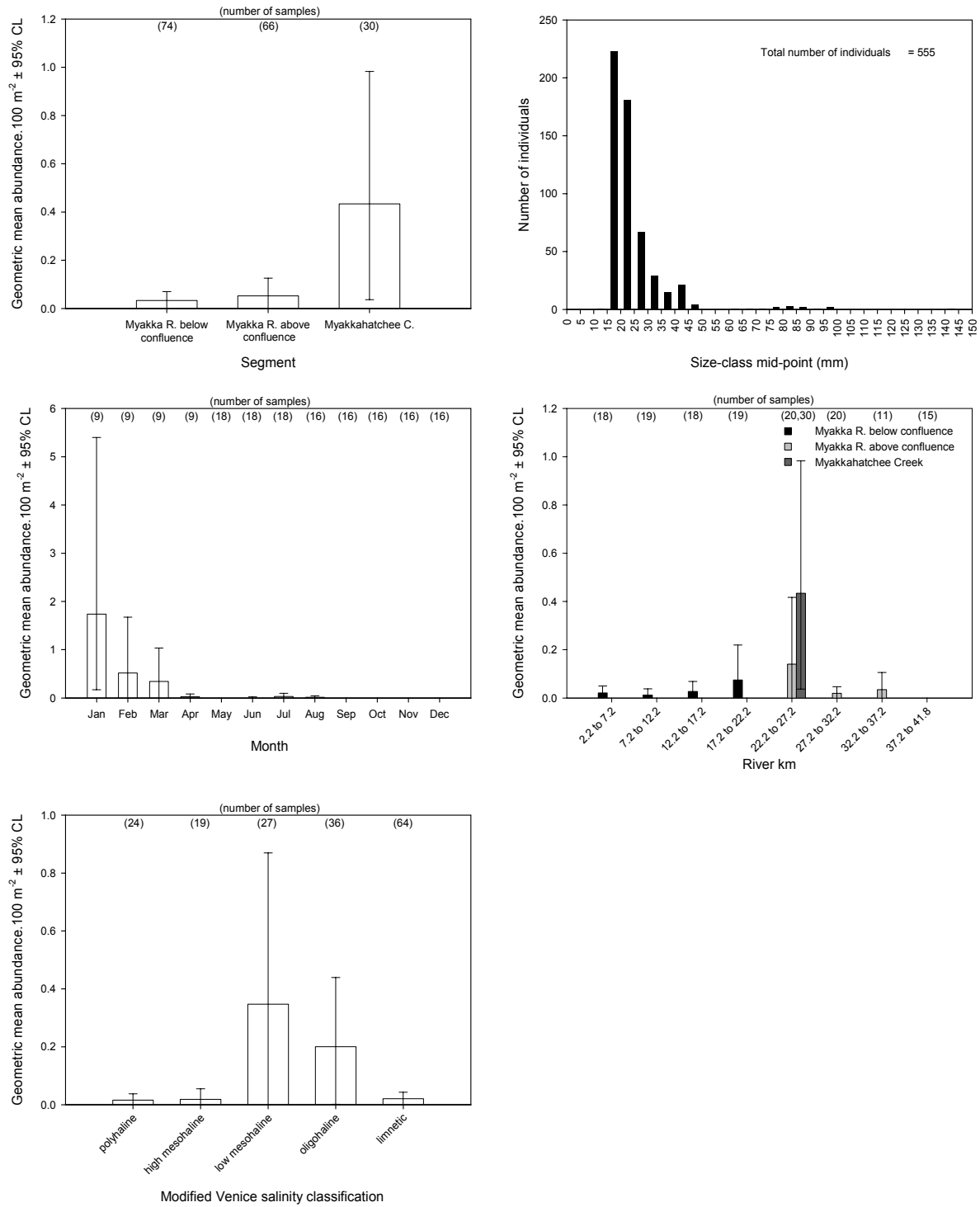


Fig. E13. Relative abundance of Spot in channel habitats.

Menticirrhus americanus (Southern kingfish), Trawls

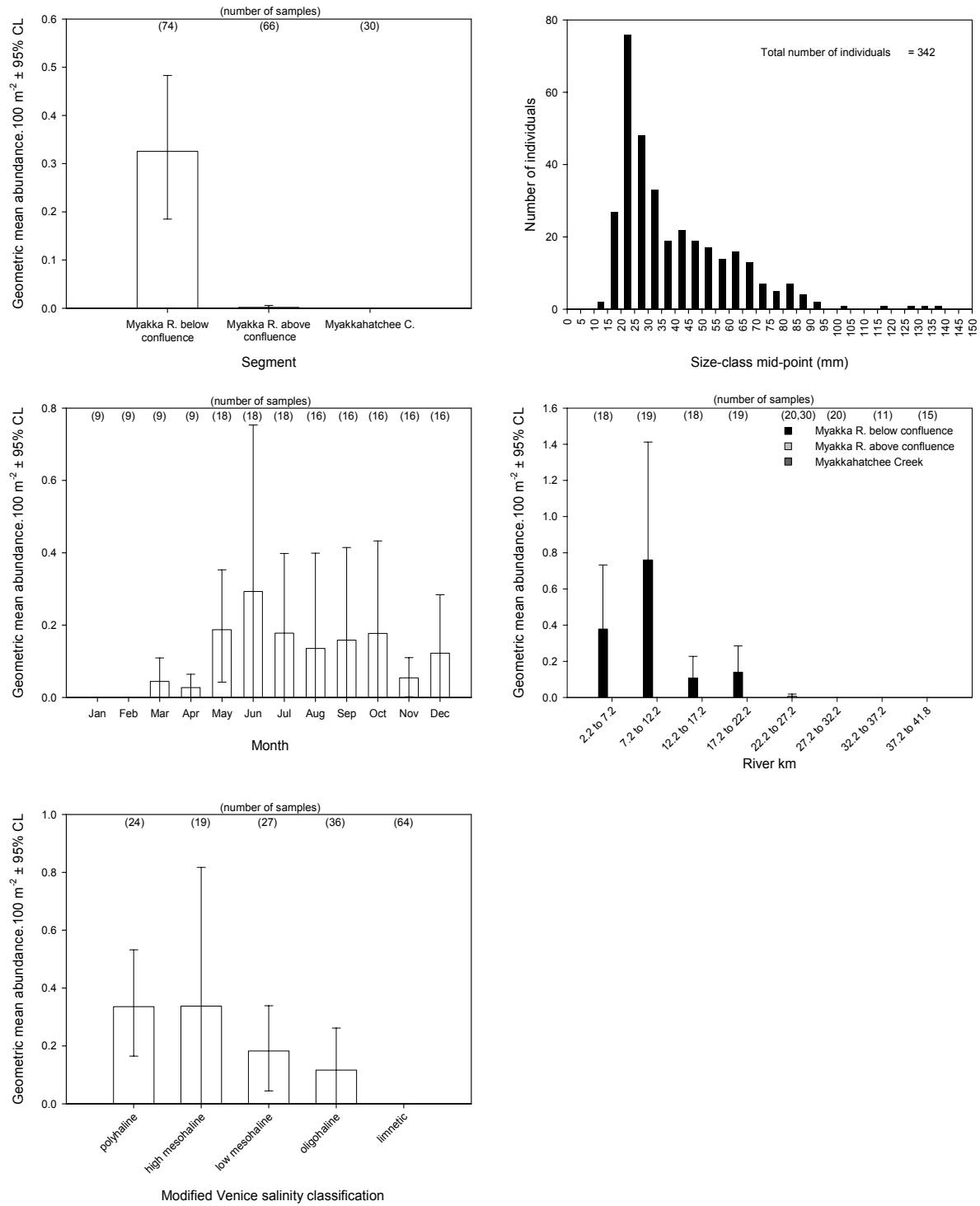


Fig. E14. Relative abundance of Southern kingfish in channel habitats.

Microgobius gulosus (Clown goby), Trawls

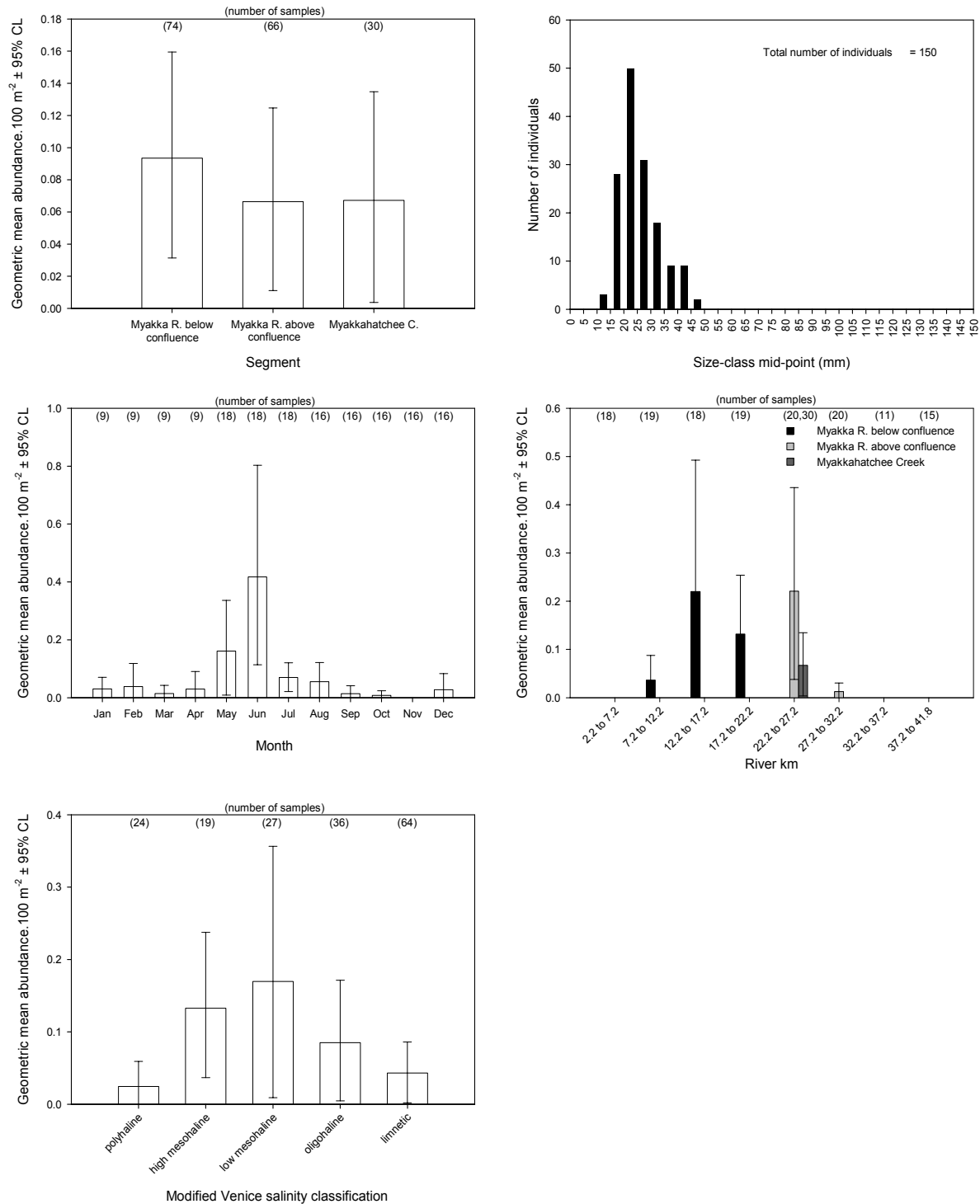


Fig. E15. Relative abundance of Clown goby in channel habitats.

Trinectes maculatus (Hogchoker), Trawls

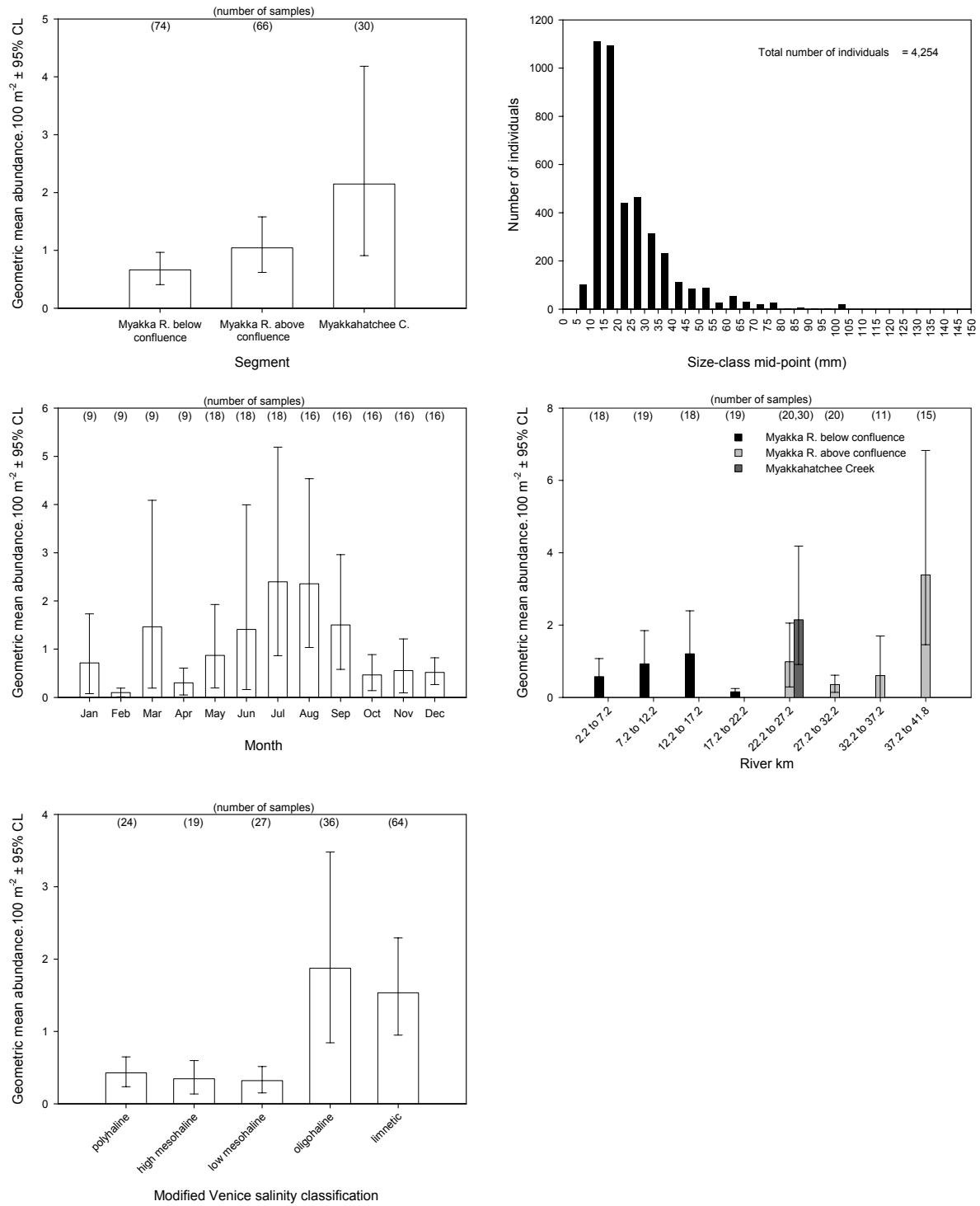


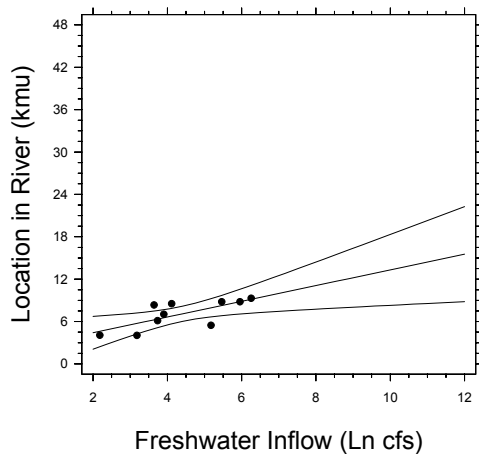
Fig. E16. Relative abundance of Hogchoker in channel habitats.

Appendix F:

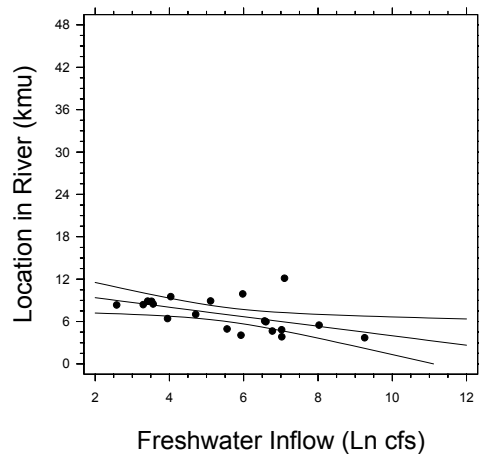
Plots of the plankton-net distribution responses in Table 3.7.1.1

MYAKKA RIVER

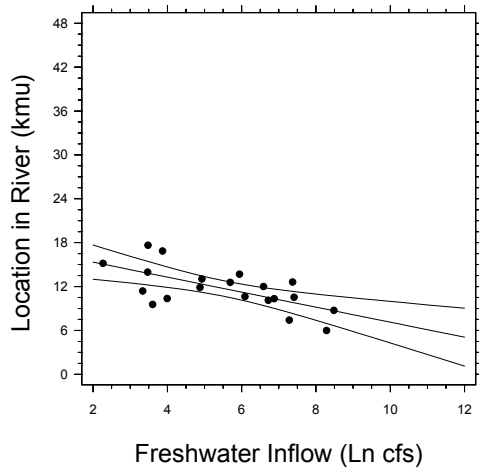
Hippolyte zostericola postlarvae



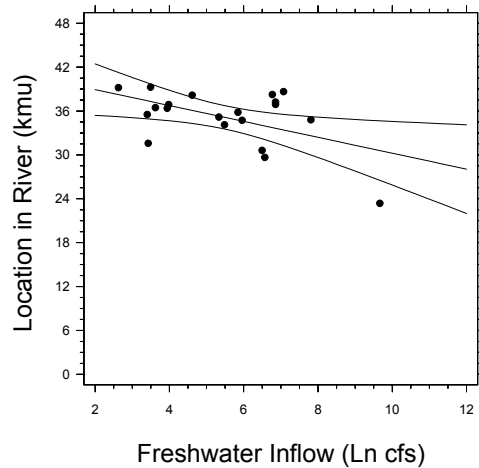
Acartia tonsa



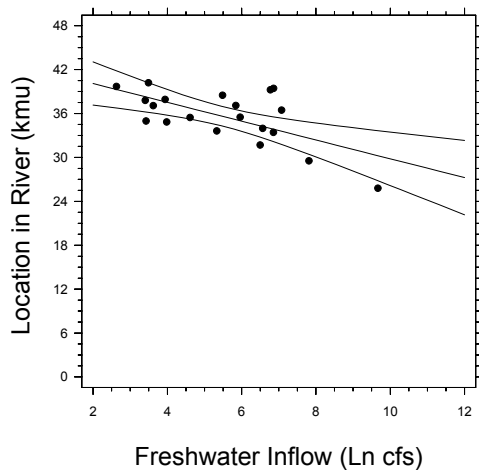
decapod mysis



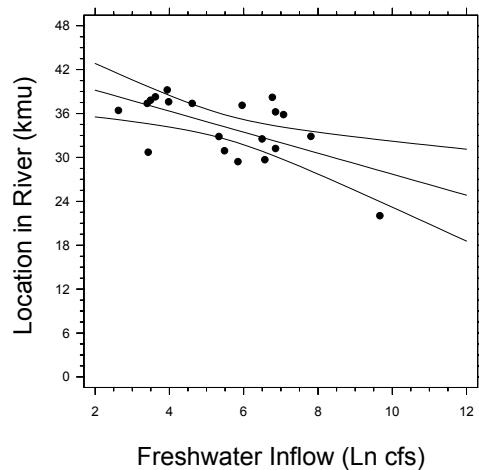
ephemeropteran larvae



trichopteran larvae

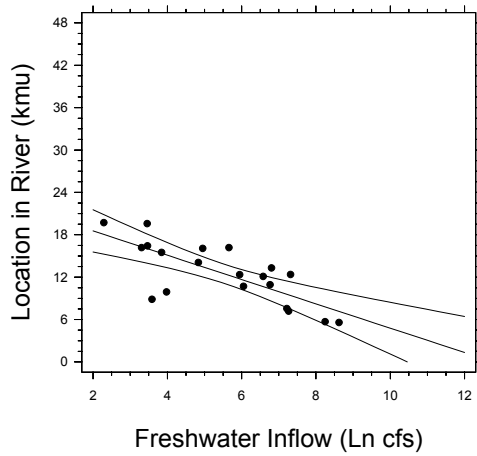


dipterans, chironomid larvae

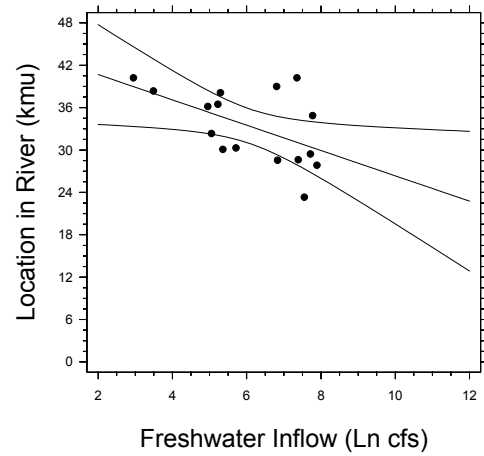


MYAKKA RIVER

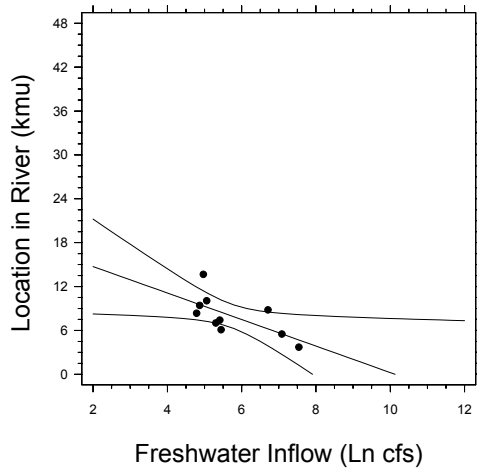
decapod zoeae



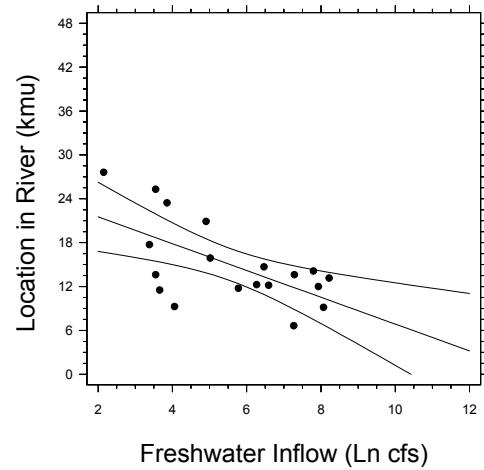
Orthocyclops modestus



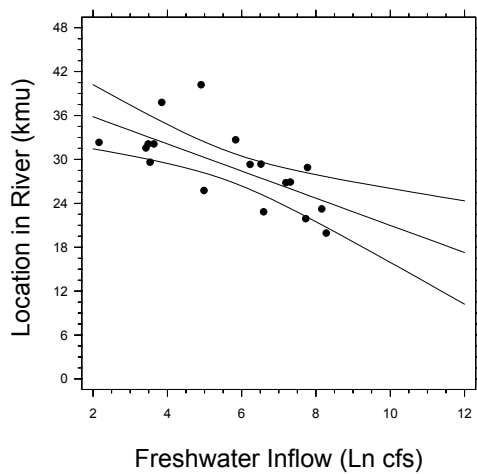
amphipods, caprellid



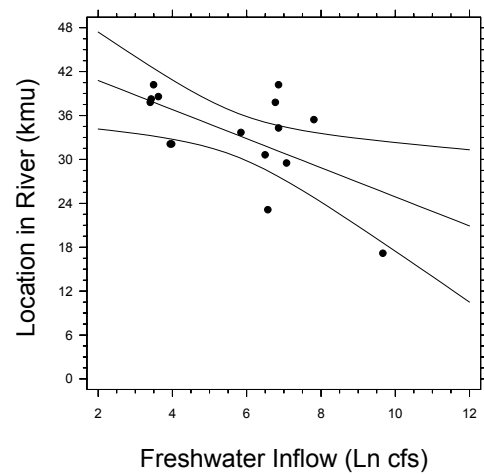
decapod megalopae



Sphaeroma terebrans

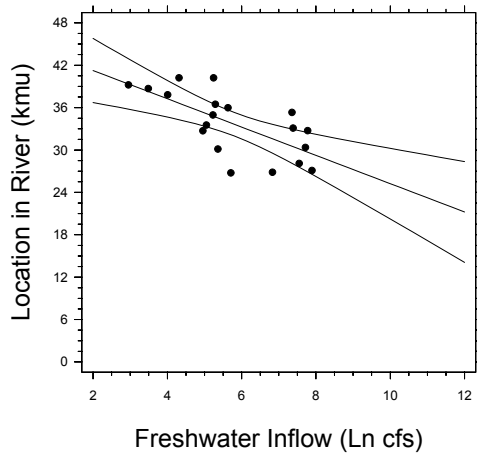


odonates, anisopteran larvae

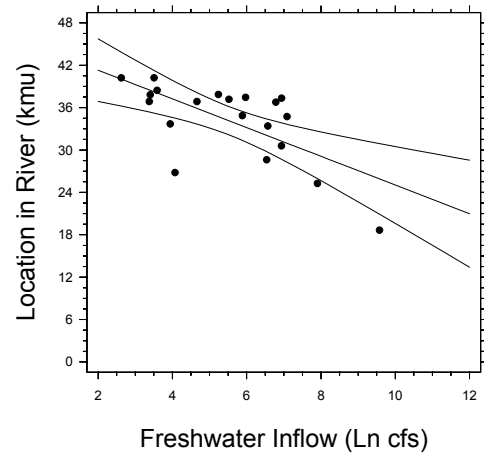


MYAKKA RIVER

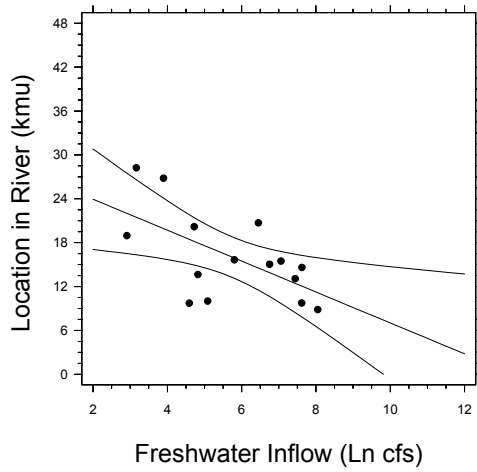
Simocephalus vetulus



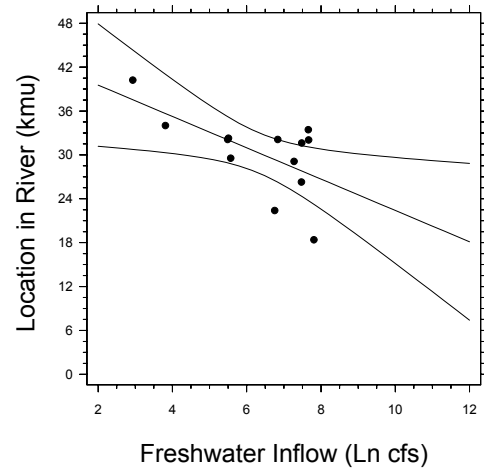
acari



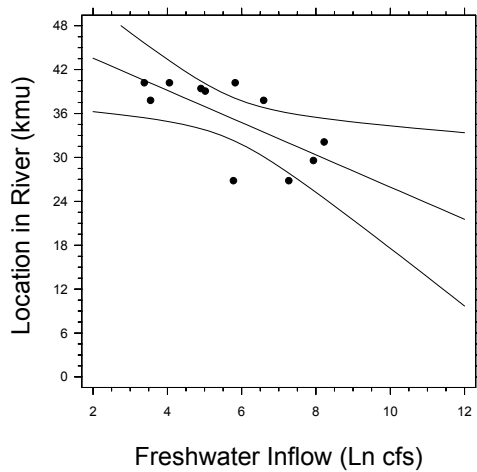
gobiid flexion larvae



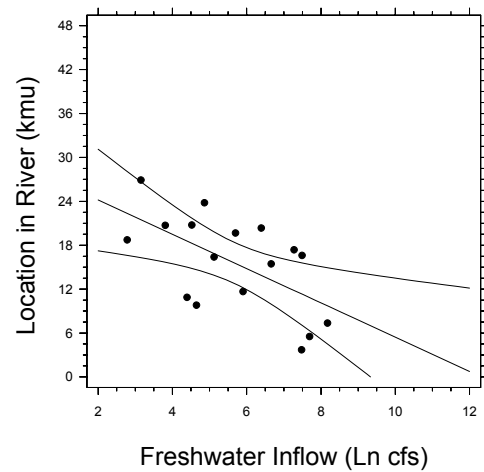
Ilyocryptus sp.



Osphranticum labronectum

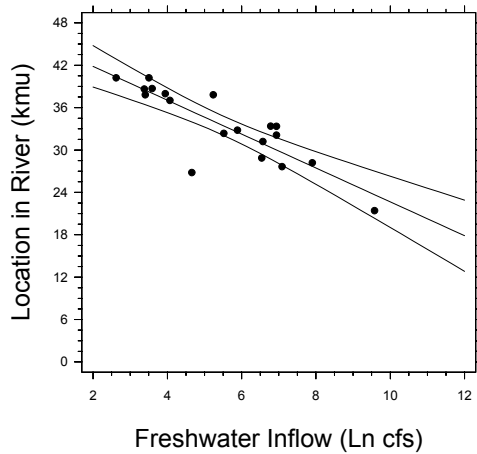


Microgobius spp. flexion larvae

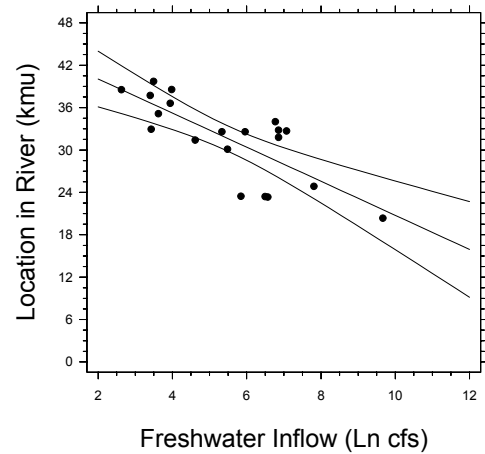


MYAKKA RIVER

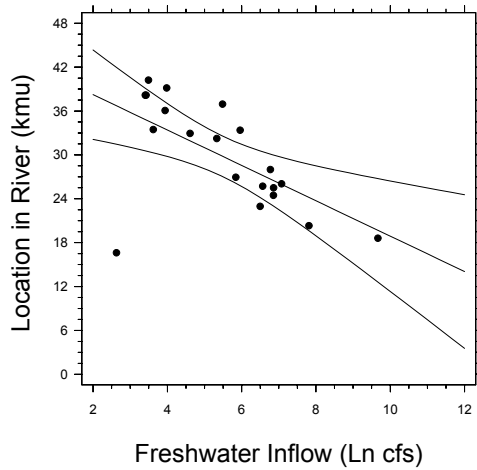
odonates, zygopteran larvae



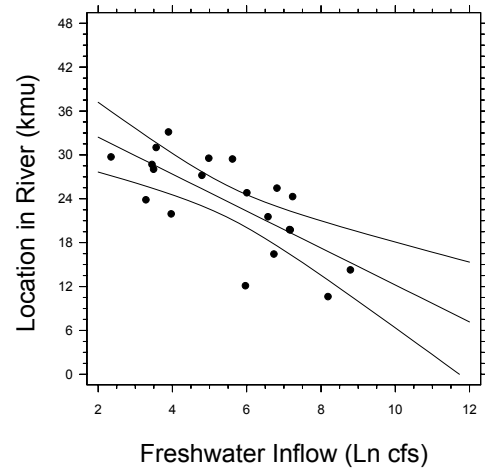
Mesocyclops edax



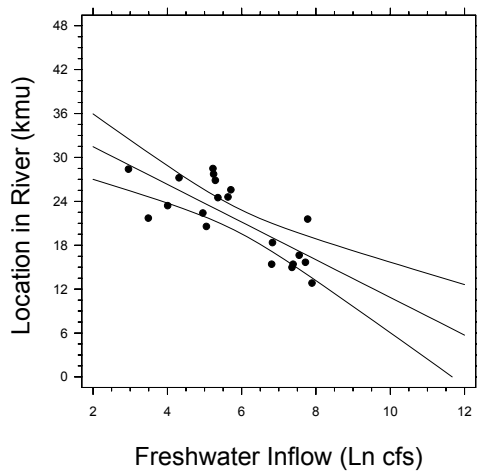
dipteran, Chaoborus punctipennis



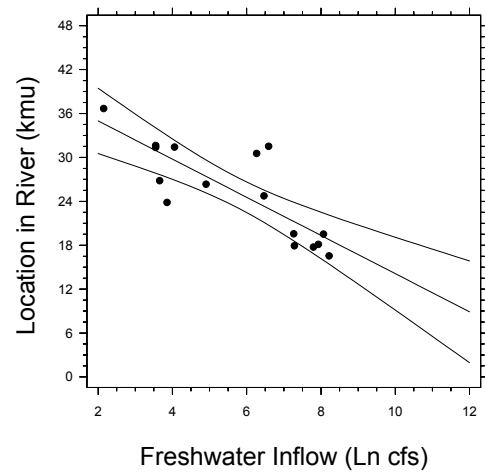
amphipods, gammaridean



gastropods, prosobranch

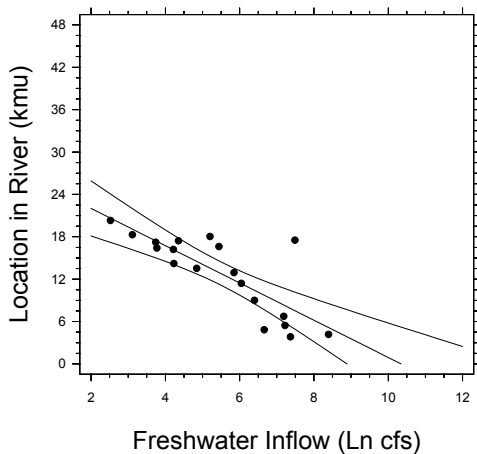


Trinectes maculatus juveniles

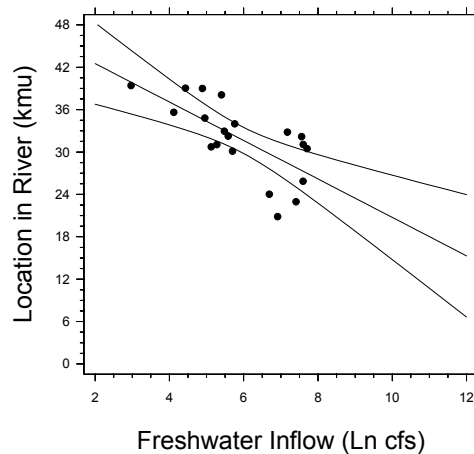


MYAKKA RIVER

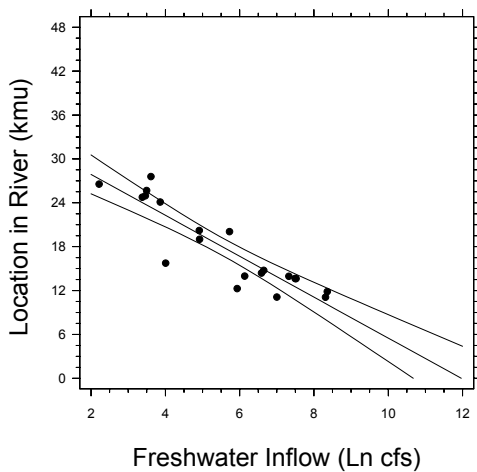
cymothoid sp. a (*Lironeca*) juveniles



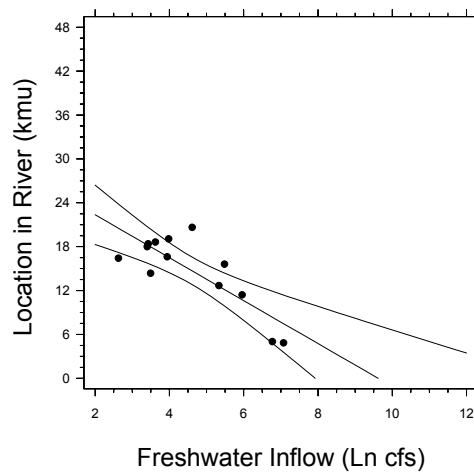
dipterans, pupae



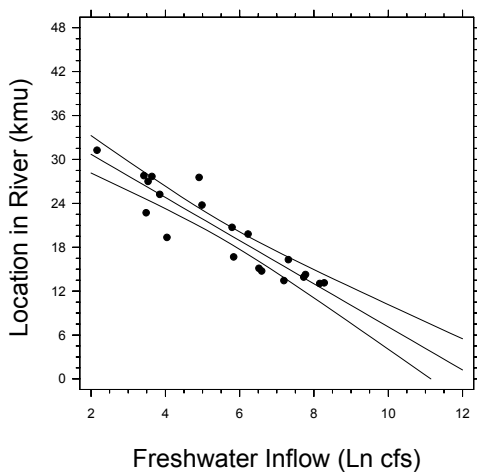
unidentified *Americamysis* juveniles



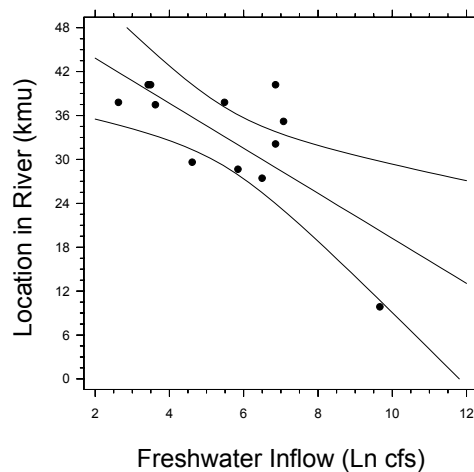
Mnemiopsis mccradyi



Americamysis almyra

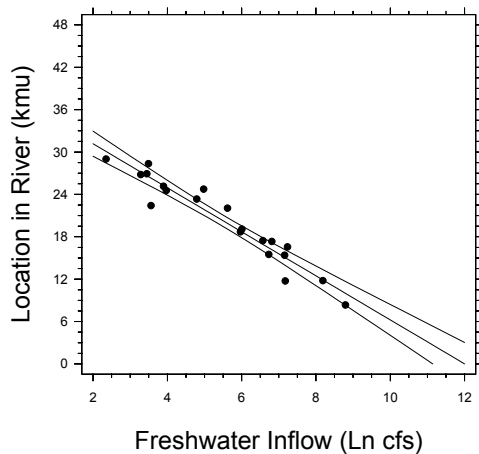


coleopterans, elmids adults

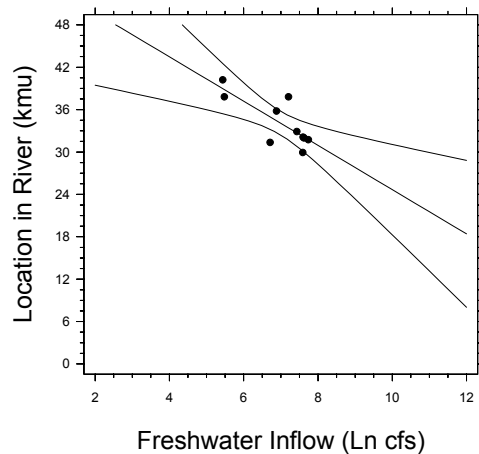


MYAKKA RIVER

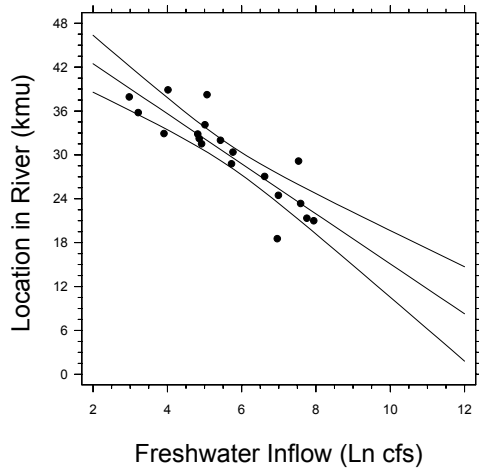
Anchoa mitchilli juveniles



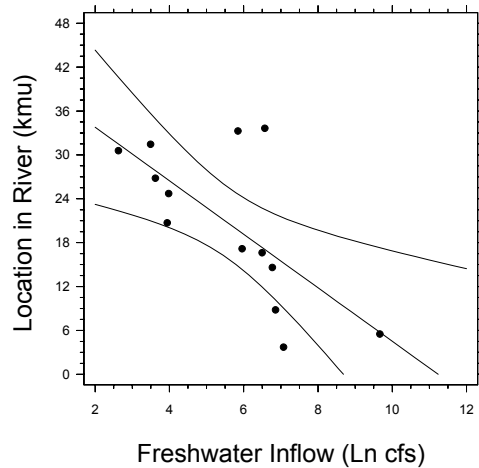
Heterandria formosa adults



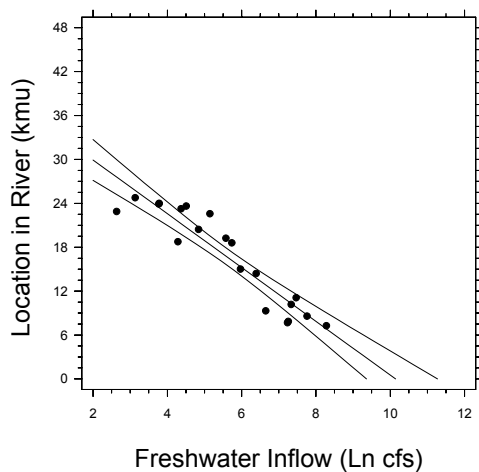
Taphromysis bowmani



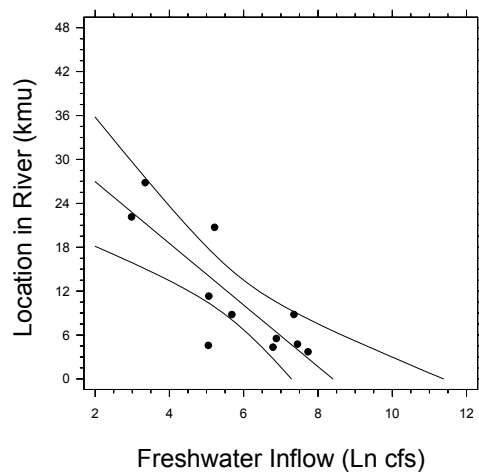
Menidia spp. juveniles



Edotea triloba

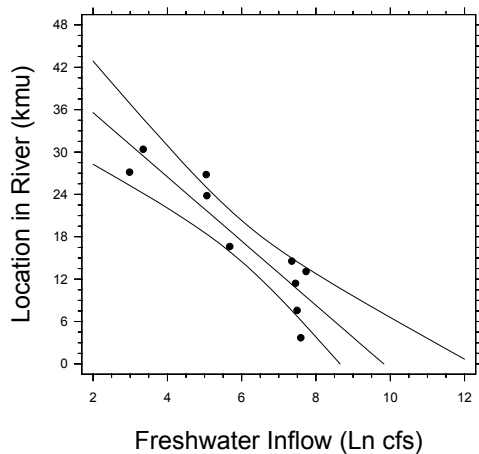


Clytia sp.

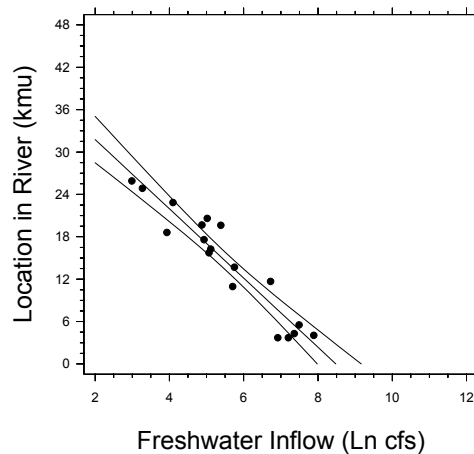


MYAKKA RIVER

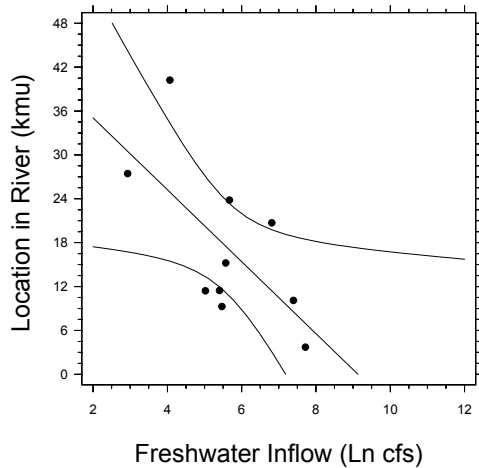
Trinectes maculatus postflexion larvae



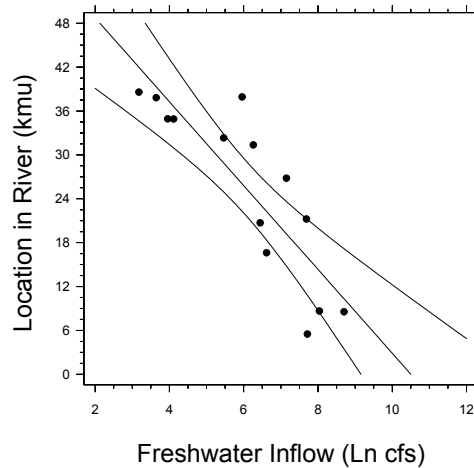
Bowmaniella dissimilis



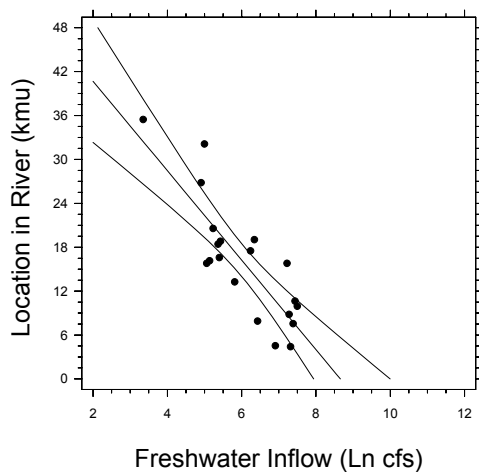
Microgobius spp. postflexion larvae



Diaptomus spp.

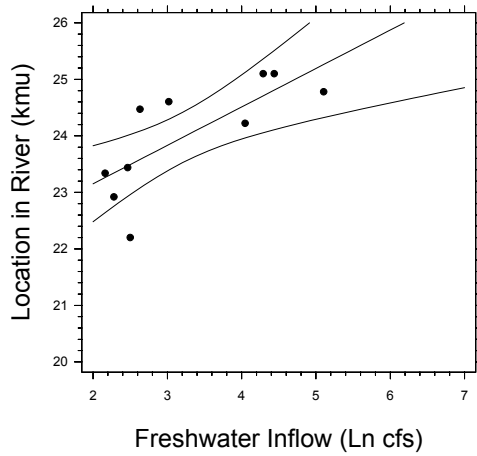


Anchoa mitchilli adults

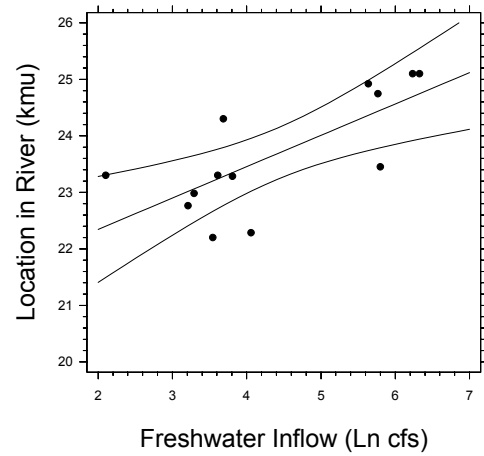


MYAKKAHATCHEE CREEK

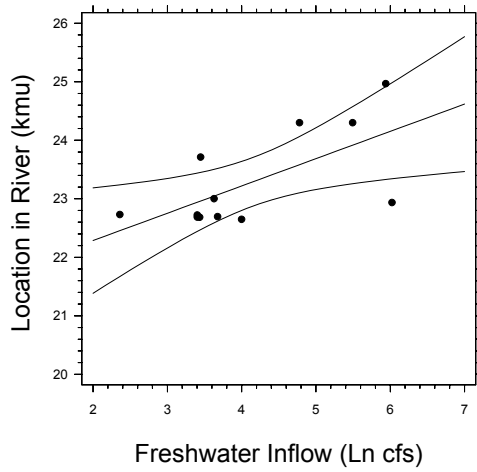
Sphaeroma quadridentata



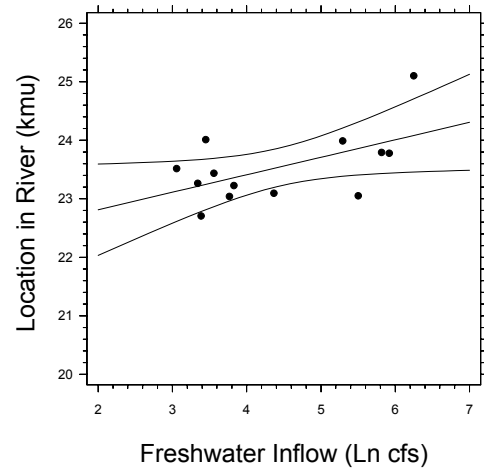
pelecypods



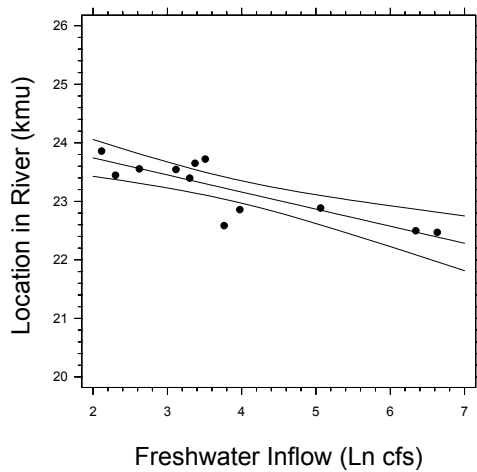
decapod mysis



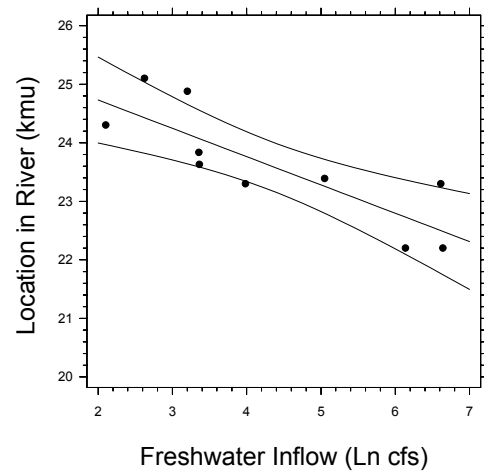
decapod zoeae



Americamysis almyra

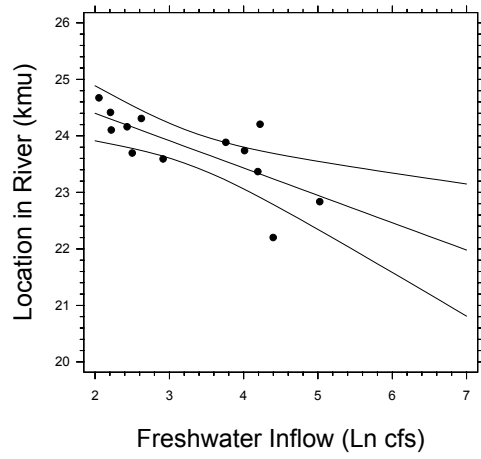


Taphromysis bowmani



MYAKKAHATCHEE CREEK

Anchoa mitchilli juveniles



Appendix G:

Plots of the seine and trawl distribution responses in Table 3.7.2.1

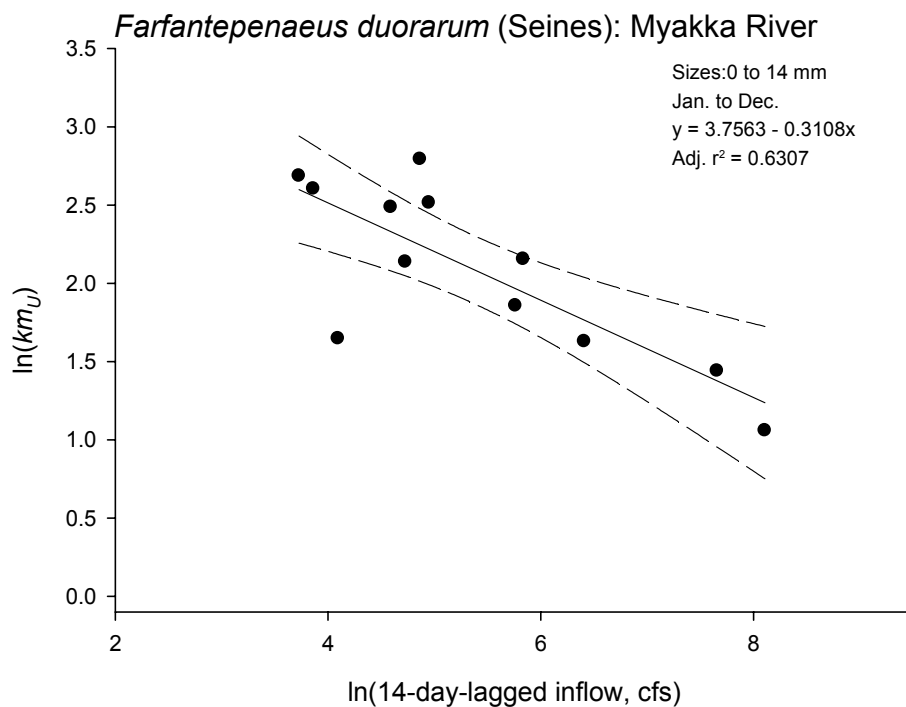


Fig. G1. Distribution response of Pink shrimp (≤ 14 mm) in the Myakka River estuary to 14-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

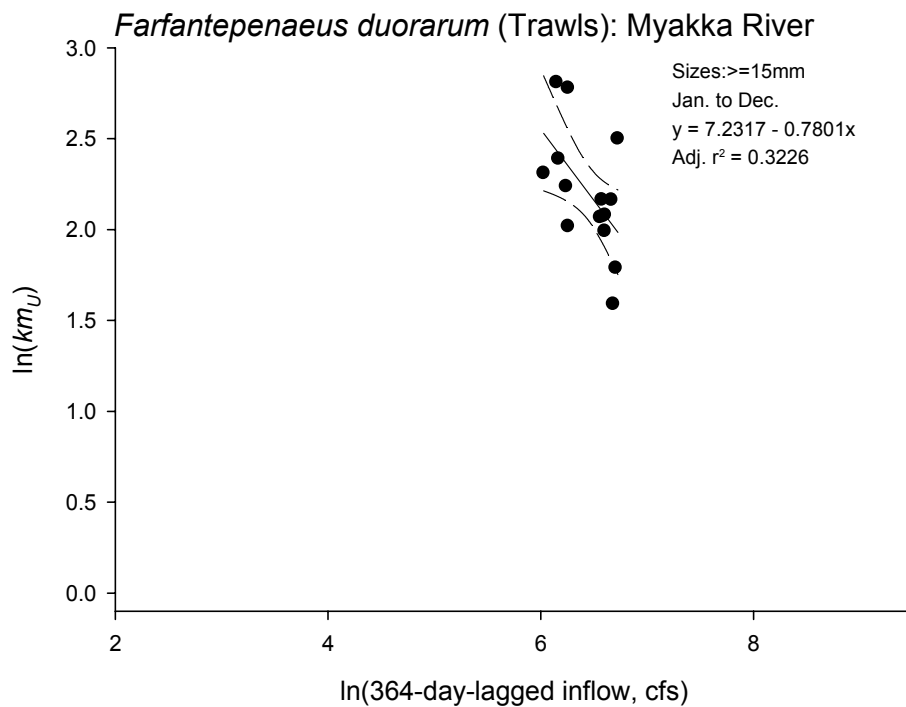


Fig. G2. Distribution response of Pink shrimp (≥ 15 mm) in the Myakka River estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

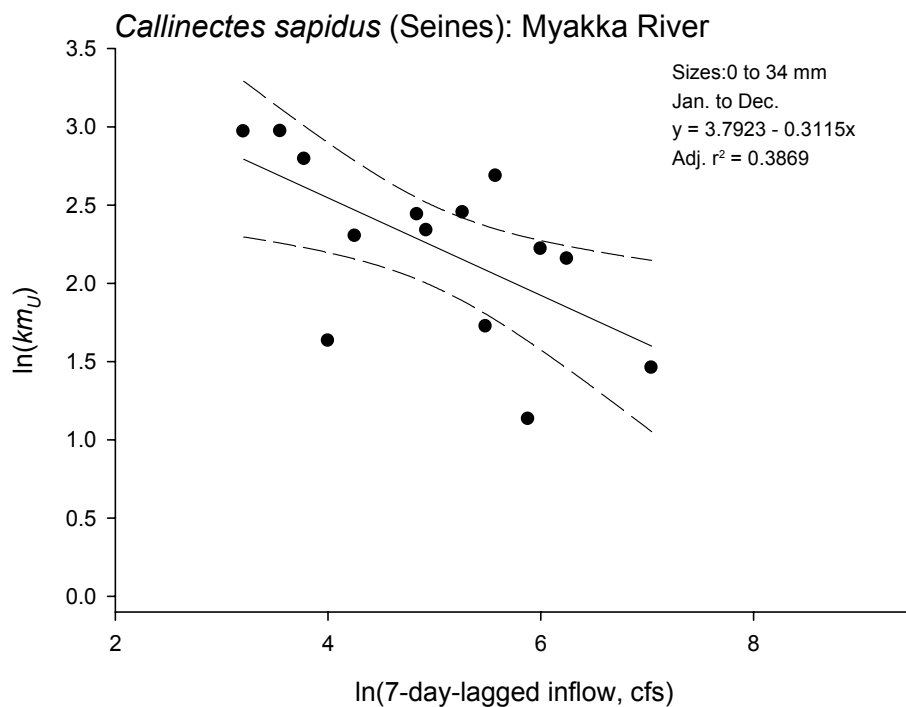


Fig. G3. Distribution response of Blue crab (≤ 34 mm) in the Myakka River estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

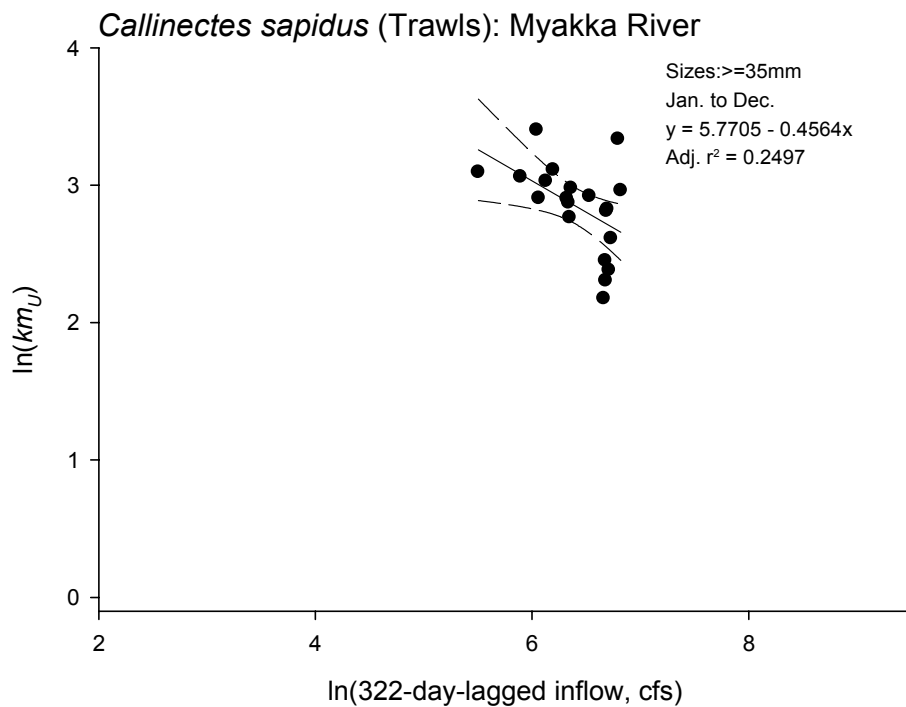


Fig. G4. Distribution response of Blue crab (≥ 35 mm) in the Myakka River estuary to 322-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

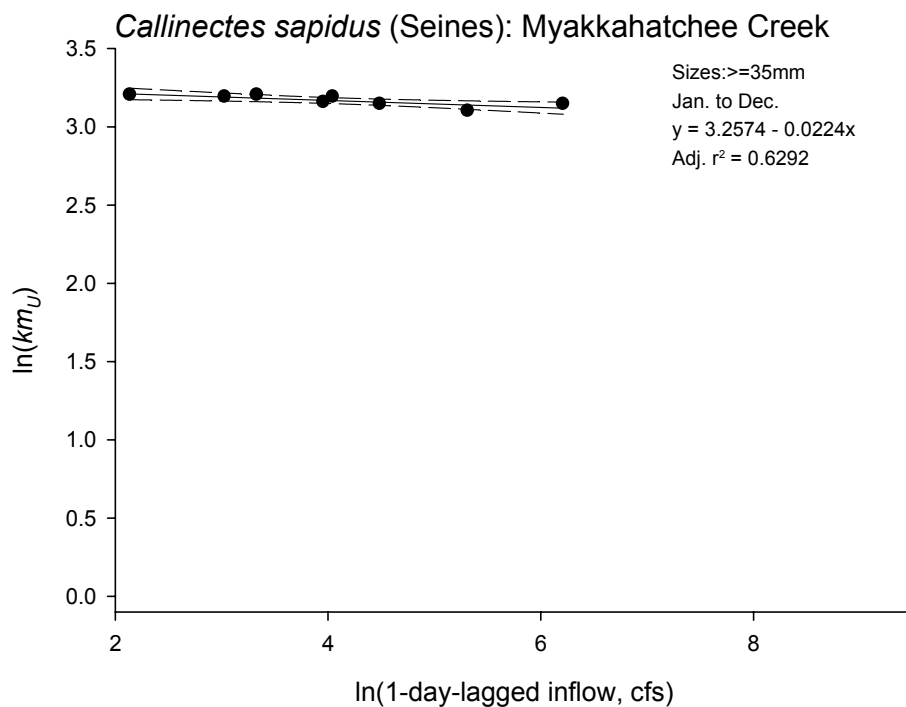


Fig. G5. Distribution response of Blue crab (≥ 35 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

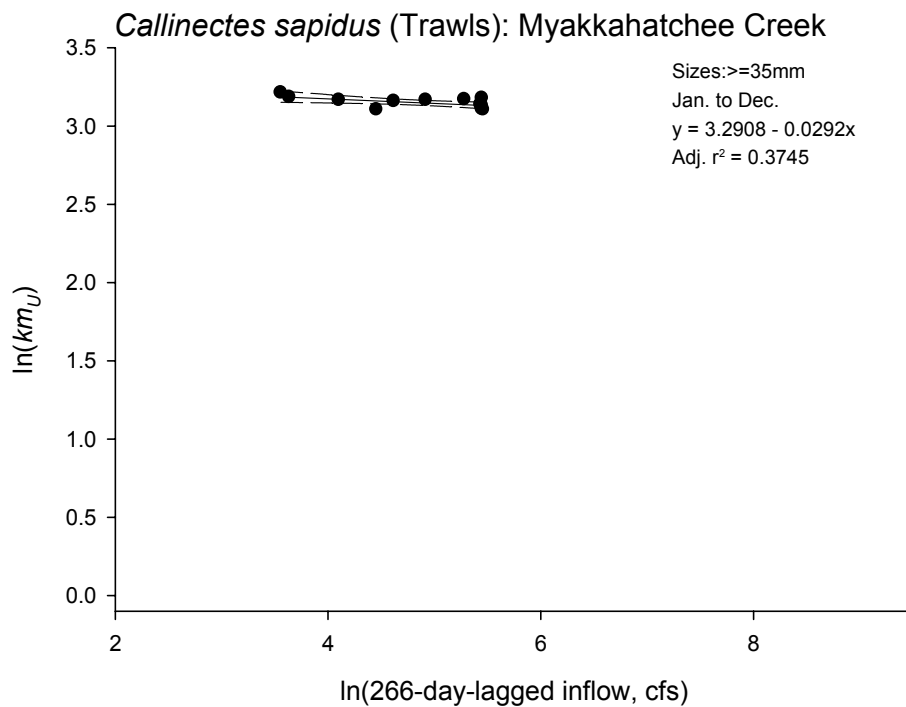


Fig. G6. Distribution response of Blue crab (≥ 35 mm) in the Myakkahatchee Creek estuary to 266-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

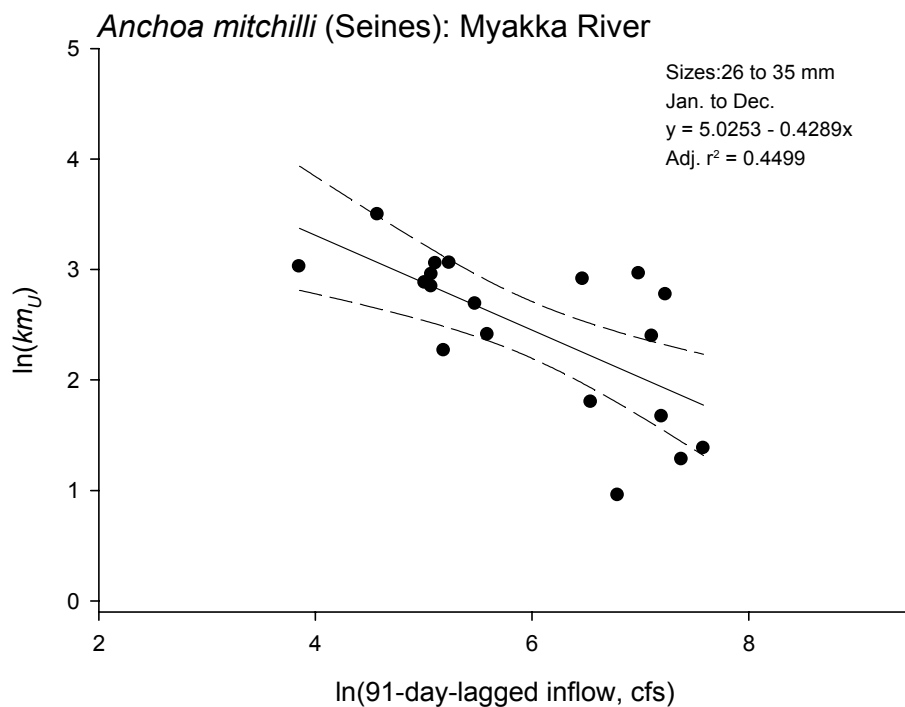


Fig. G7. Distribution response of Bay anchovy (26 to 35 mm) in the Myakka River estuary to 91-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

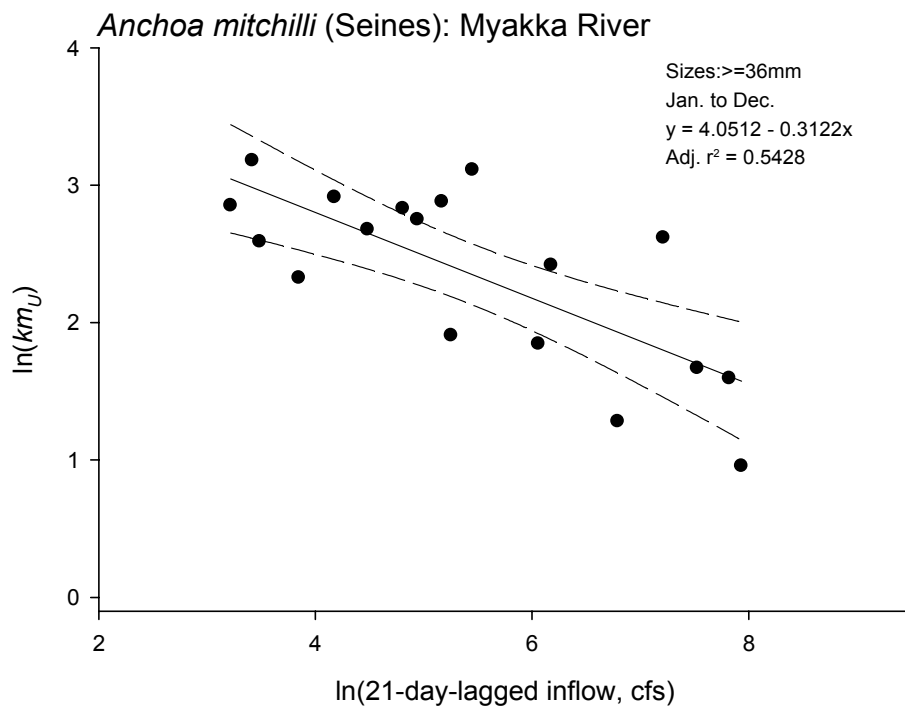


Fig. G8. Distribution response of Bay anchovy (≥ 36 mm) in the Myakka River estuary to 21-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

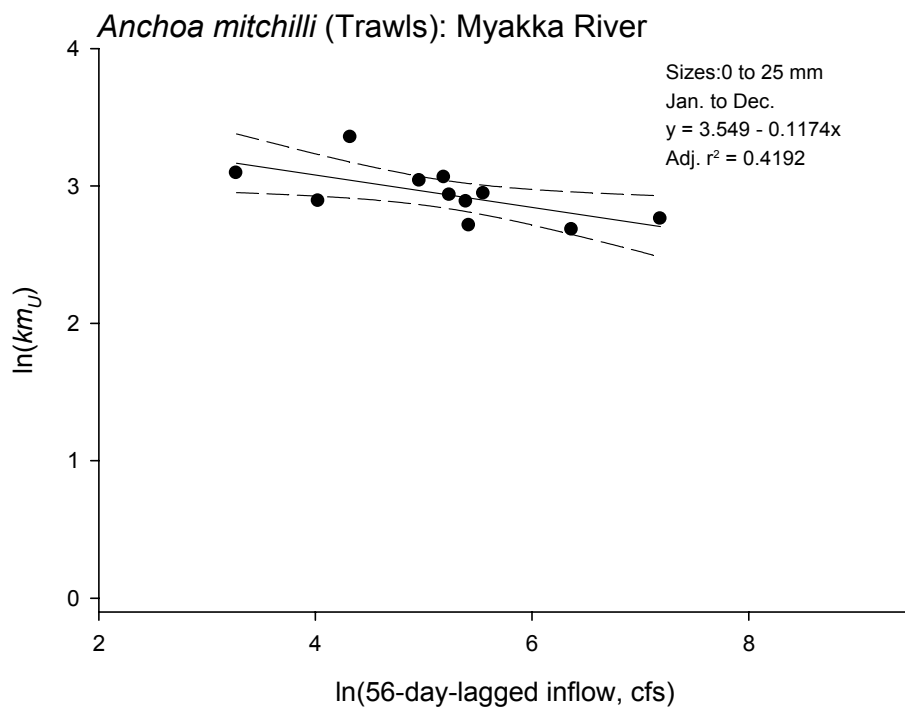


Fig. G9. Distribution response of Bay anchovy (≤ 25 mm) in the Myakka River estuary to 56-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

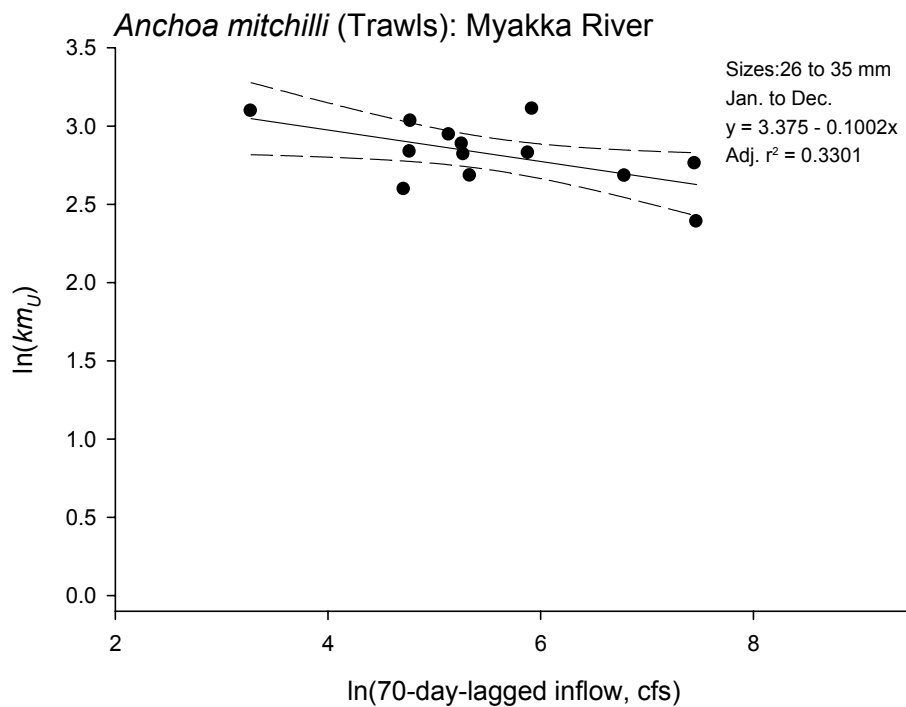


Fig. G10. Distribution response of Bay anchovy (26 to 35 mm) in the Myakka River estuary to 70-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

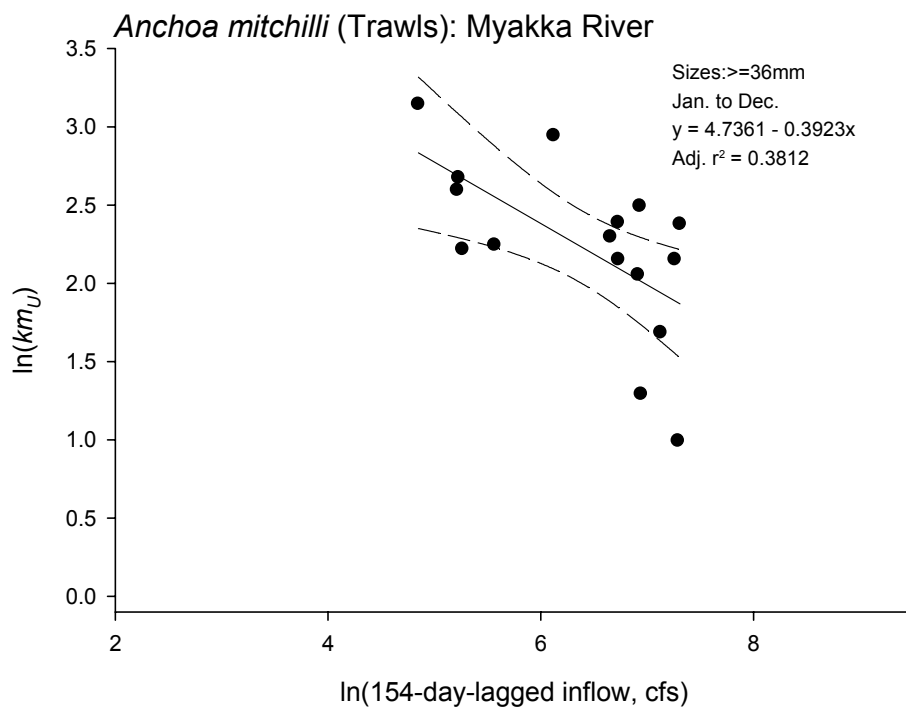


Fig. G11. Distribution response of Bay anchovy (≥ 36 mm) in the Myakka River estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

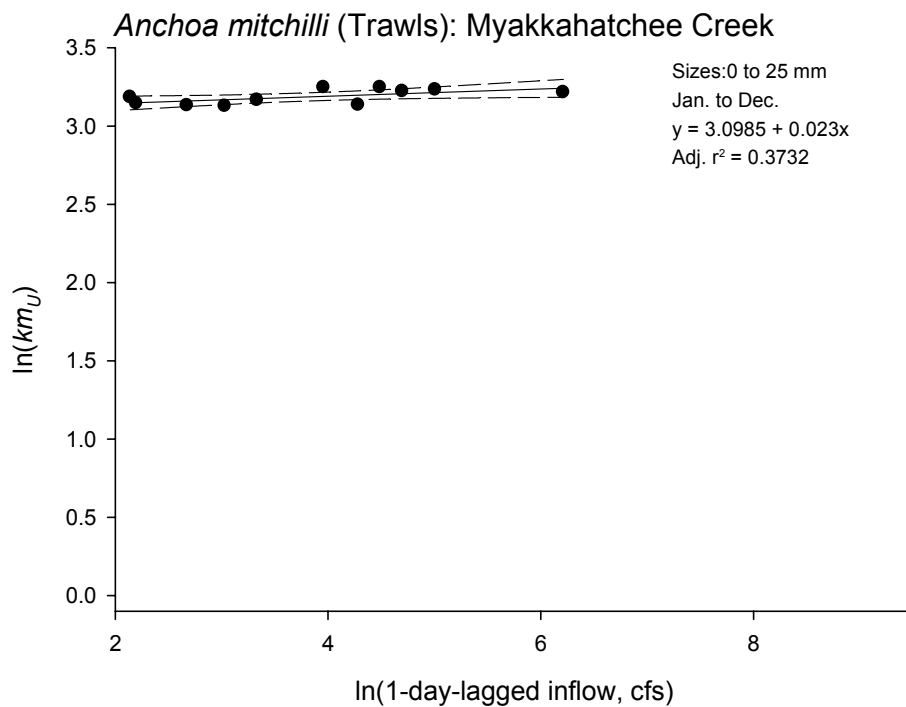


Fig. G12. Distribution response of Bay anchovy (≤ 25 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

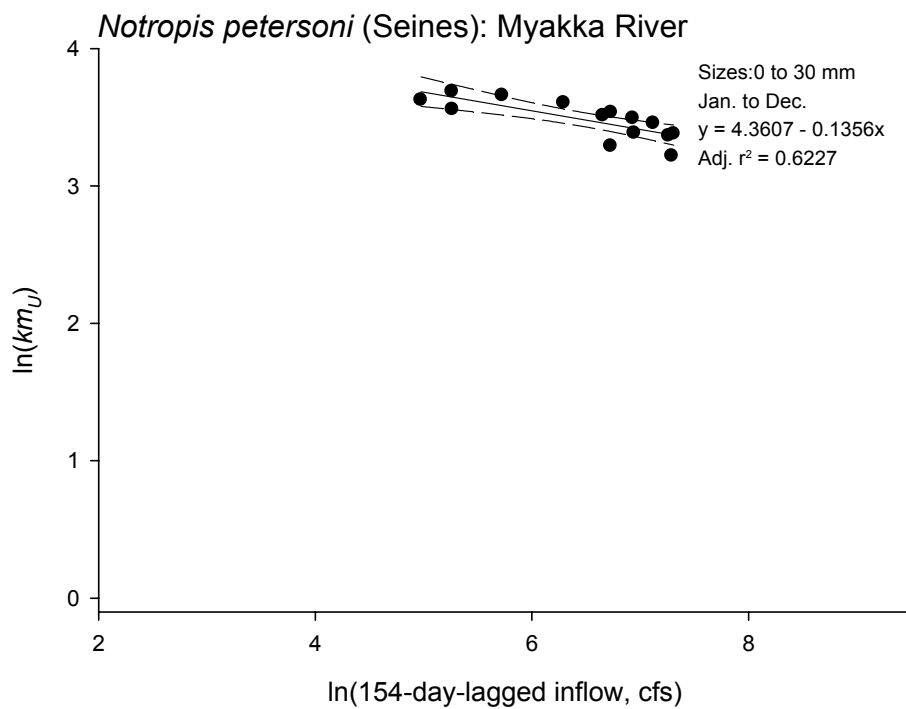


Fig. G13. Distribution response of Coastal shiner (≤ 30 mm) in the Myakka River estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

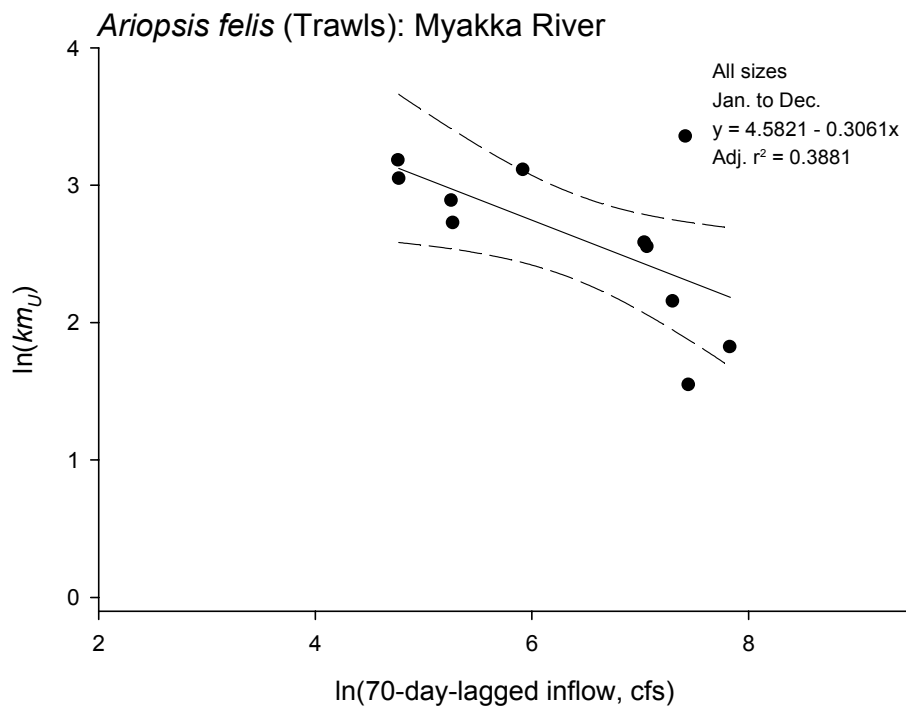


Fig. G14. Distribution response of Hardhead catfish (All sizes) in the Myakka River estuary to 70-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

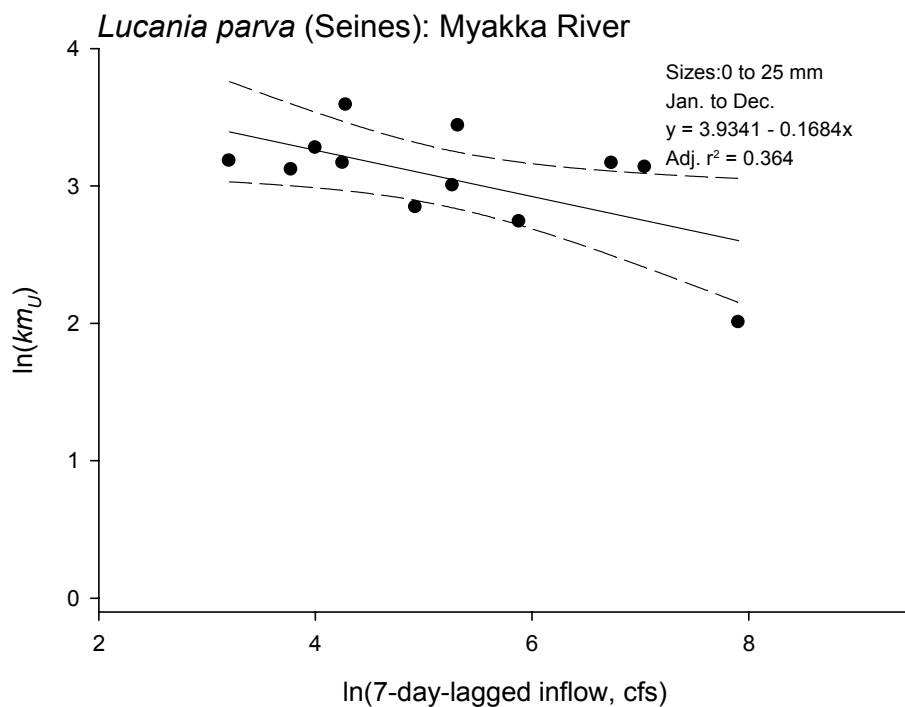


Fig. G15. Distribution response of Rainwater killifish (≤ 25 mm) in the Myakka River estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

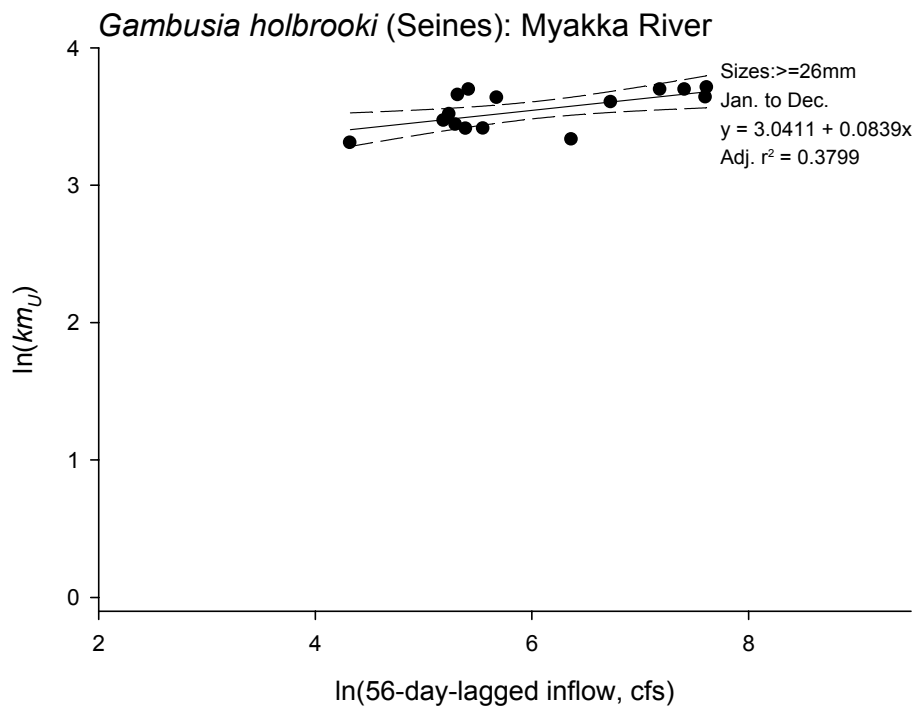


Fig. G16. Distribution response of Eastern mosquitofish (≥ 26 mm) in the Myakka River estuary to 56-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

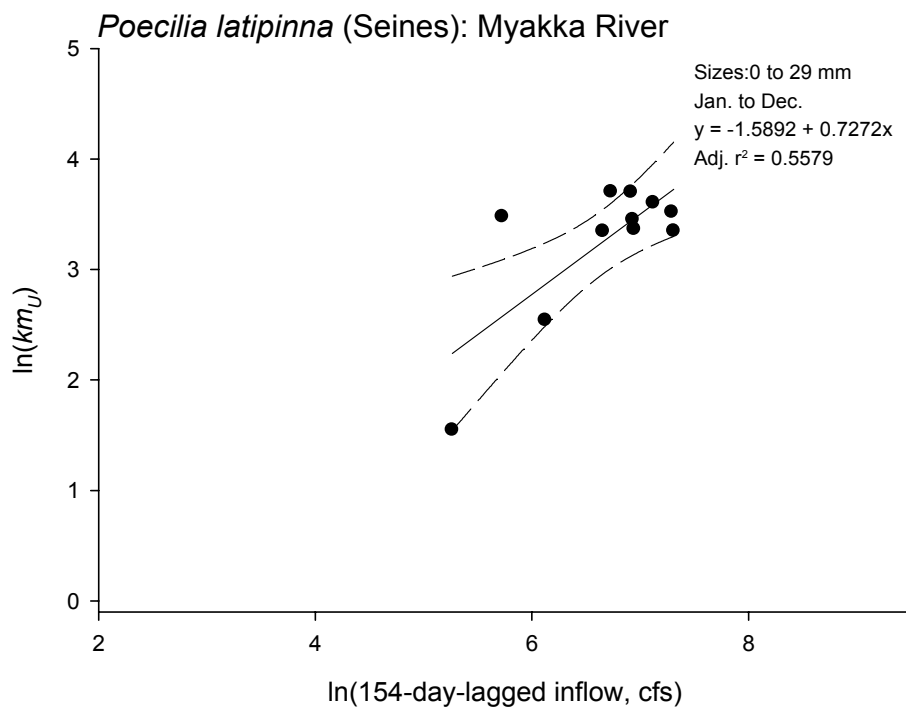


Fig. G17. Distribution response of Sailfin molly (≤ 29 mm) in the Myakka River estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

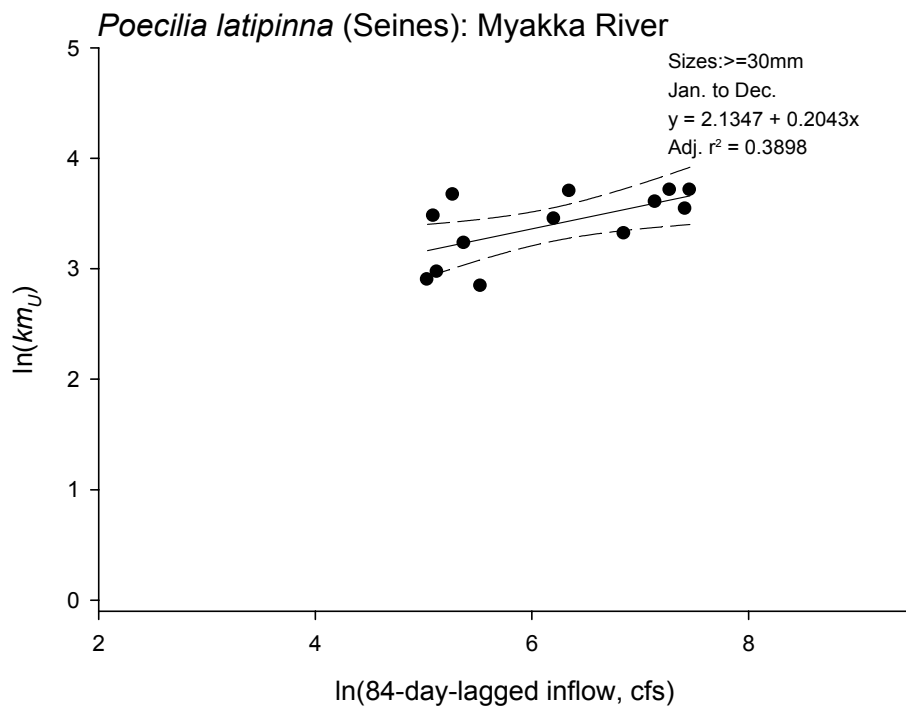


Fig. G18. Distribution response of Sailfin molly (≥ 30 mm) in the Myakka River estuary to 84-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

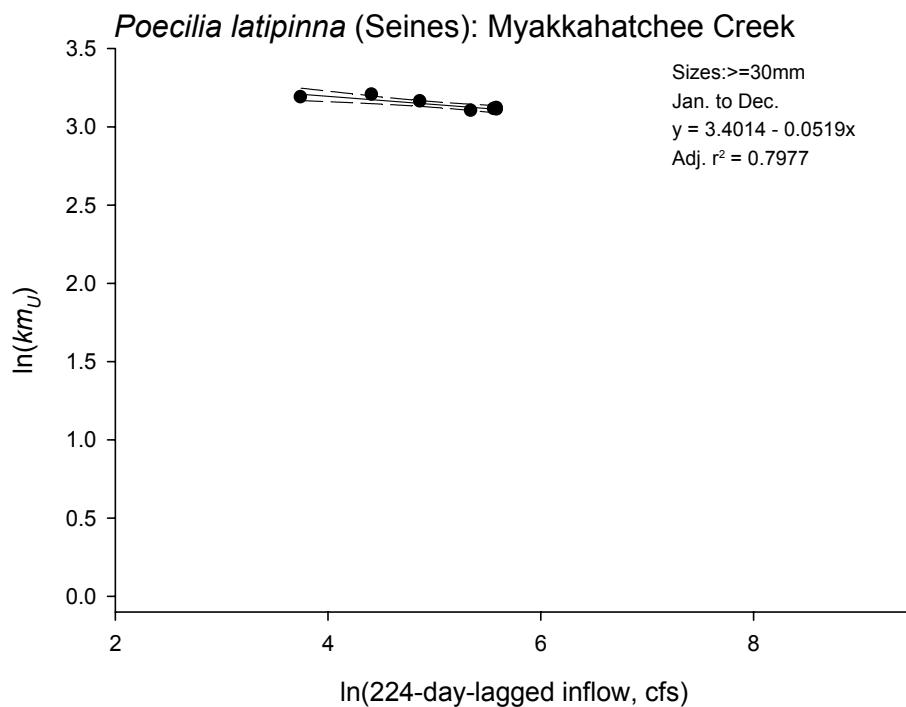


Fig. G19. Distribution response of Sailfin molly (≥ 30 mm) in the Myakkahatchee Creek estuary to 224-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

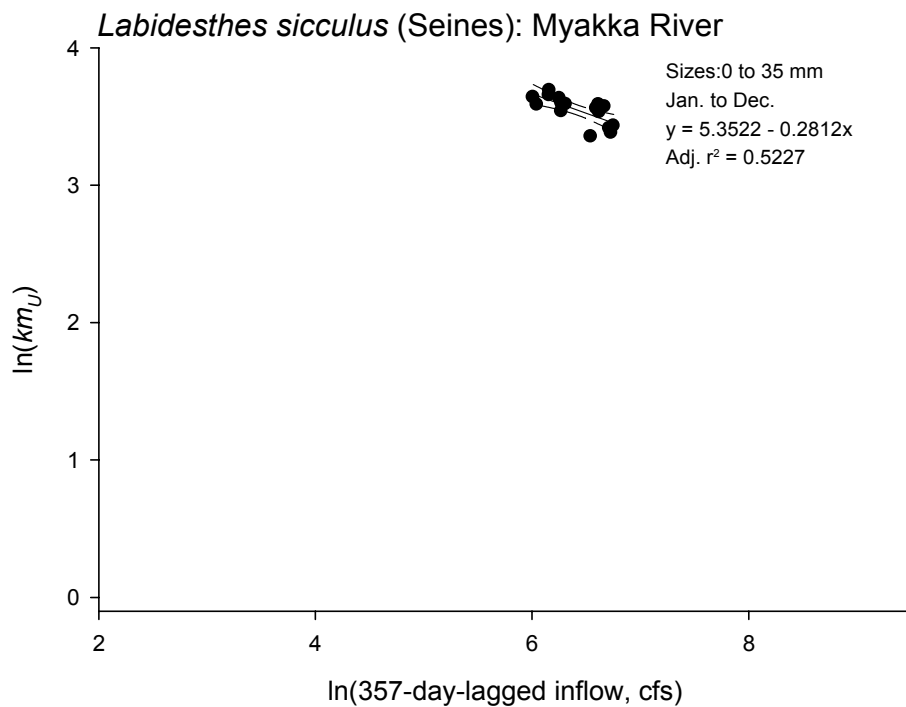


Fig. G20. Distribution response of Brook silverside (≤ 35 mm) in the Myakka River estuary to 357-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

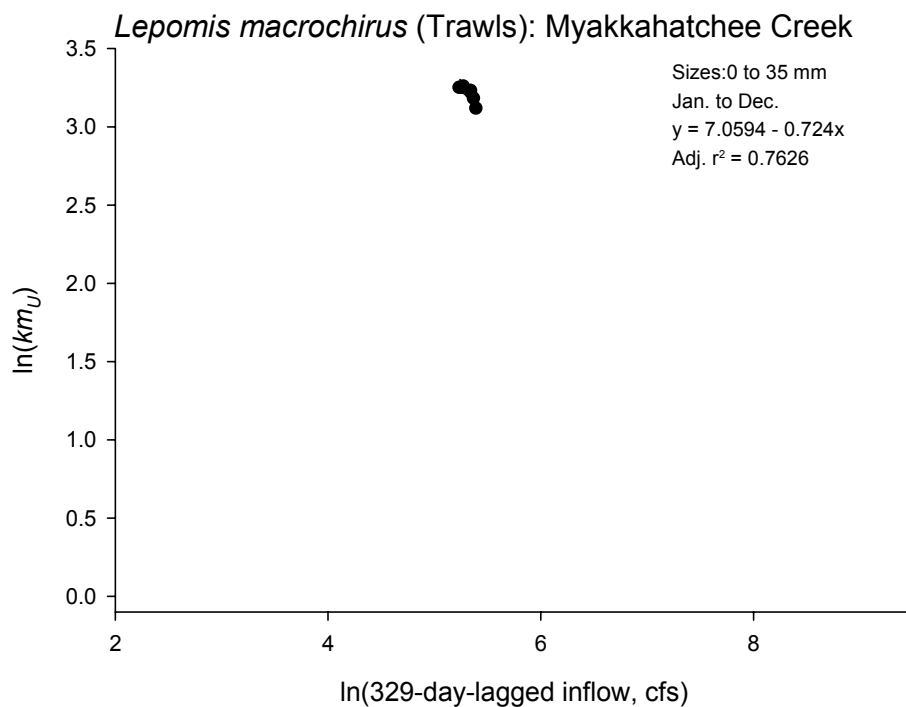


Fig. G21. Distribution response of Bluegill (≤ 35 mm) in the Myakkahatchee Creek estuary to 329-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

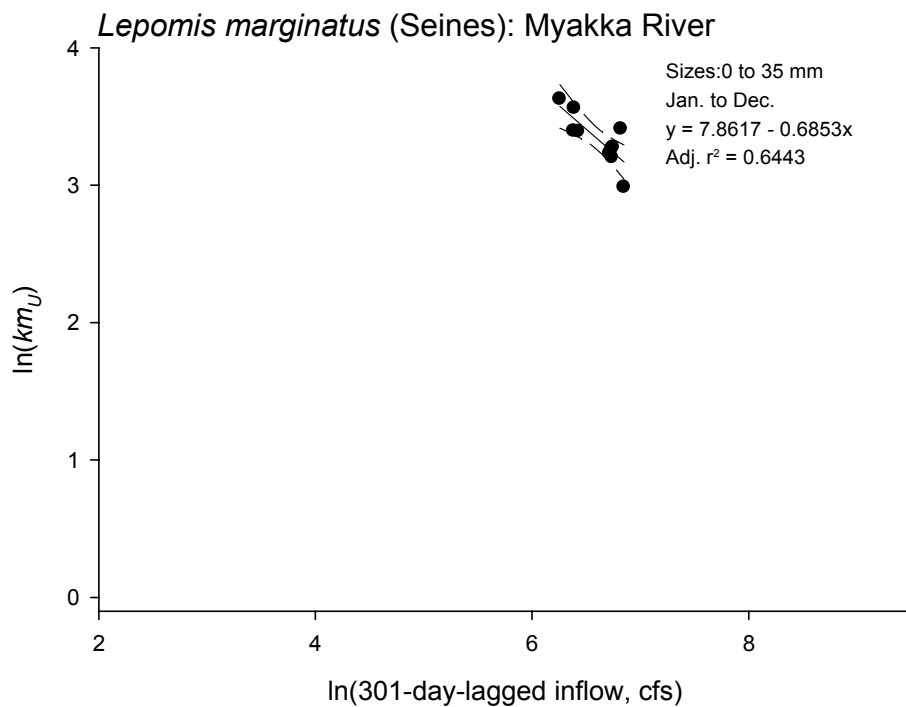


Fig. G22. Distribution response of Dollar sunfish (≤ 35 mm) in the Myakka River estuary to 301-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

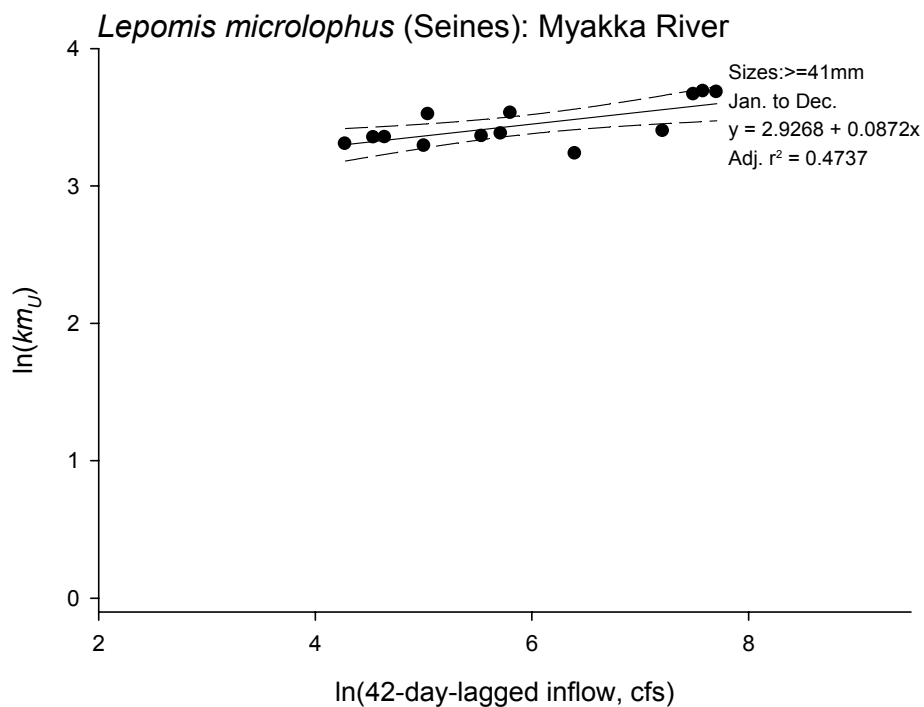


Fig. G23. Distribution response of Redear sunfish (≥ 41 mm) in the Myakka River estuary to 42-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

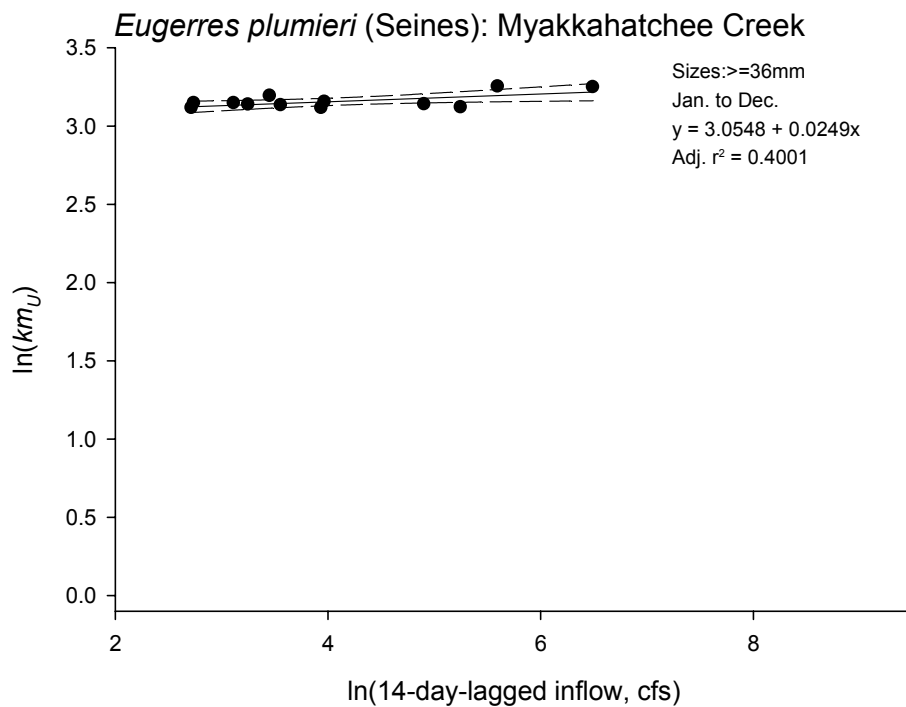


Fig. G24. Distribution response of Striped mojarra (≥ 36 mm) in the Myakkahatchee Creek estuary to 14-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

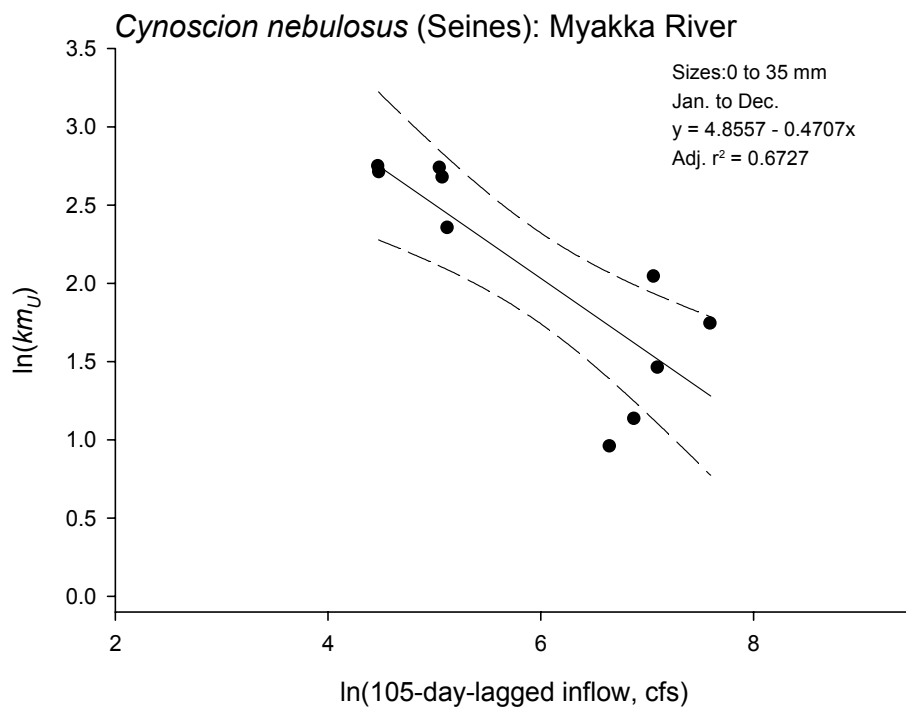


Fig. G25. Distribution response of Spotted seatrout (≤ 35 mm) in the Myakka River estuary to 105-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

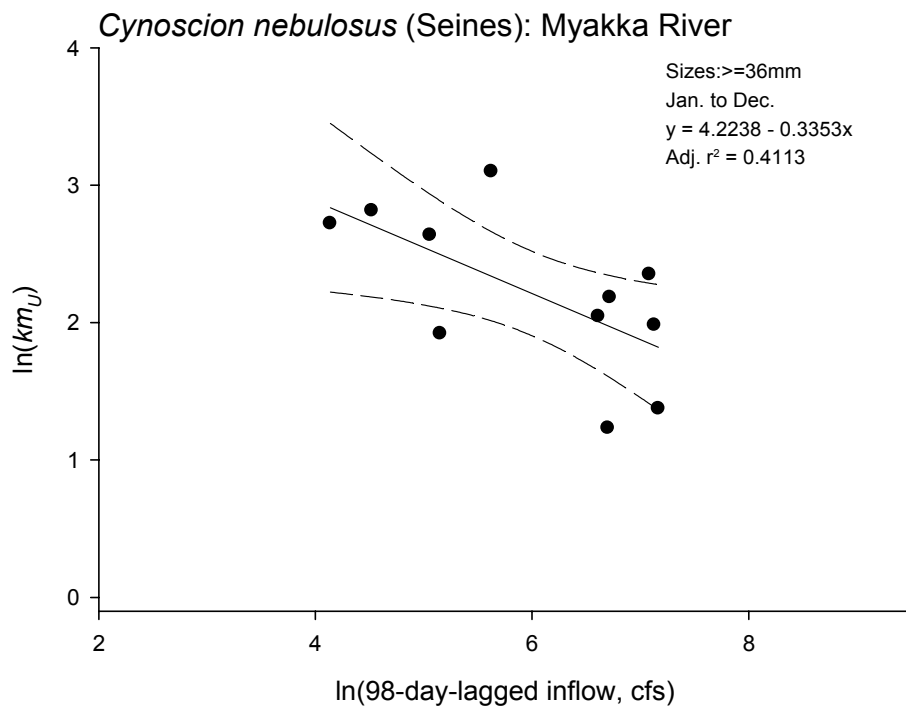


Fig. G26. Distribution response of Spotted seatrout (≥ 36 mm) in the Myakka River estuary to 98-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

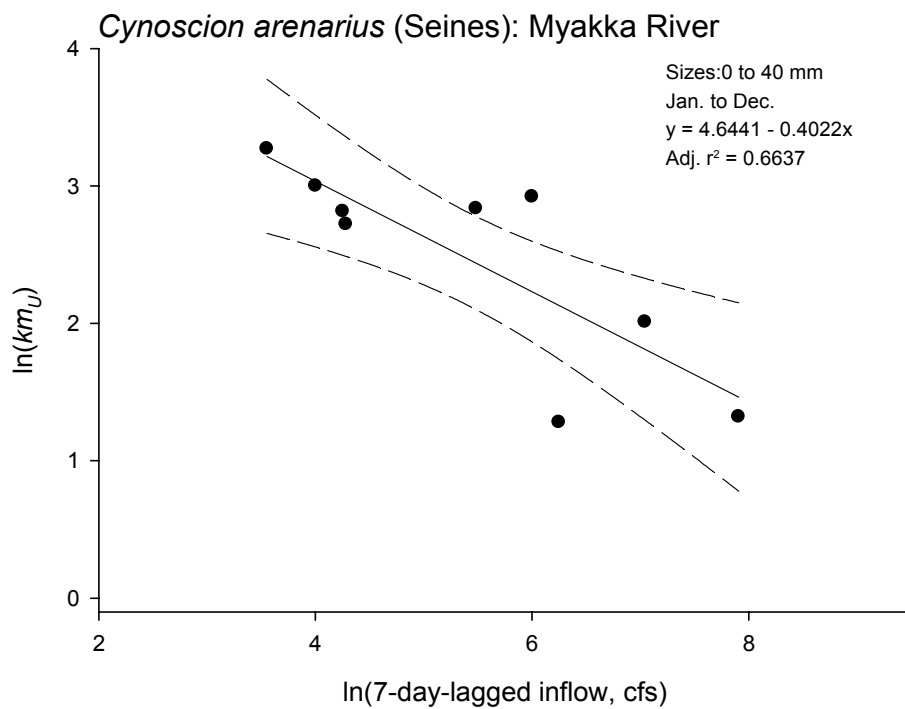


Fig. G27. Distribution response of Sand seatrout (≤ 40 mm) in the Myakka River estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

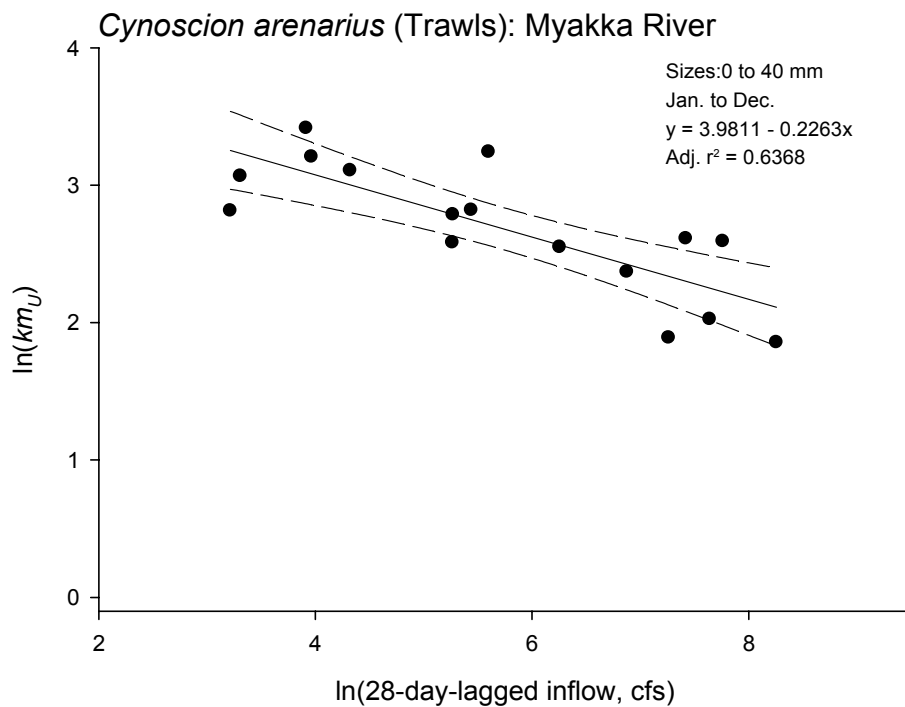


Fig. G28. Distribution response of Sand seatrout (≤ 40 mm) in the Myakka River estuary to 28-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

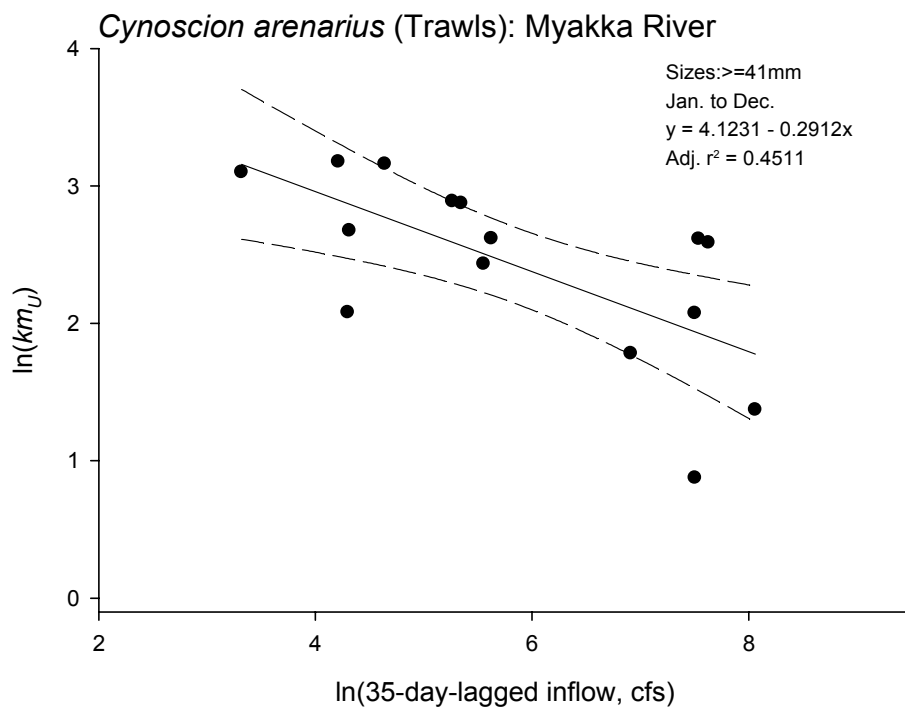


Fig. G29. Distribution response of Sand seatrout (≥ 41 mm) in the Myakka River estuary to 35-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

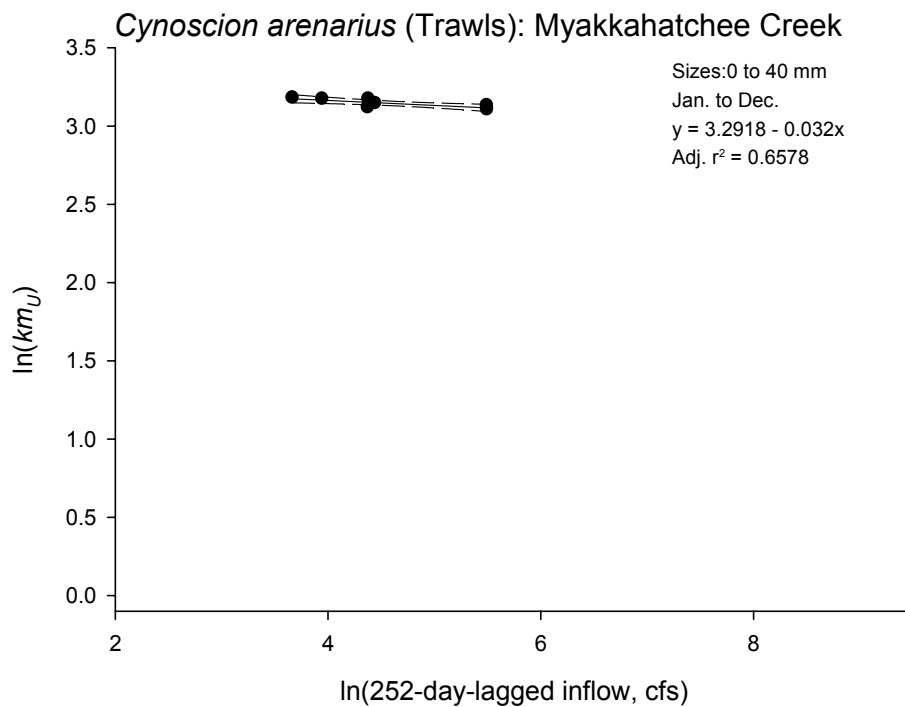


Fig. G30. Distribution response of Sand seatrout (≤ 40 mm) in the Myakkahatchee Creek estuary to 252-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

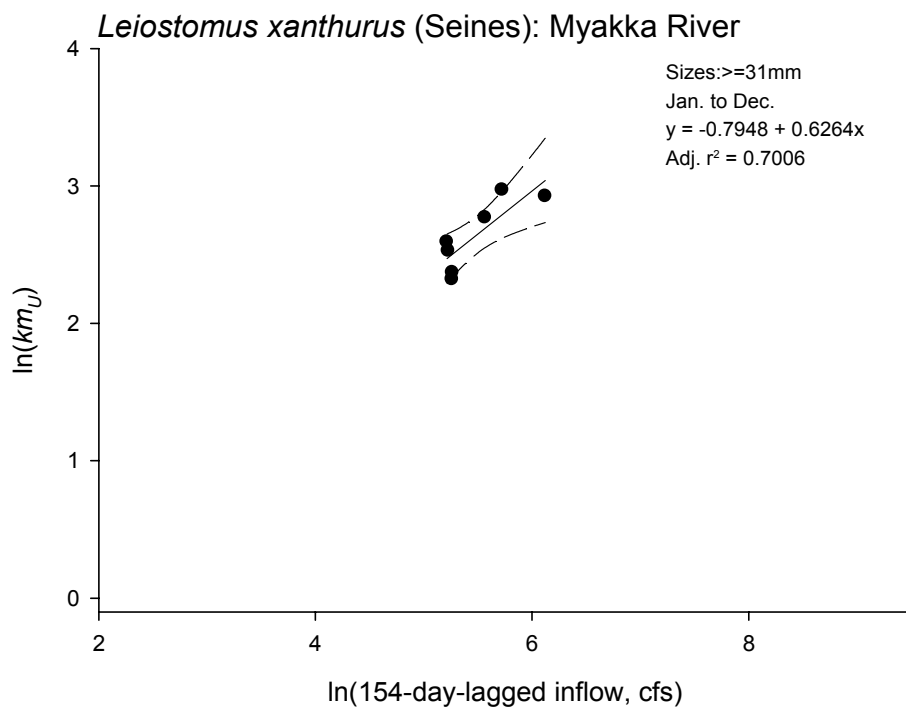


Fig. G31. Distribution response of Spot (≥ 31 mm) in the Myakka River estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

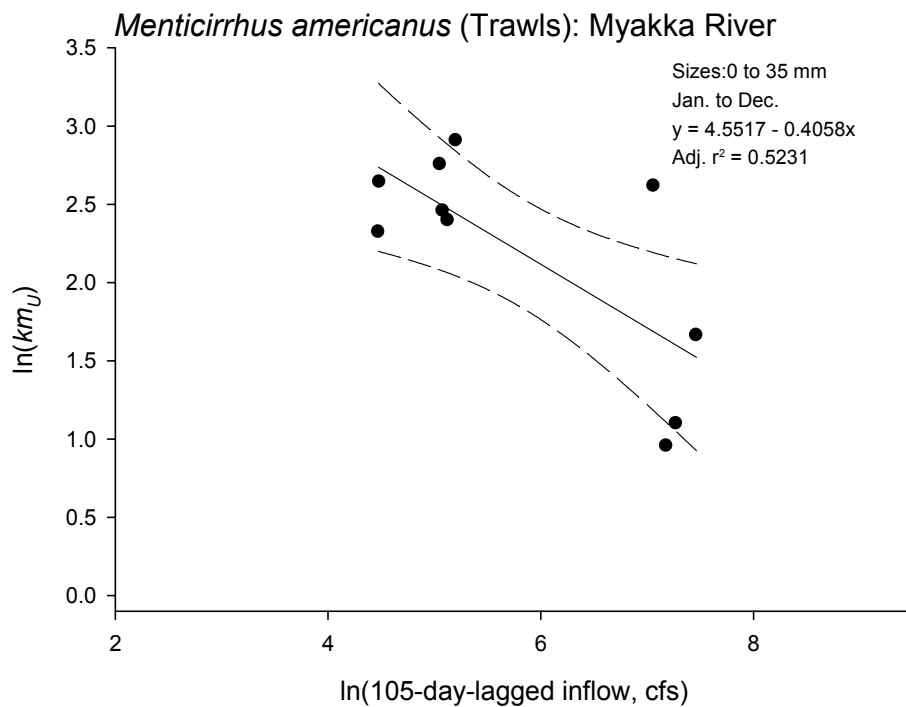


Fig. G32. Distribution response of Southern kingfish (≤ 35 mm) in the Myakka River estuary to 105-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

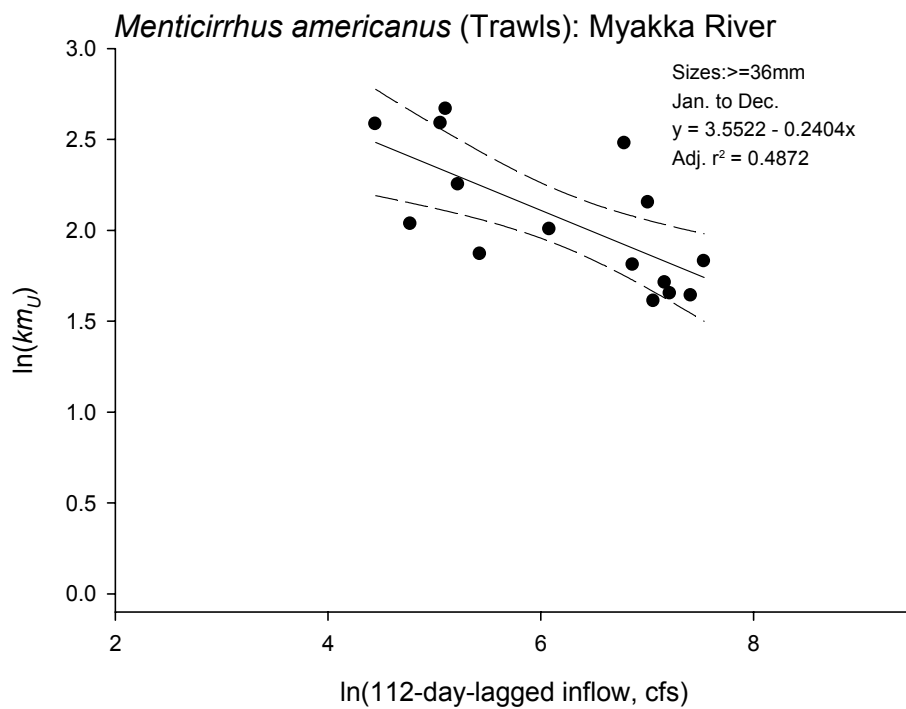


Fig. G33. Distribution response of Southern kingfish (≥ 36 mm) in the Myakka River estuary to 112-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

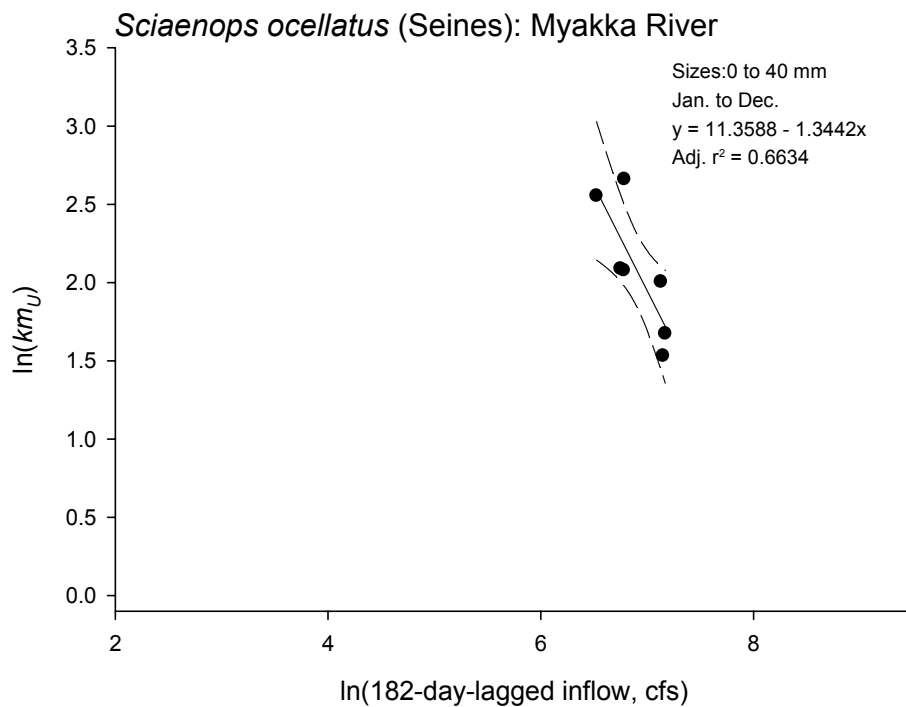


Fig. G34. Distribution response of Red drum (≤ 40 mm) in the Myakka River estuary to 182-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

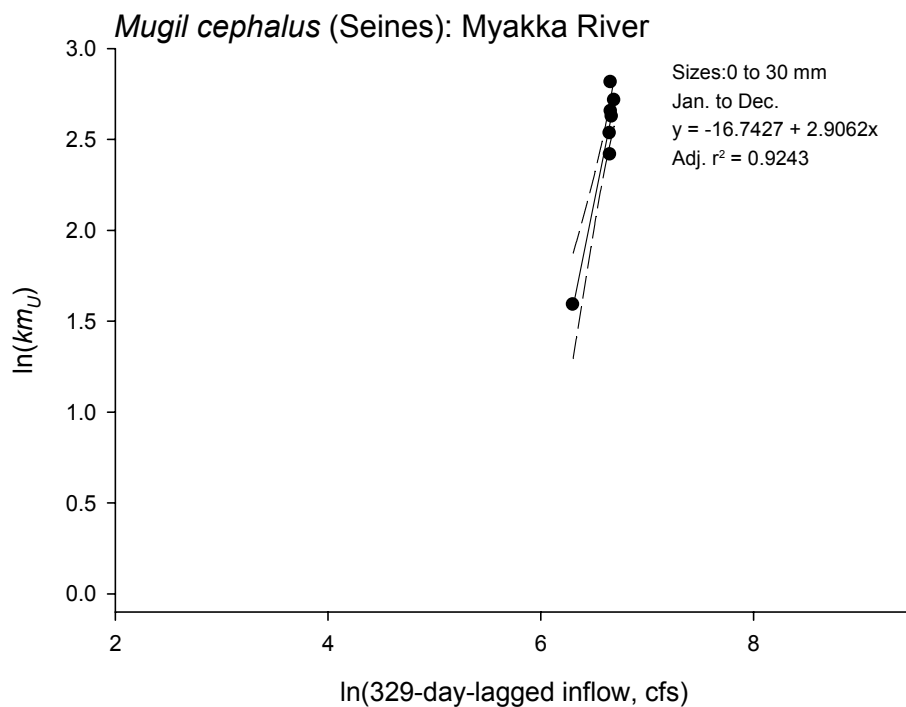


Fig. G35. Distribution response of Striped mullet (≤ 30 mm) in the Myakka River estuary to 329-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

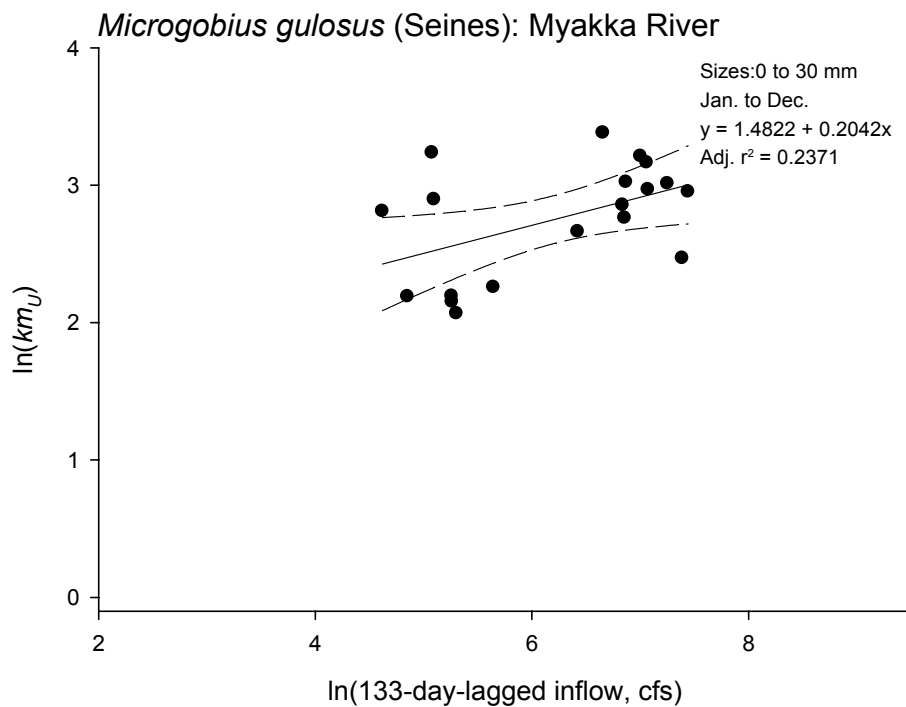


Fig. G36. Distribution response of Clown goby (≤ 30 mm) in the Myakka River estuary to 133-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

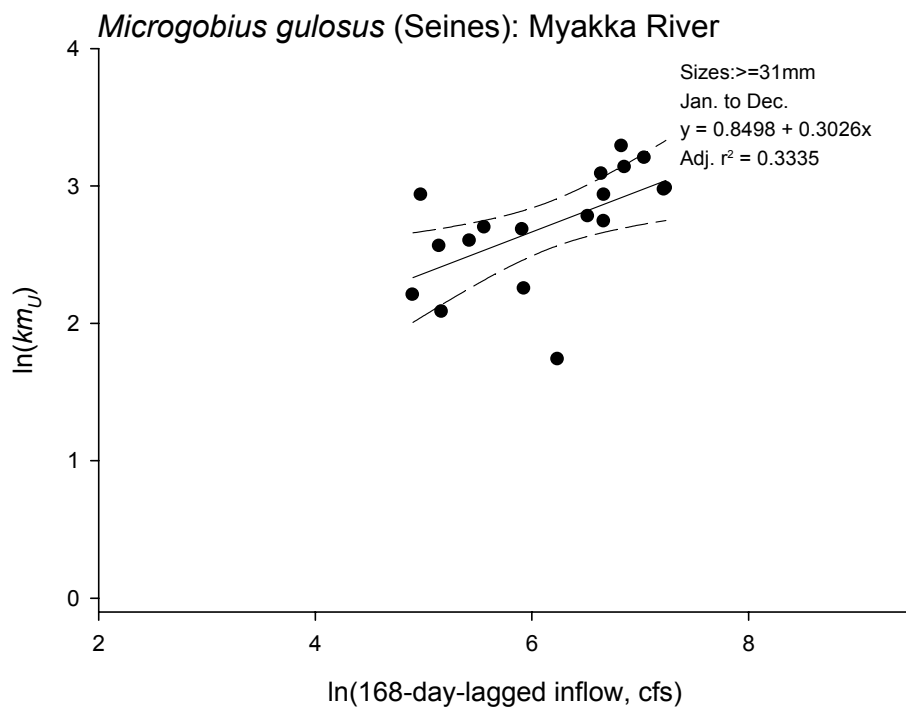


Fig. G37. Distribution response of Clown goby (≥ 31 mm) in the Myakka River estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

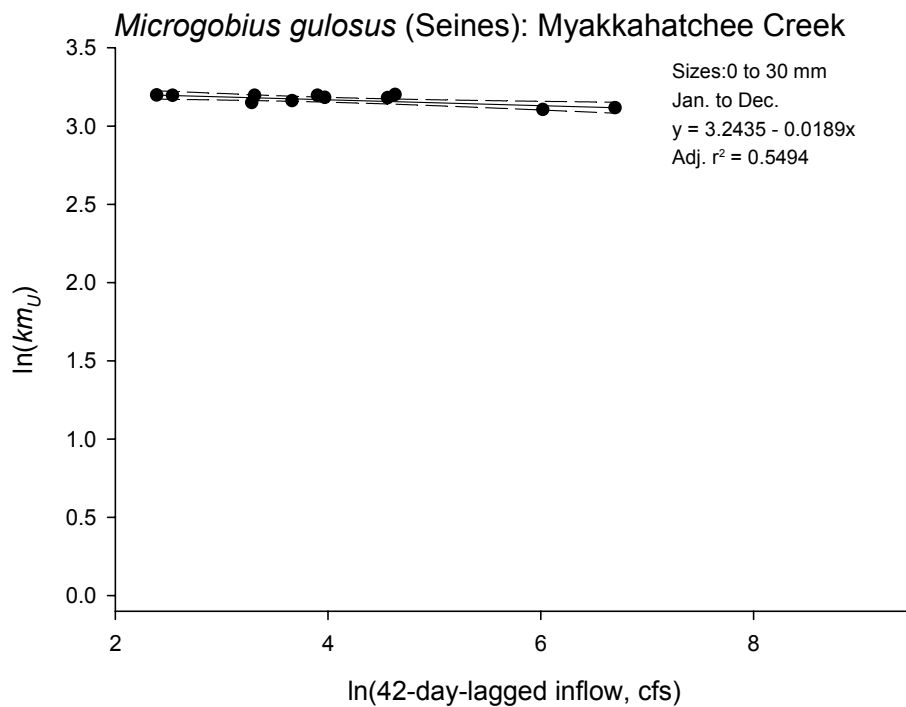


Fig. G38. Distribution response of Clown goby (≤ 30 mm) in the Myakkahatchee Creek estuary to 42-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

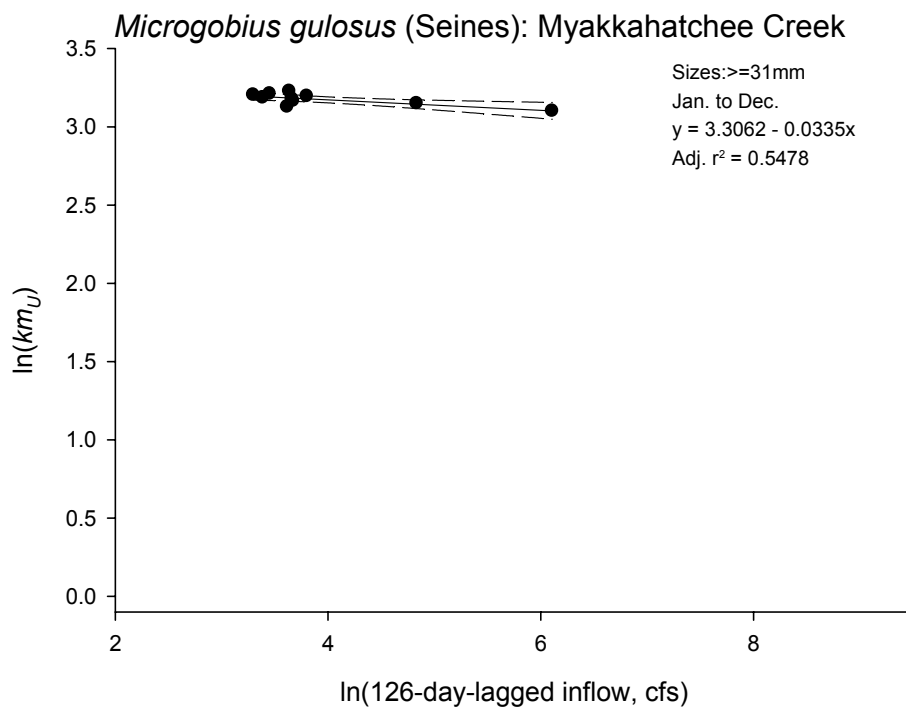


Fig. G39. Distribution response of Clown goby (≥ 31 mm) in the Myakkahatchee Creek estuary to 126-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

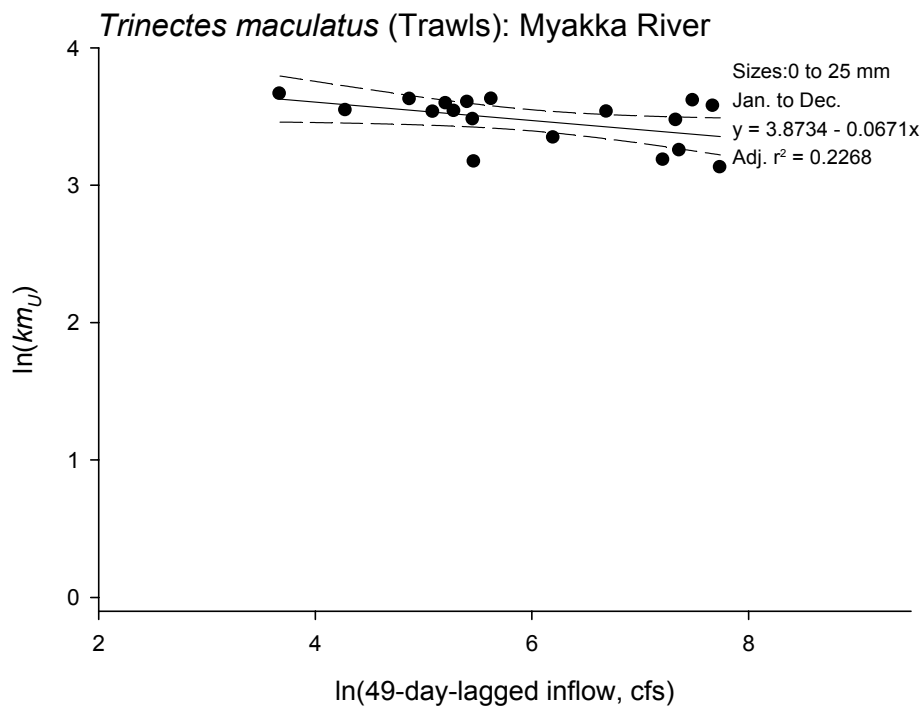


Fig. G40. Distribution response of Hogchoker (≤ 25 mm) in the Myakka River estuary to 49-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

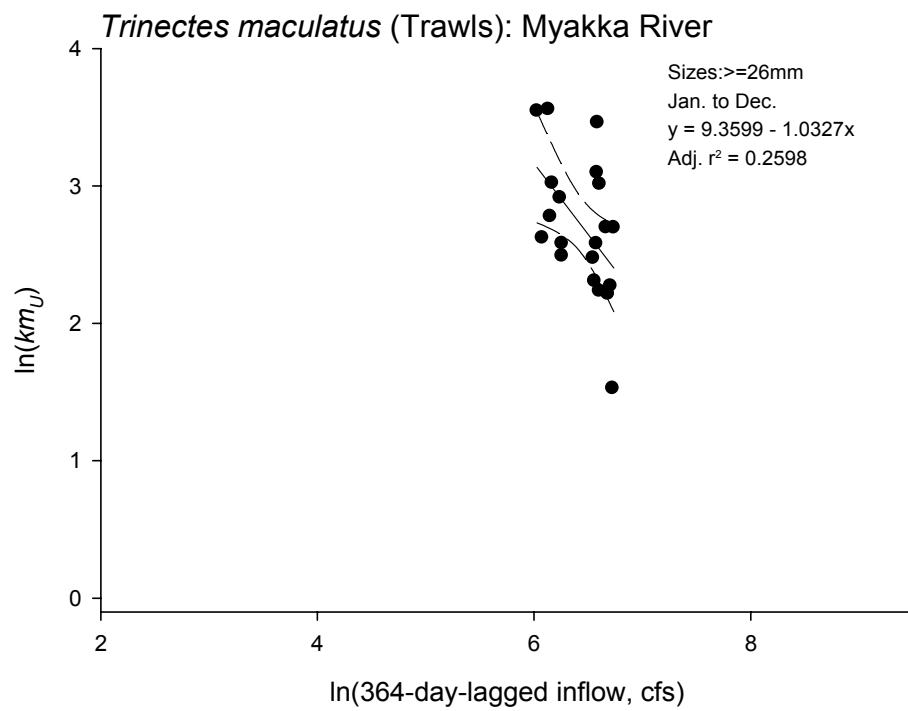


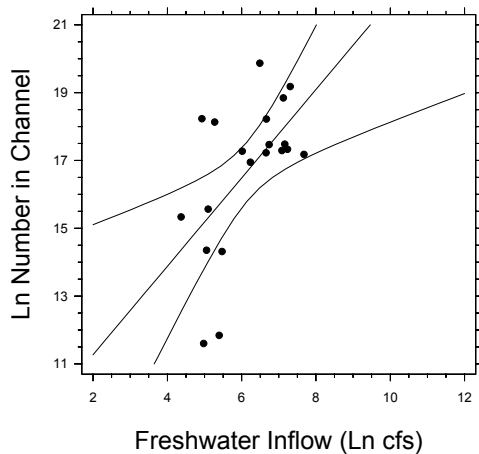
Fig. G41. Distribution response of Hogchoker (≥ 26 mm) in the Myakka River estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

Appendix H:

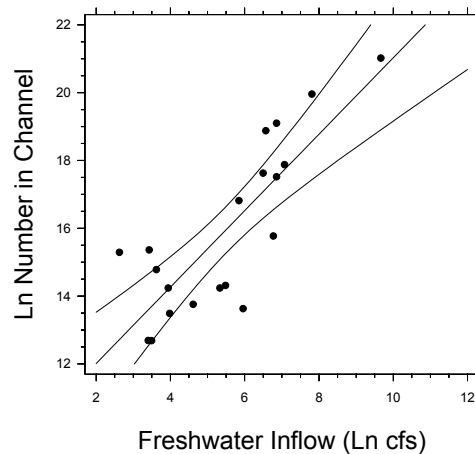
Plots of the plankton-net abundance responses in Table 3.8.1.1

MYAKKA RIVER

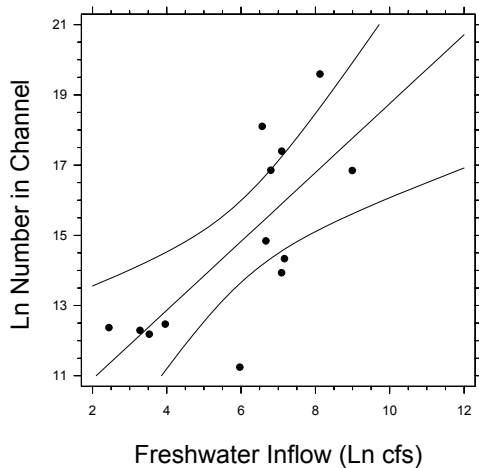
Anchoa mitchilli adults



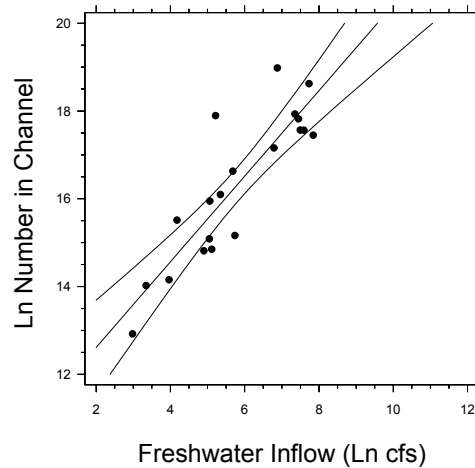
dipteran, *Chaoborus punctipennis*



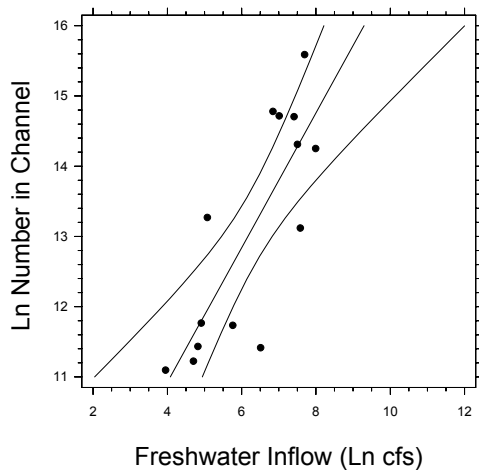
Ilyocryptus sp.



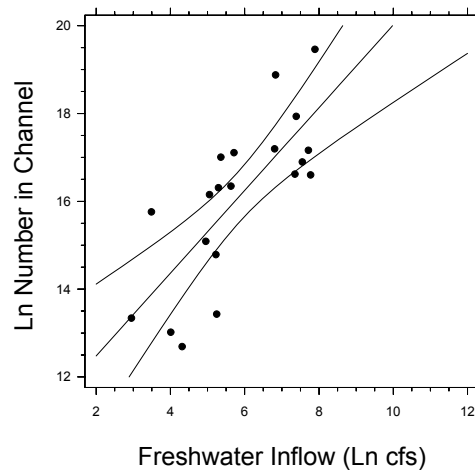
ephemeropteran larvae



Gambusia holbrooki juveniles

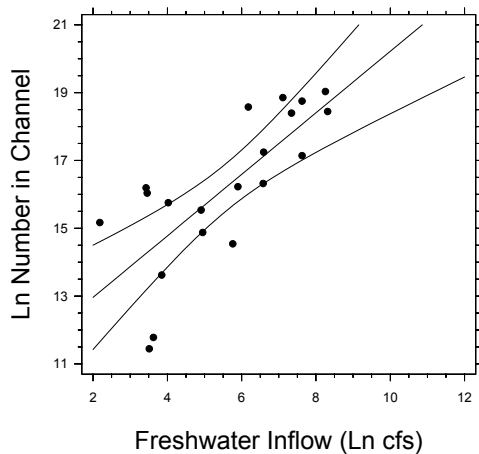


Mesocyclops edax

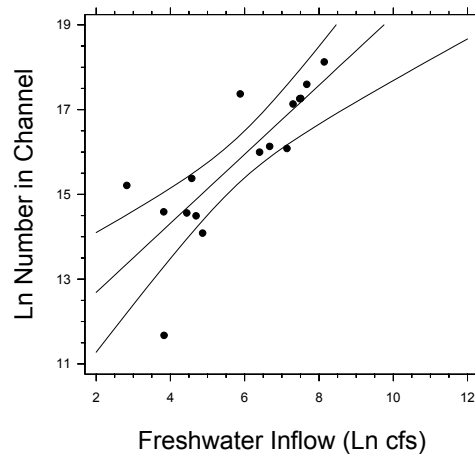


MYAKKA RIVER

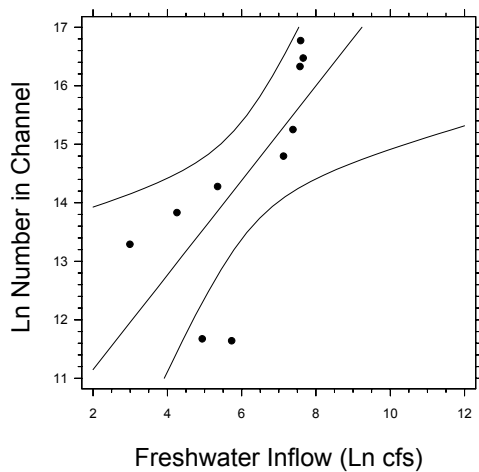
dipterans, pupae



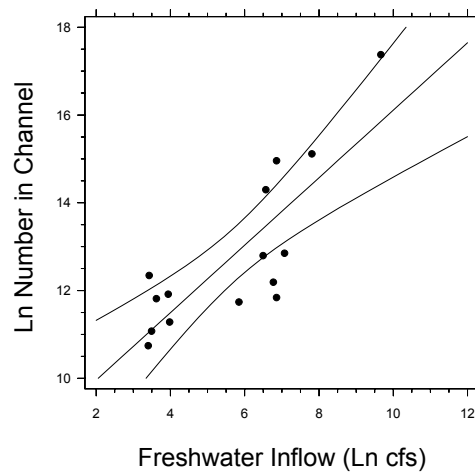
Trinectes maculatus juveniles



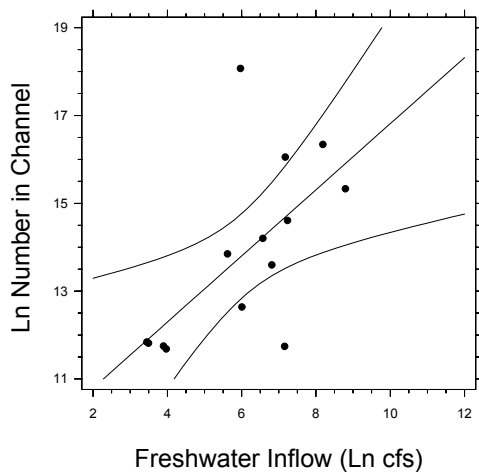
Trinectes maculatus postflexion larvae



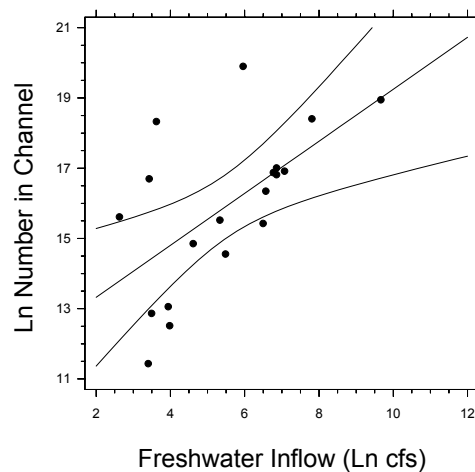
odonates, anisopteran larvae



Diaptomus spp.

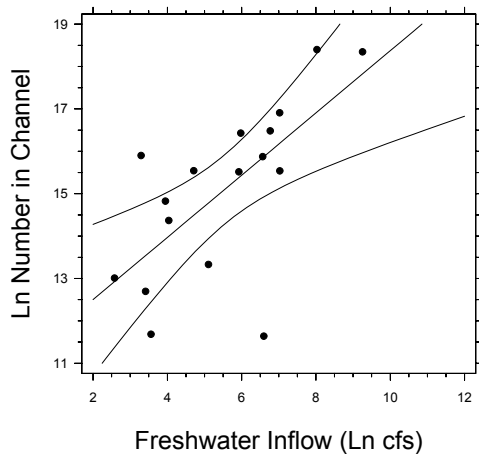


Simocephalus vetulus

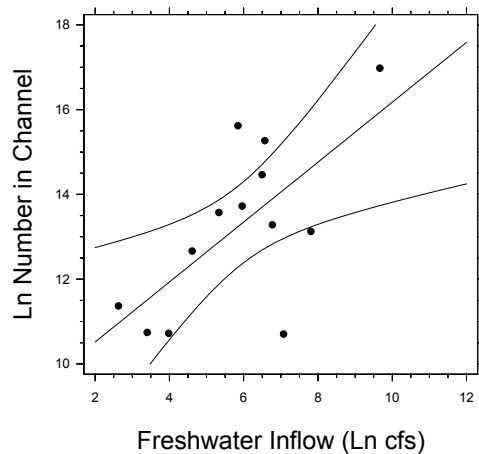


MYAKKA RIVER

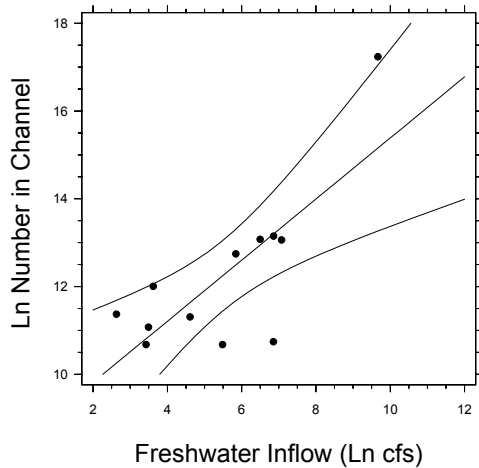
Cyathura polita



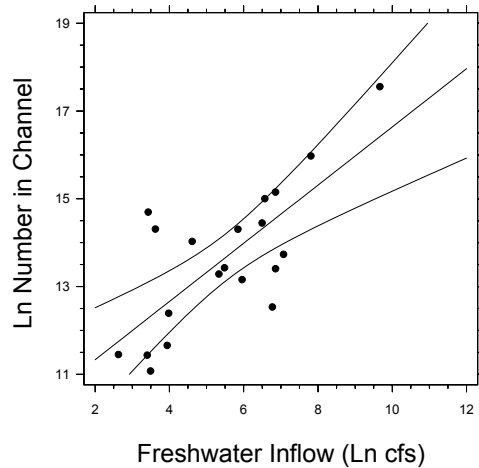
dipterans, ceratopogonid larvae



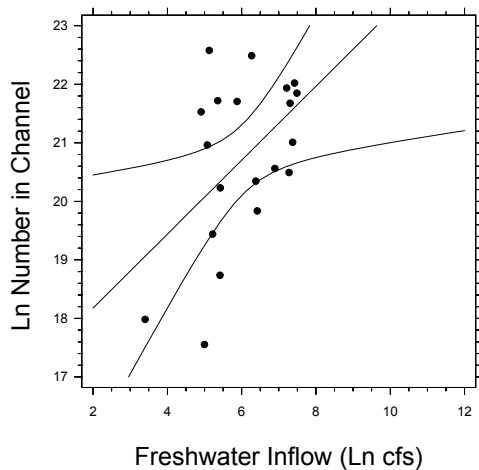
coleopterans, elmids adults



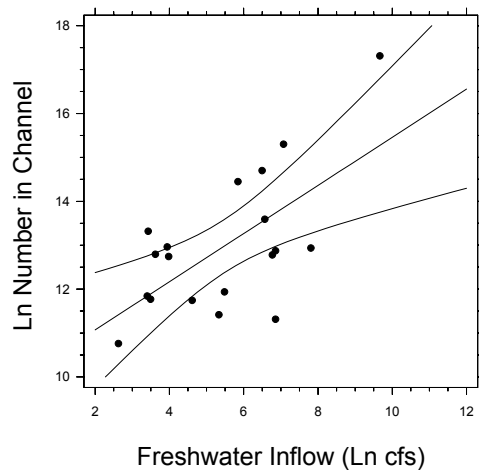
acar



unidentified Americamysis juveniles

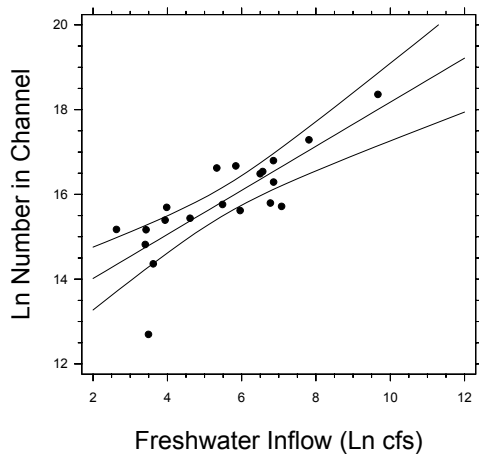


odonates, zygopteran larvae

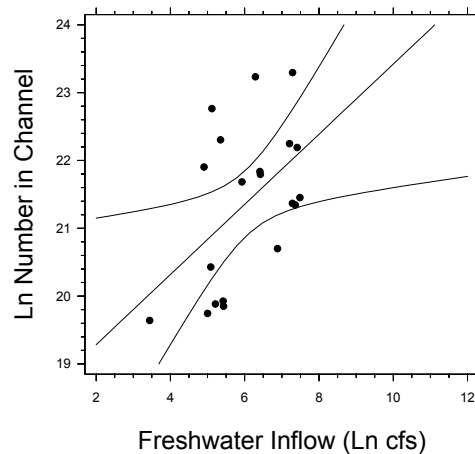


MYAKKA RIVER

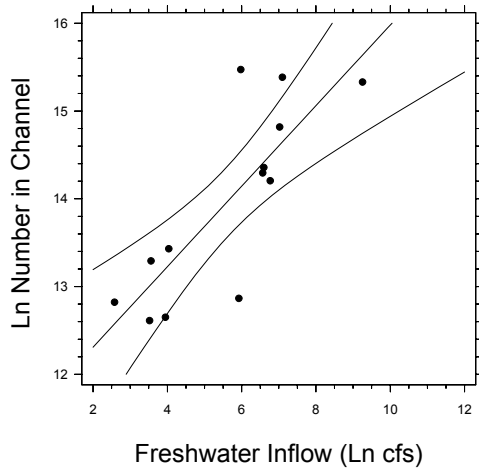
dipterans, chironomid larvae



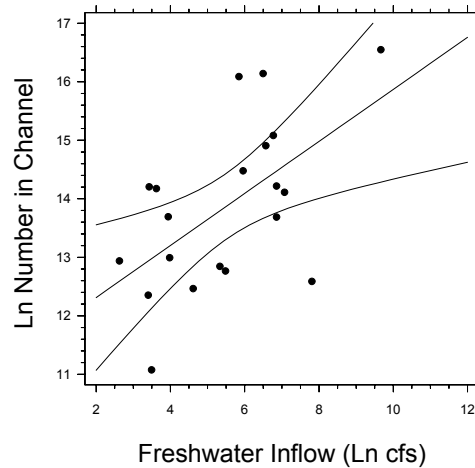
Americamysis almyra



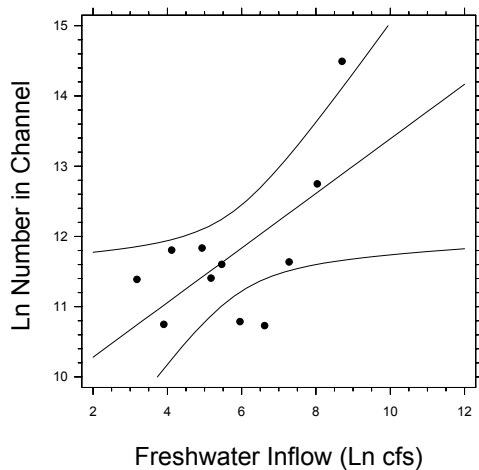
Menidia spp. juveniles



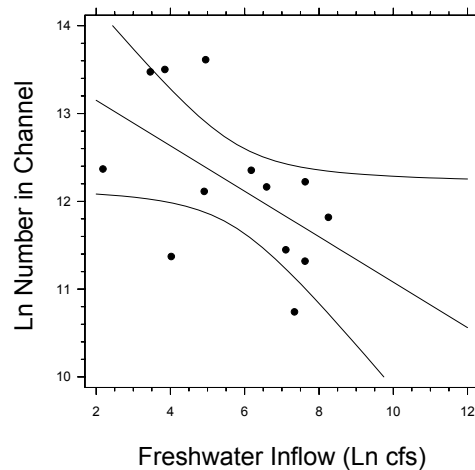
trichopteran larvae



Osphranticum labronectum

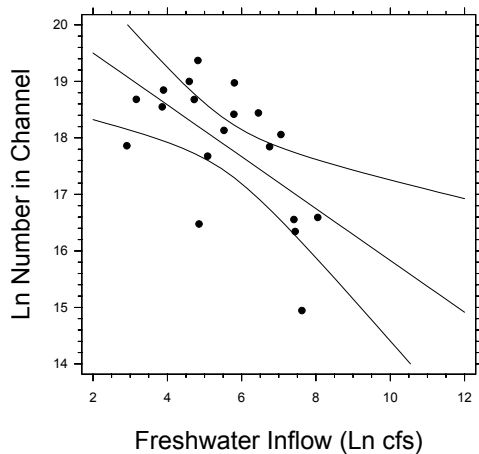


coleopterans, elmid larvae

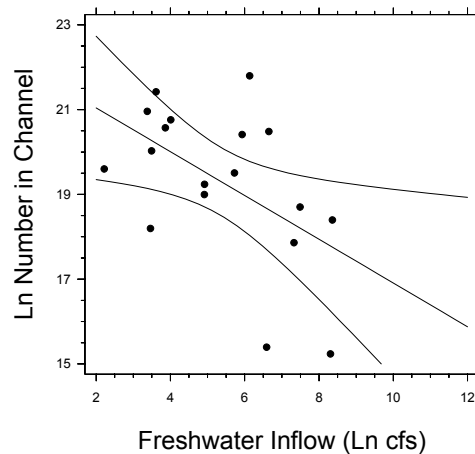


MYAKKA RIVER

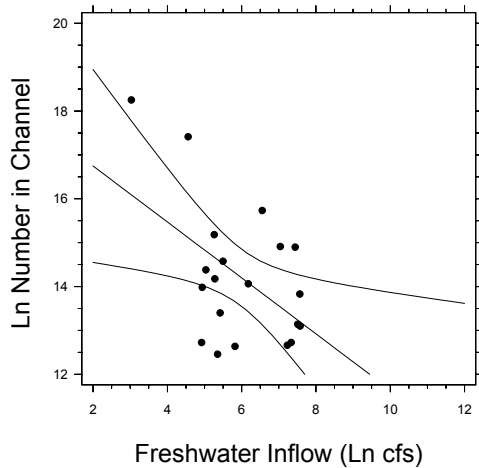
cymothoid sp. a (*Lironeca*) juveniles



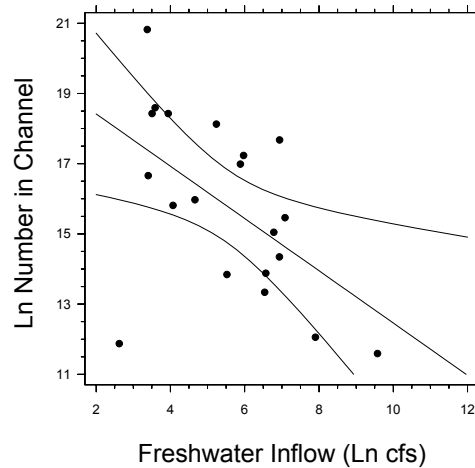
Bowmaniella dissimilis



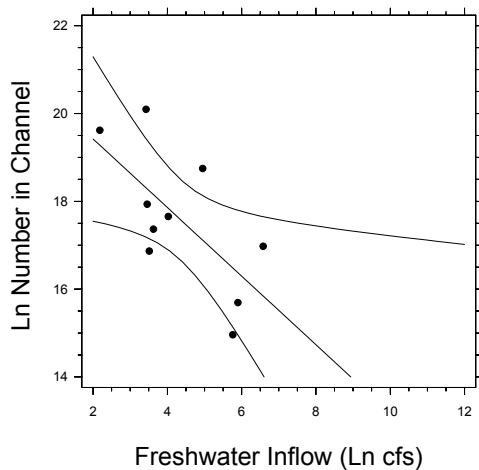
Sphaeroma quadridentata



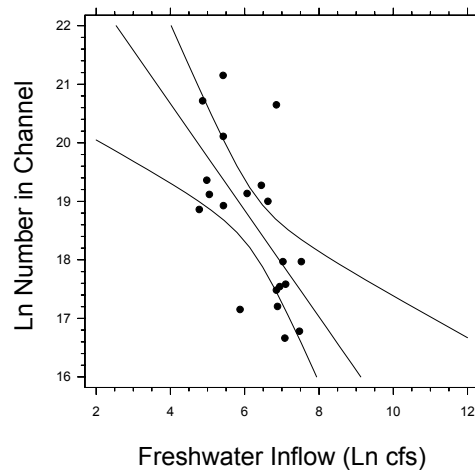
pelecypods



Hippolyte zostericola postlarvae

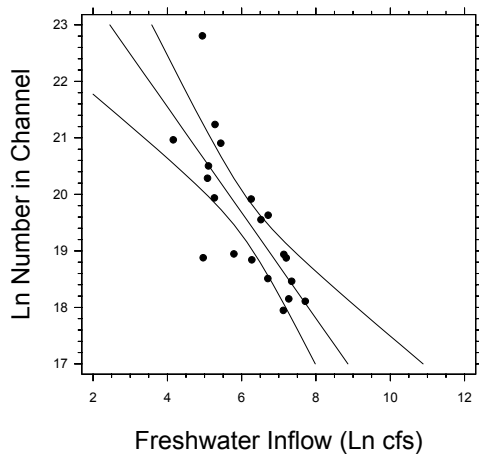


Edotea triloba

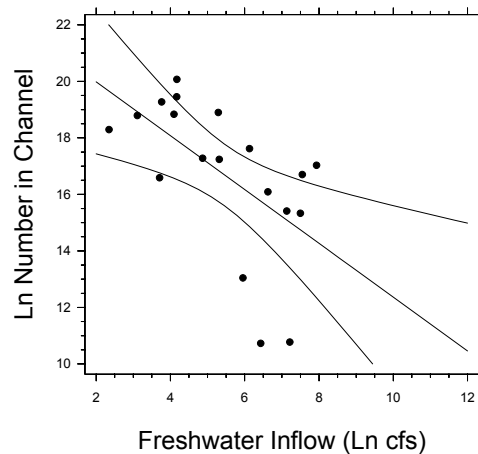


MYAKKA RIVER

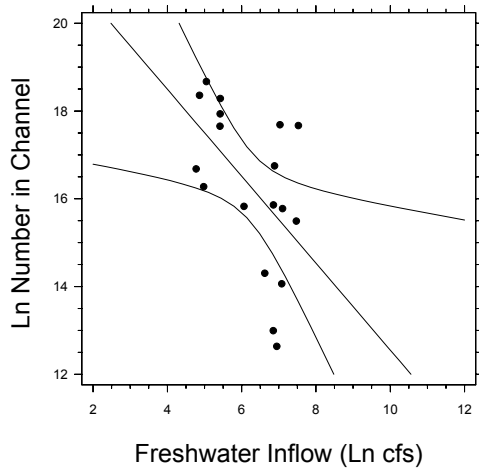
decapod mysis



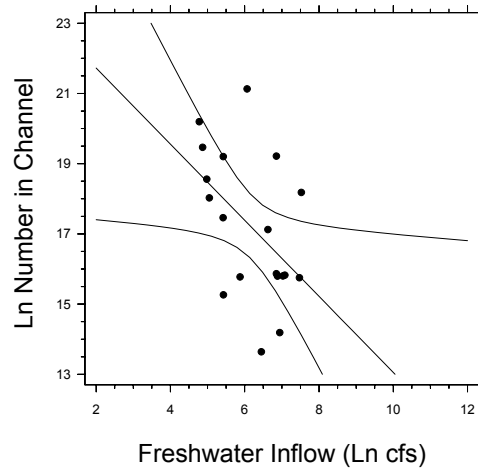
Palaemonetes spp. postlarvae



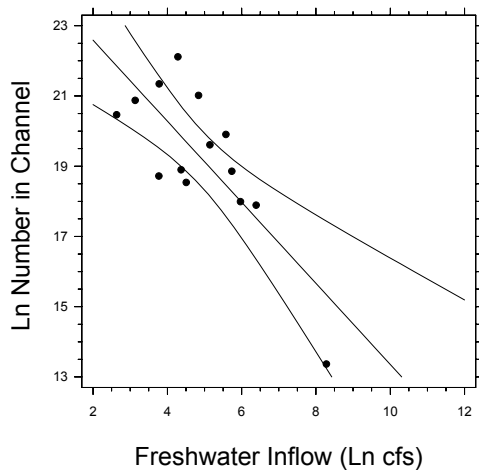
gobiid preflexion larvae



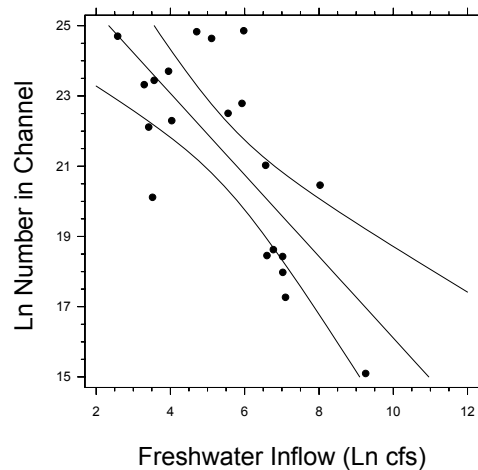
Taphromysis bowmani



Pseudodiaptomus coronatus

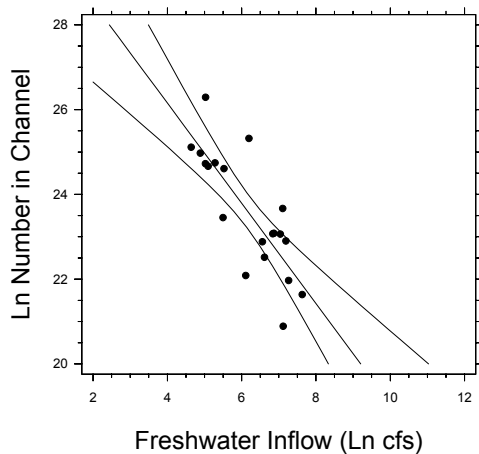


Acartia tonsa

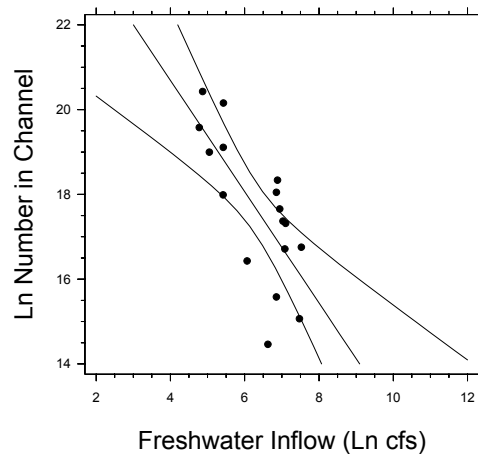


MYAKKA RIVER

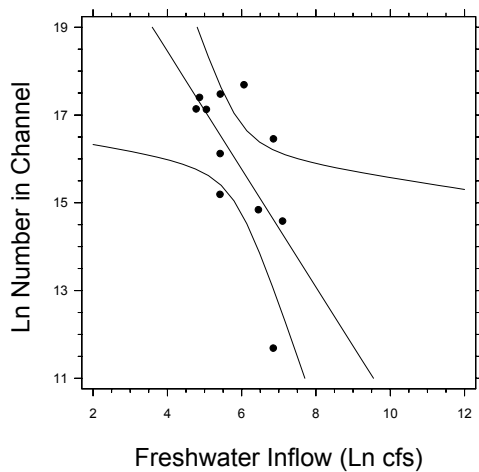
decapod zoeae



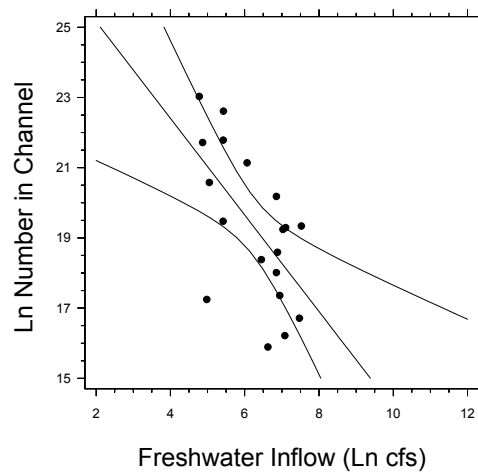
Anchoa mitchilli postflexion larvae



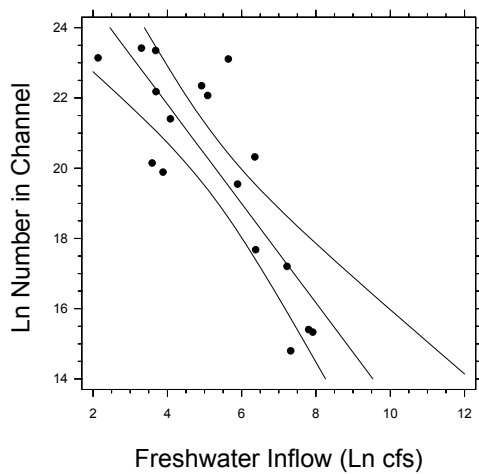
Gobiosoma spp. postflexion larvae



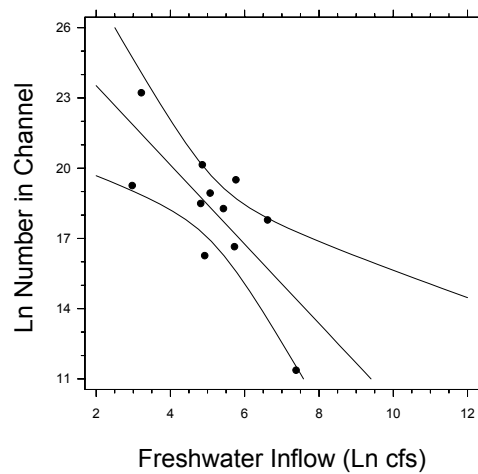
decapod megalopae



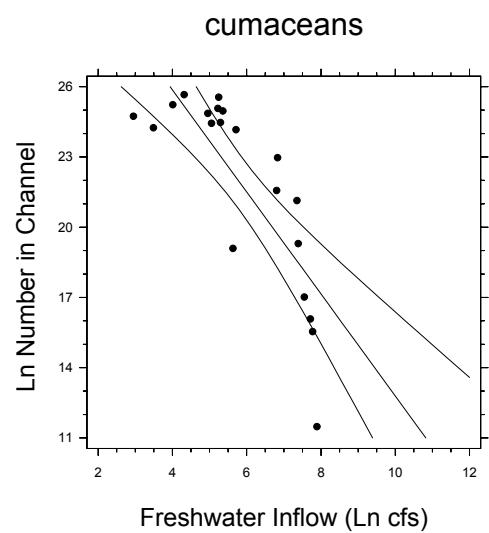
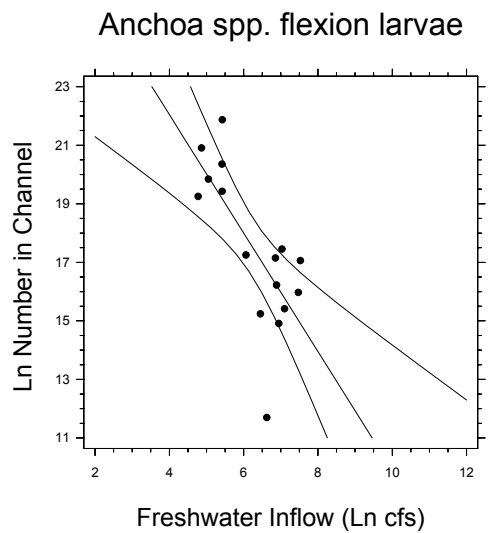
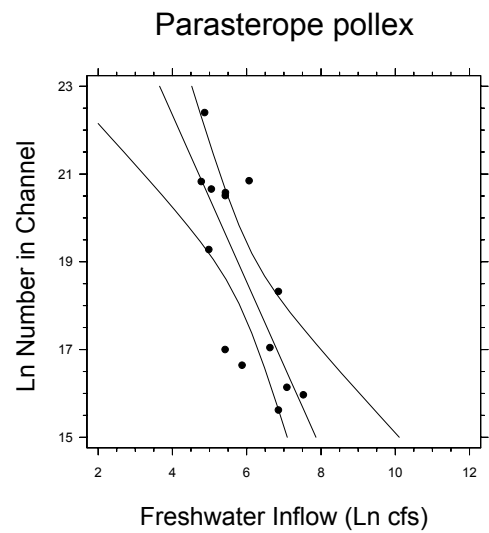
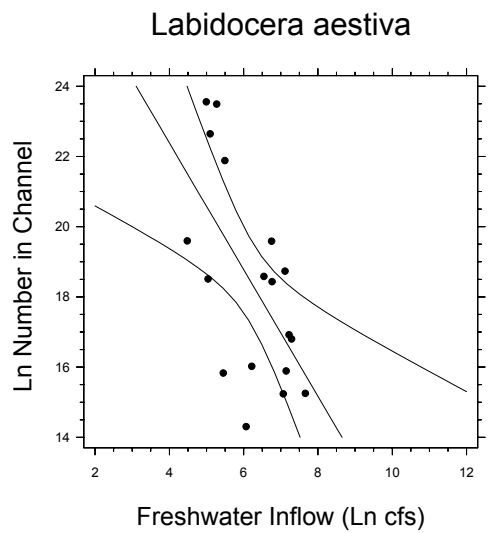
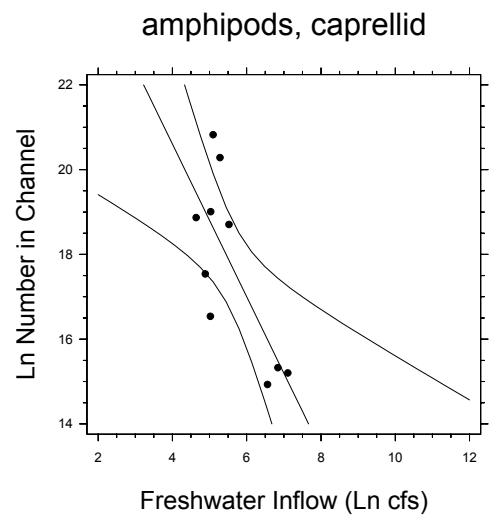
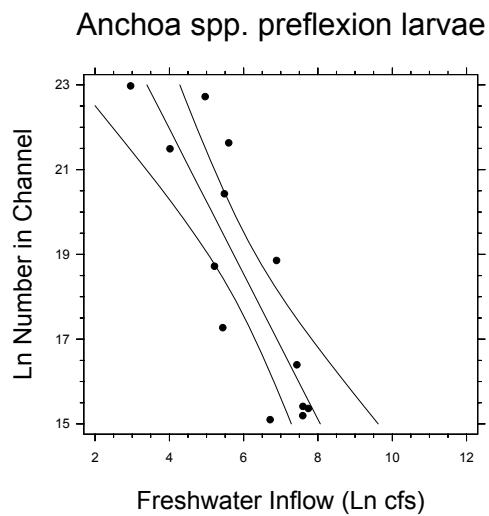
chaetognaths, sagittid



Evadne tergestina

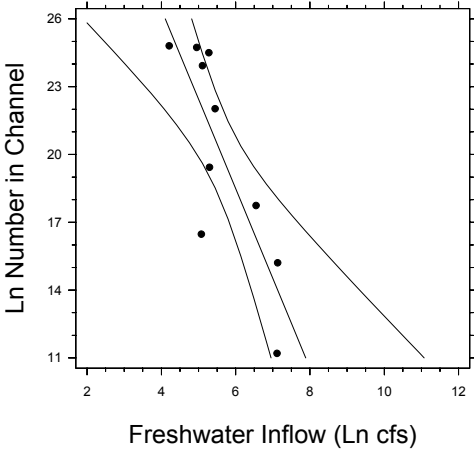


MYAKKA RIVER



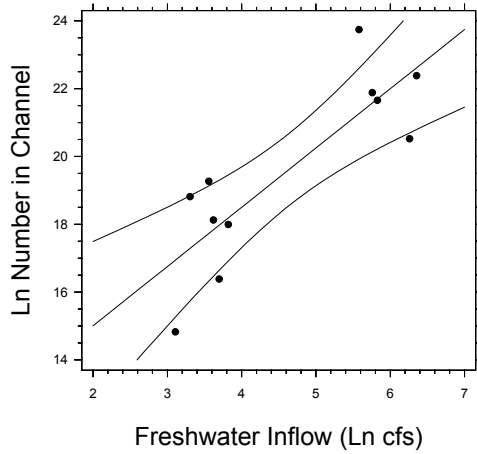
MYAKKA RIVER

fish eggs, percomorph

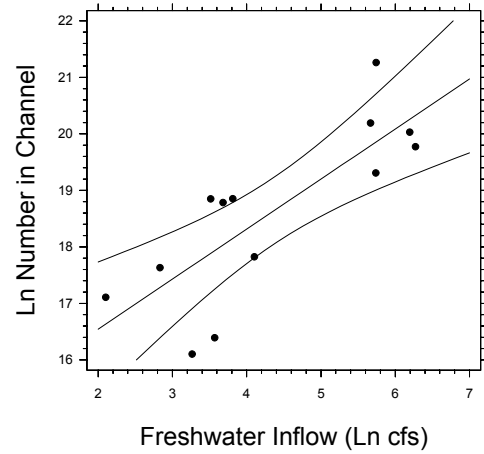


MYAKKAHATCHEE CREEK

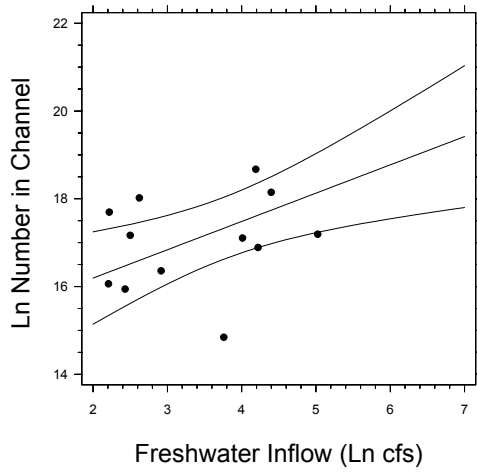
Mesocyclops edax



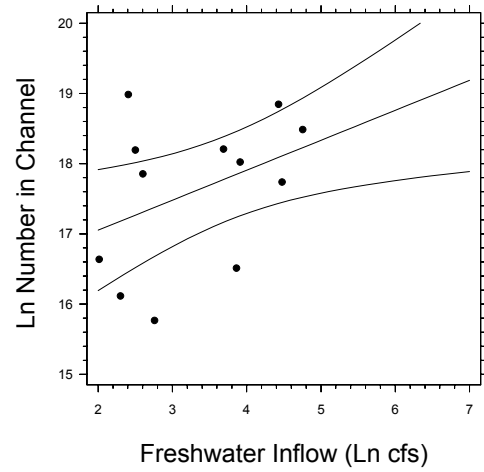
dipterans, pupae



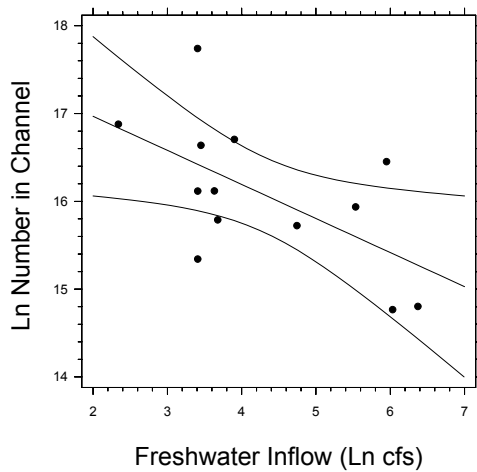
ostracods, podocopid



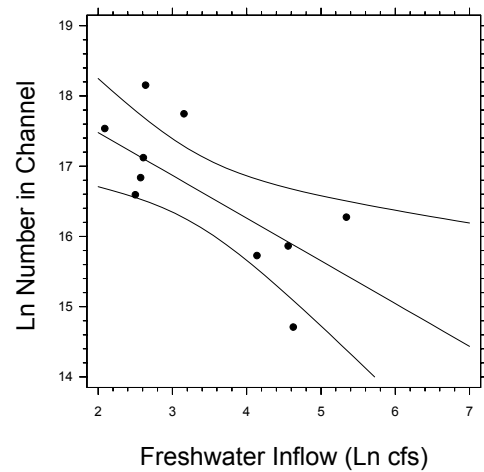
polychaetes



branchiurans, Argulus spp.

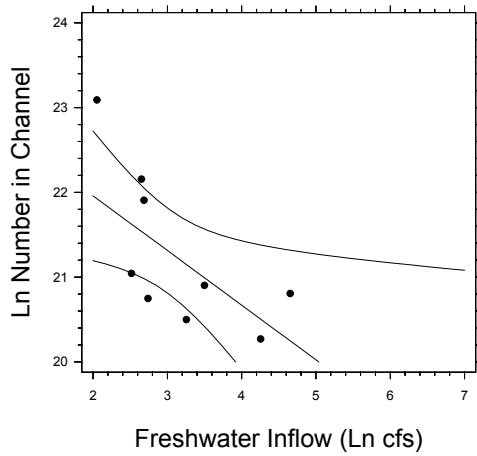


Sphaeroma quadridentata

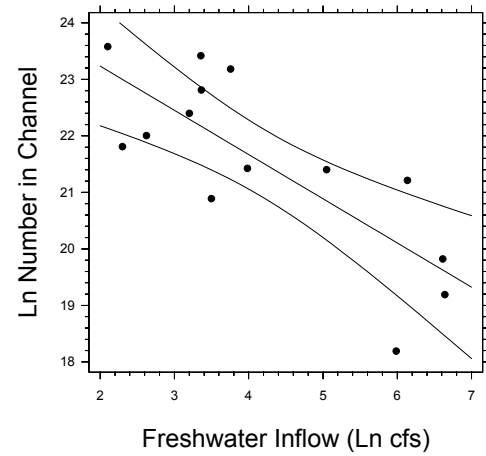


MYAKKAHATCHEE CREEK

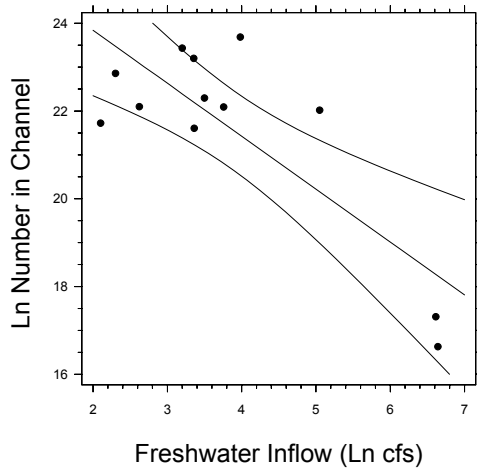
Americamysis juveniles



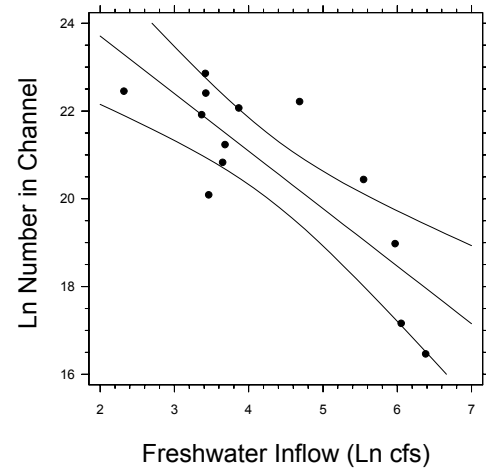
amphipods, gammaridean



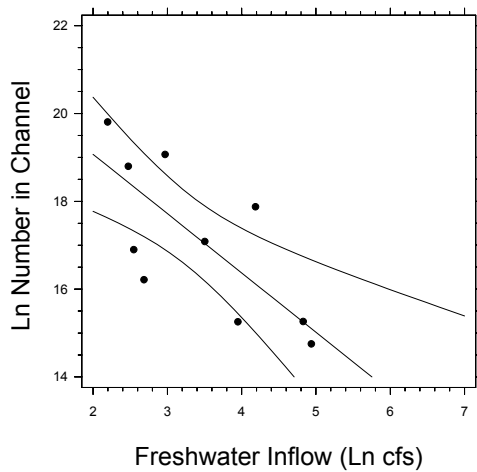
Americamysis almyra



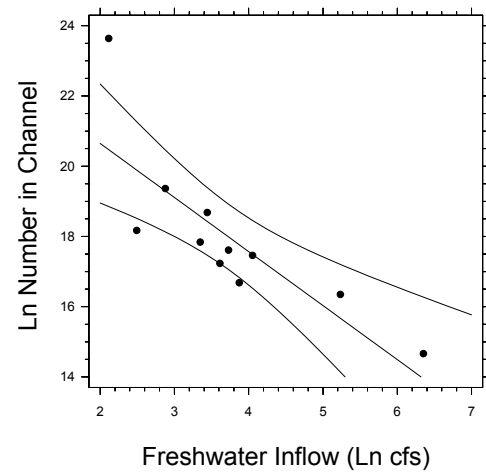
Anchoa mitchilli juveniles



gobiid preflexion larvae

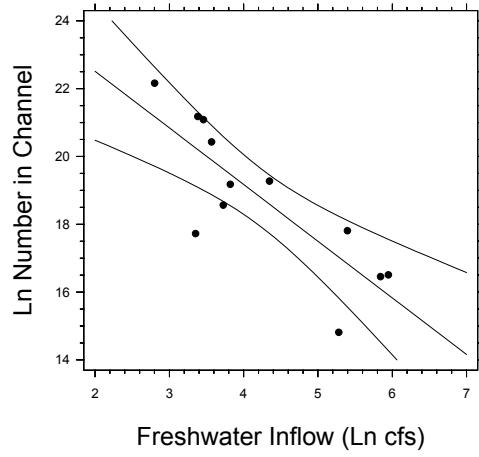


cumaceans

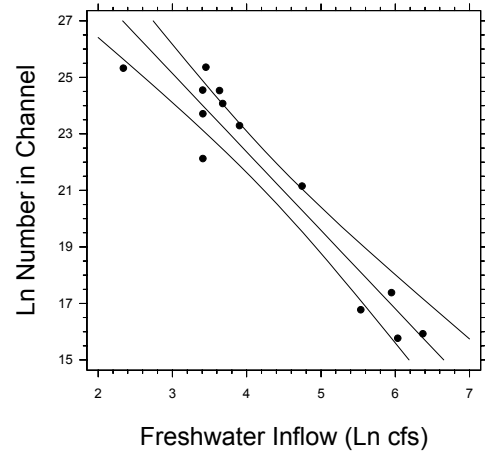


MYAKKAHATCHEE CREEK

decapod mysis



decapod zoeae



Appendix I:

Plots of the seine and trawl abundance responses in Table 3.8.2.1

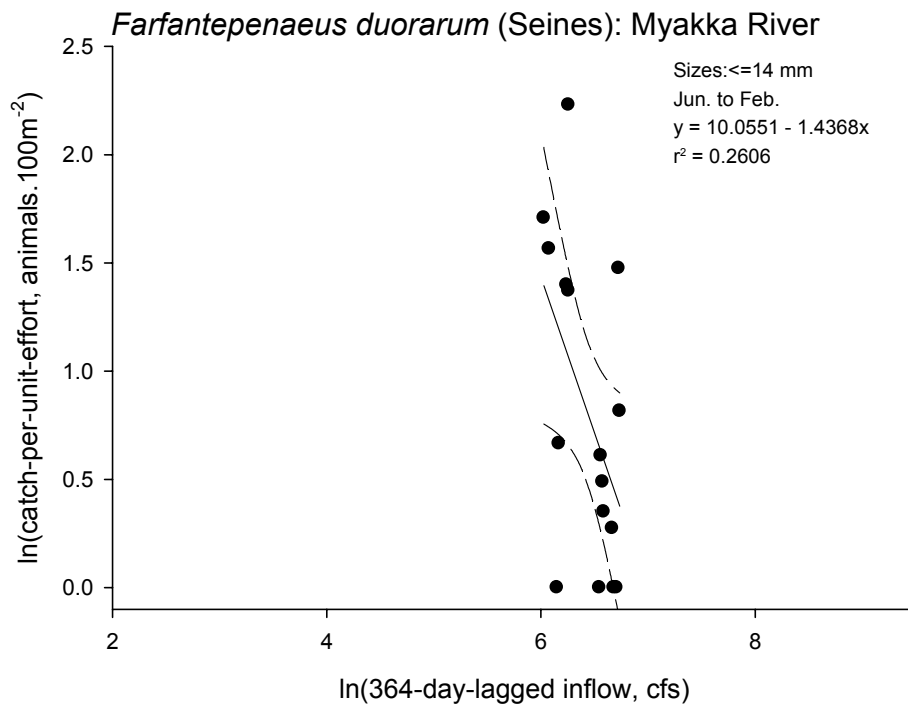


Fig. I1. Abundance response of Pink shrimp (≤ 14 mm) in the Myakka River estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

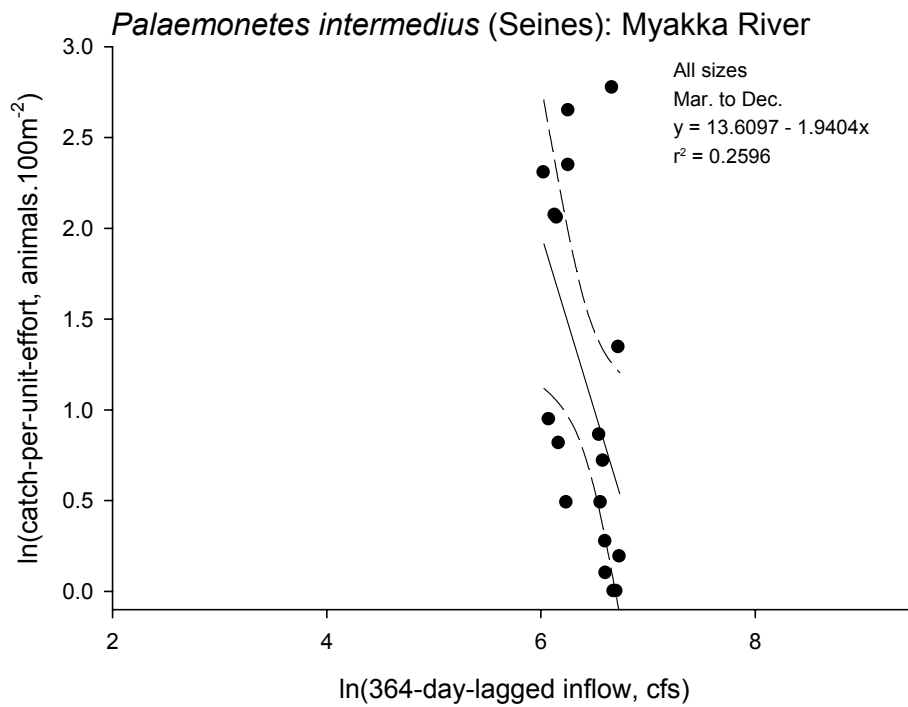


Fig. I2. Abundance response of Brackish grass shrimp (All sizes) in the Myakka River estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

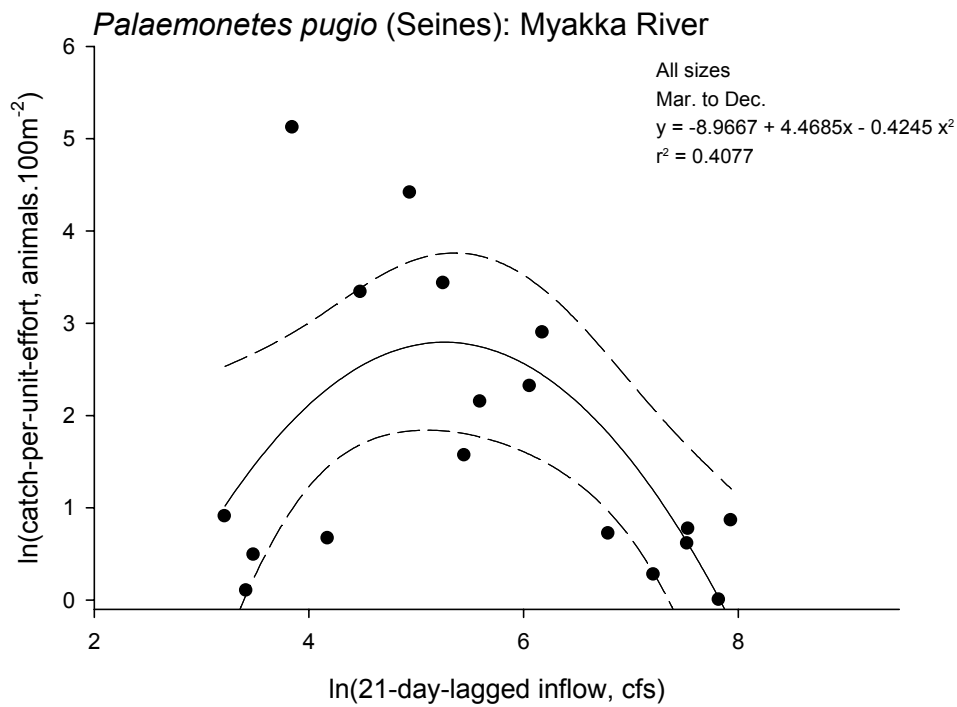


Fig. I3. Abundance response of Daggerblade grass shrimp (All sizes) in the Myakka River estuary to 21-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

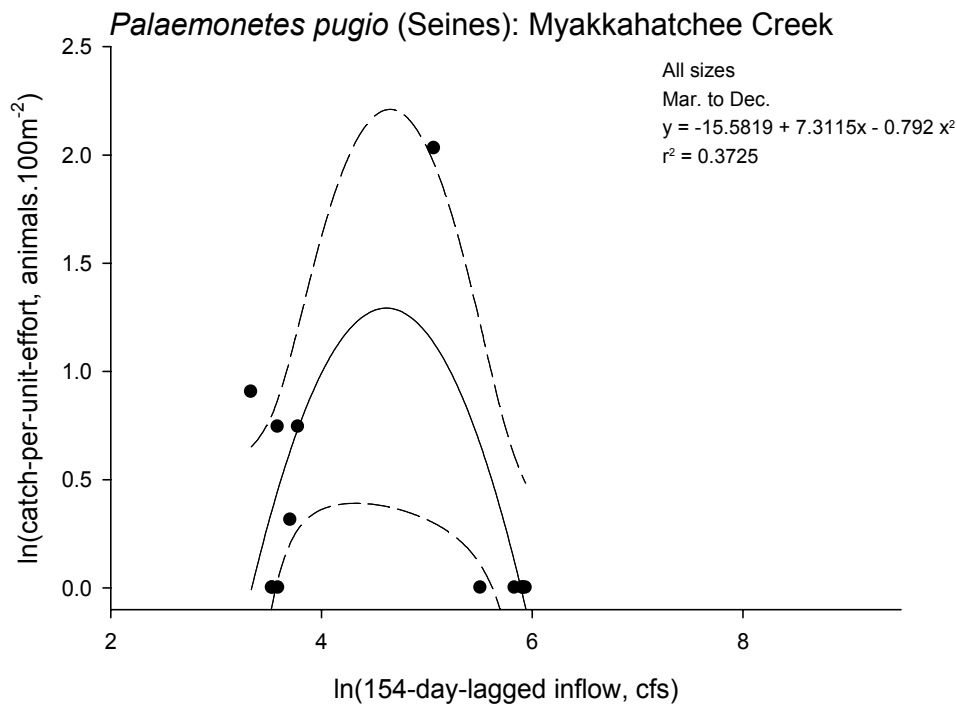


Fig. I4. Abundance response of Daggerblade grass shrimp (All sizes) in the Myakkahatchee Creek estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

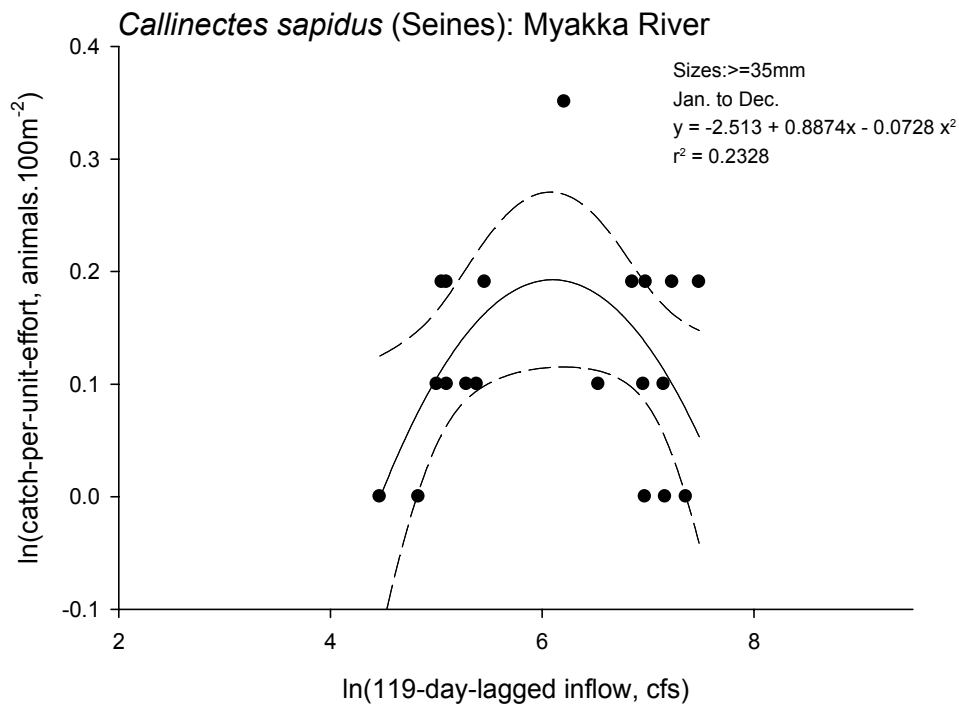


Fig. I5. Abundance response of Blue crab (≥ 35 mm) in the Myakka River estuary to 119-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

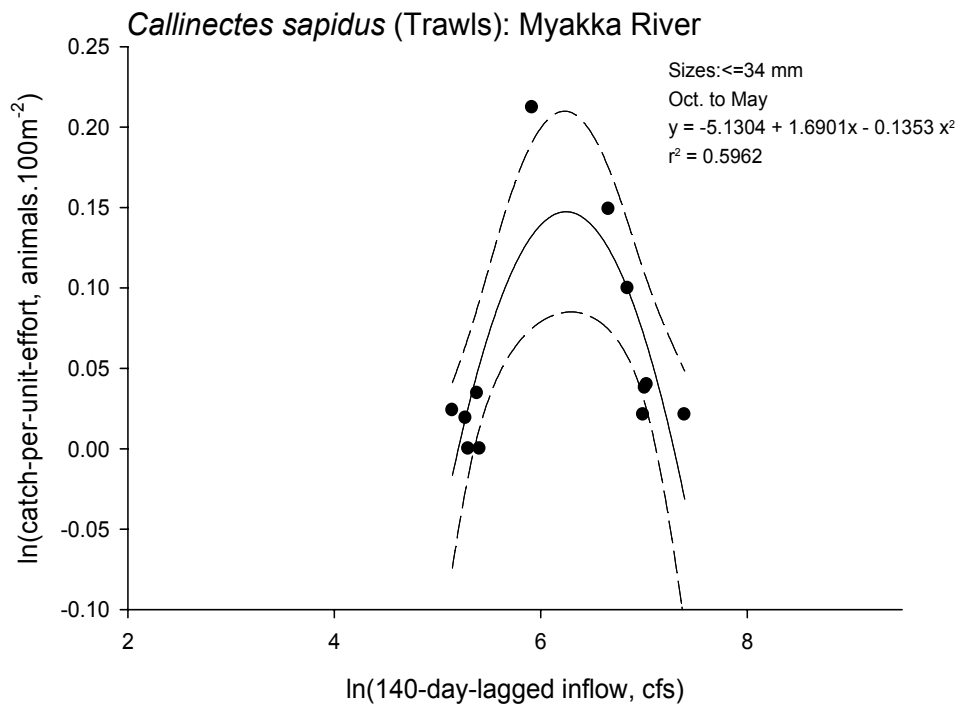


Fig. I6. Abundance response of Blue crab (≤ 34 mm) in the Myakka River estuary to 140-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

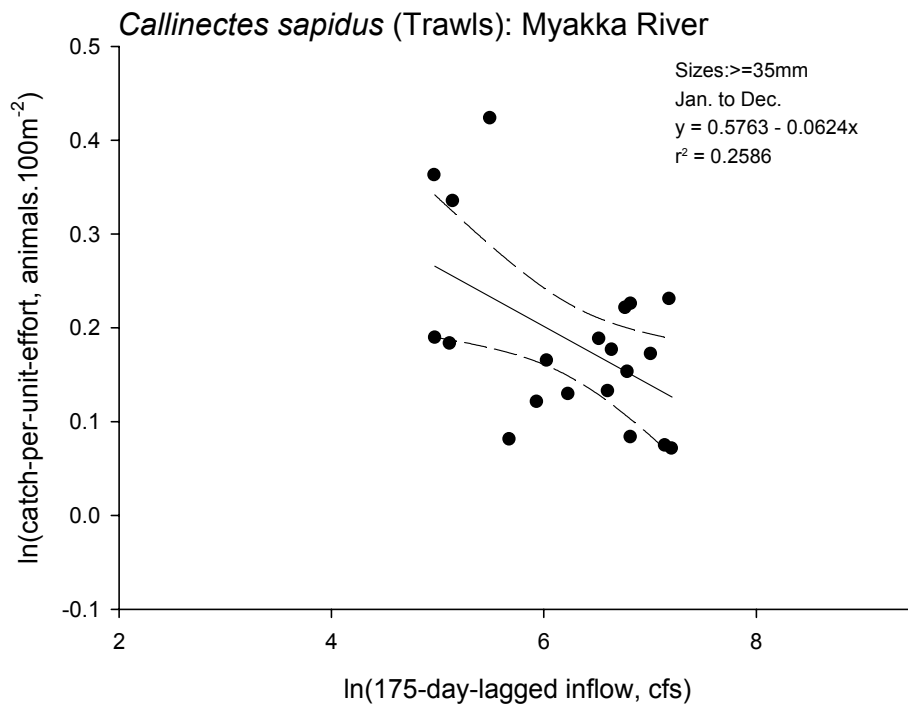


Fig. I7. Abundance response of Blue crab (≥ 35 mm) in the Myakka River estuary to 175-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

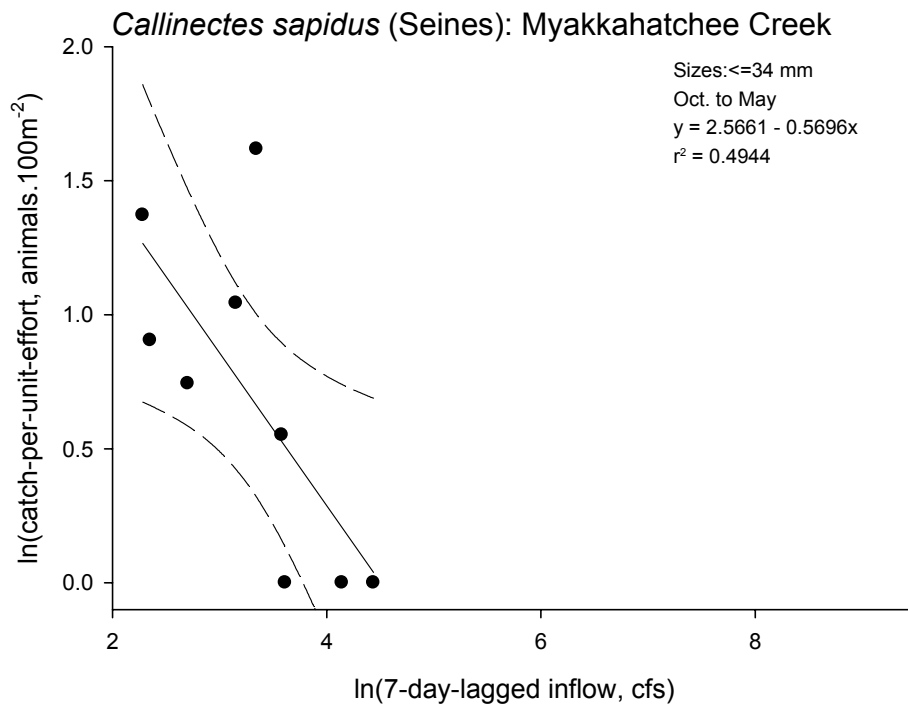


Fig. I8. Abundance response of Blue crab (≤ 34 mm) in the Myakkahatchee Creek estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

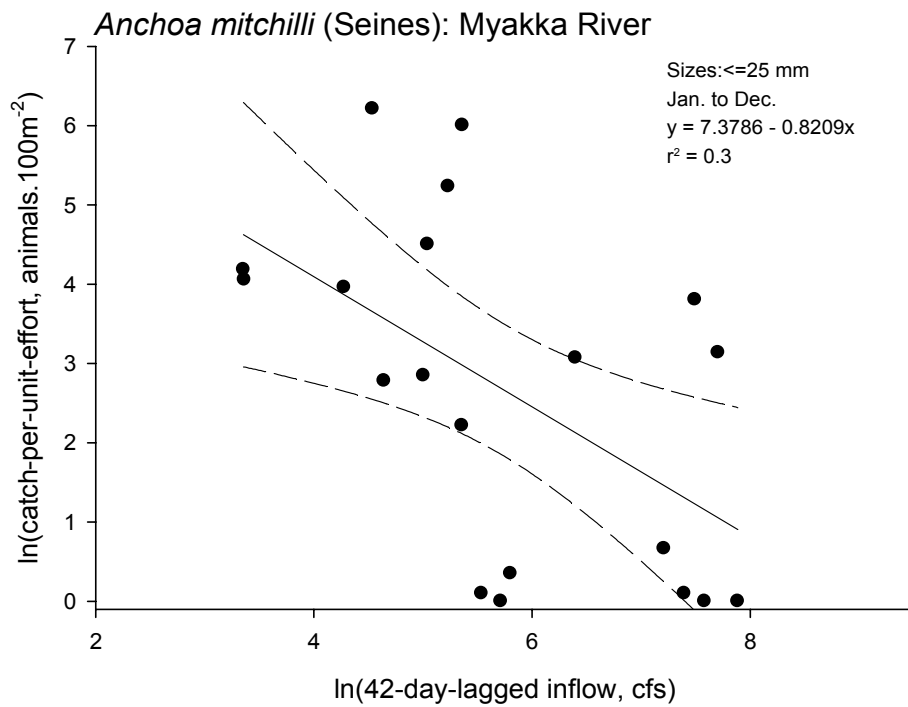


Fig. I9. Abundance response of Bay anchovy (≤ 25 mm) in the Myakka River estuary to 42-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

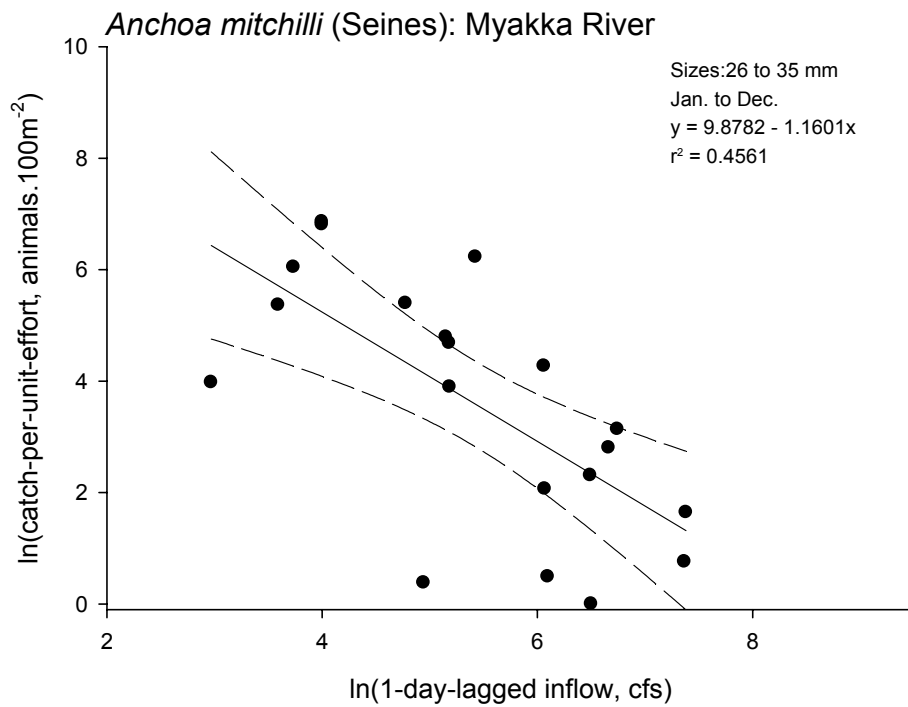


Fig. I10. Abundance response of Bay anchovy (26 to 35 mm) in the Myakka River estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

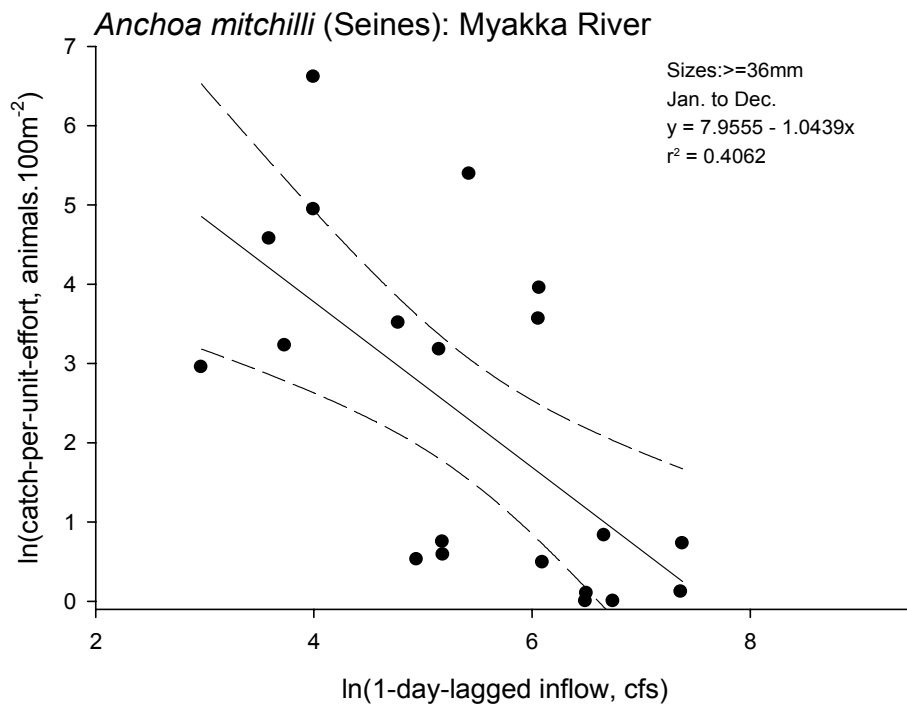


Fig. I11. Abundance response of Bay anchovy (≥ 36 mm) in the Myakka River estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

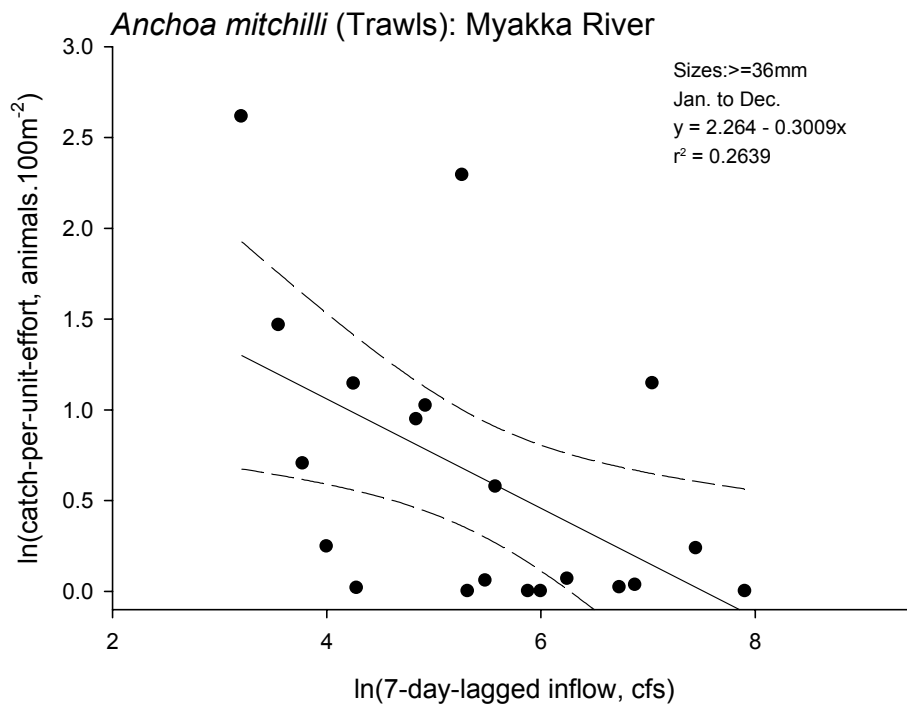


Fig. I12. Abundance response of Bay anchovy (≥ 36 mm) in the Myakka River estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

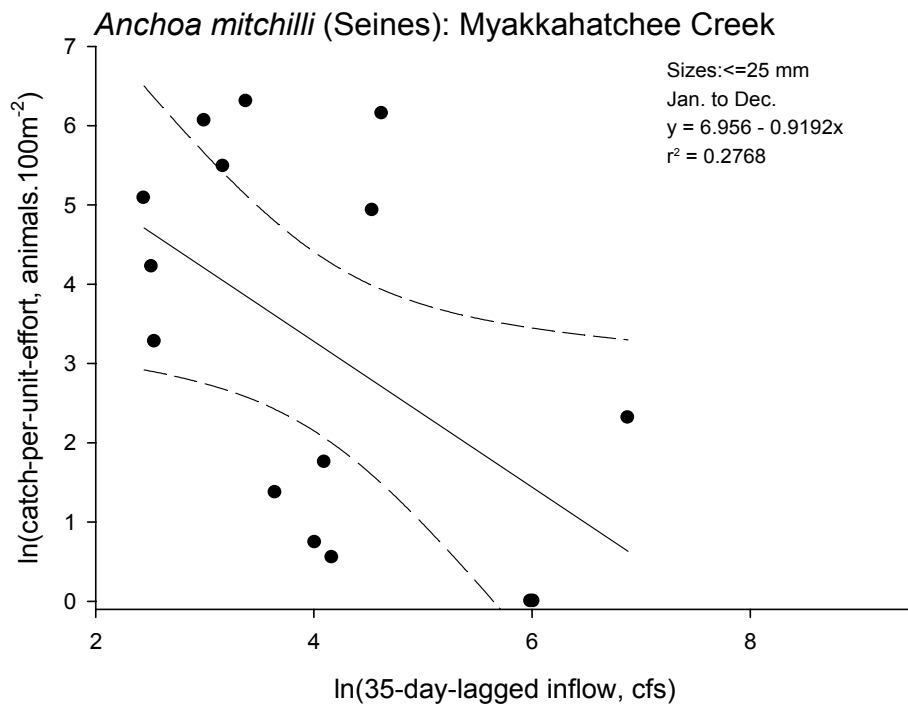


Fig. I13. Abundance response of Bay anchovy (≤ 25 mm) in the Myakkahatchee Creek estuary to 35-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

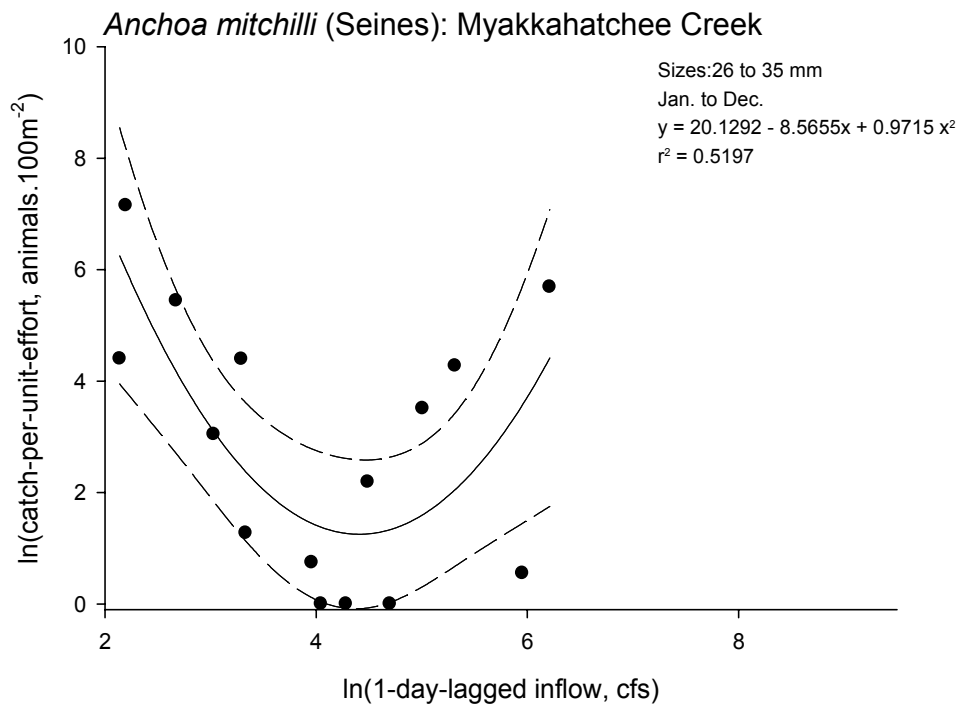


Fig. I14. Abundance response of Bay anchovy (26 to 35 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

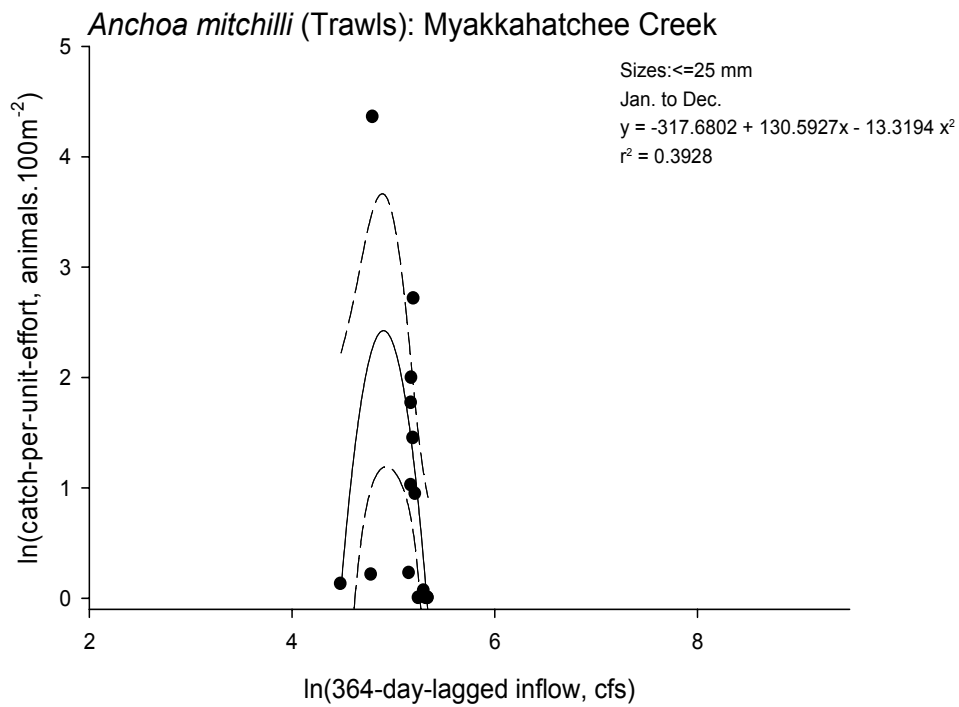


Fig. I15. Abundance response of Bay anchovy (≤ 25 mm) in the Myakkahatchee Creek estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

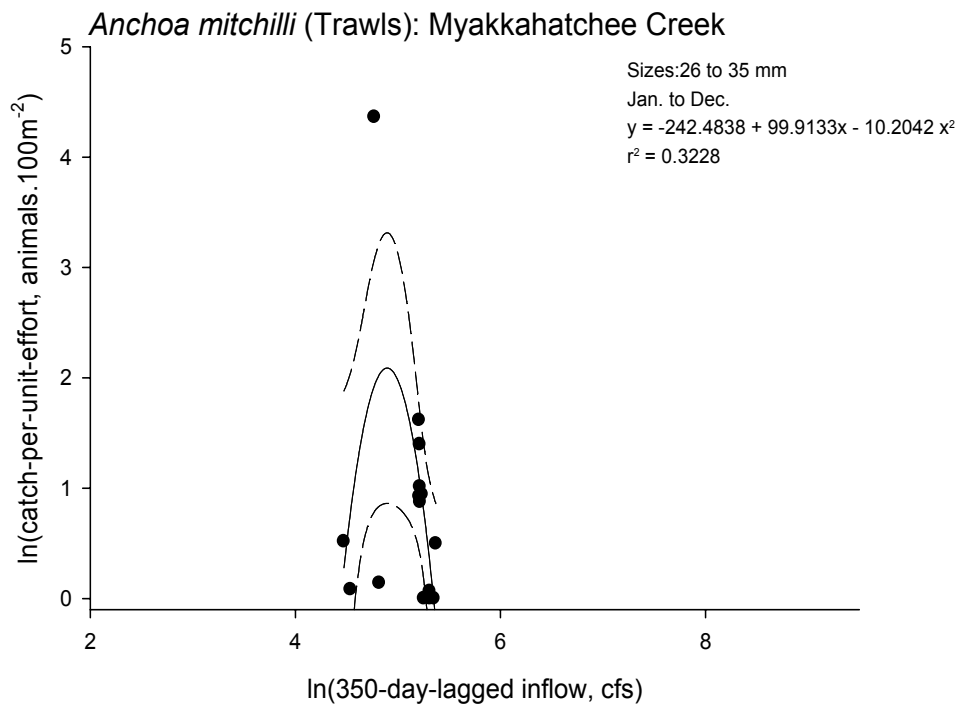


Fig. I16. Abundance response of Bay anchovy (26 to 35 mm) in the Myakkahatchee Creek estuary to 350-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

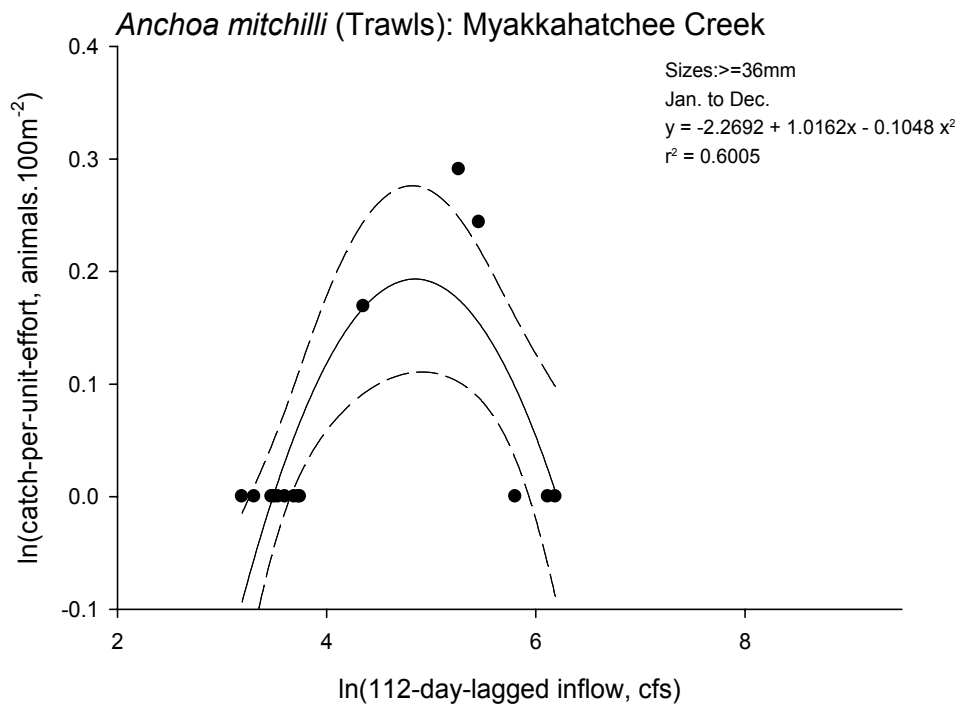


Fig. I17. Abundance response of Bay anchovy (≥ 36 mm) in the Myakkahatchee Creek estuary to 112-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

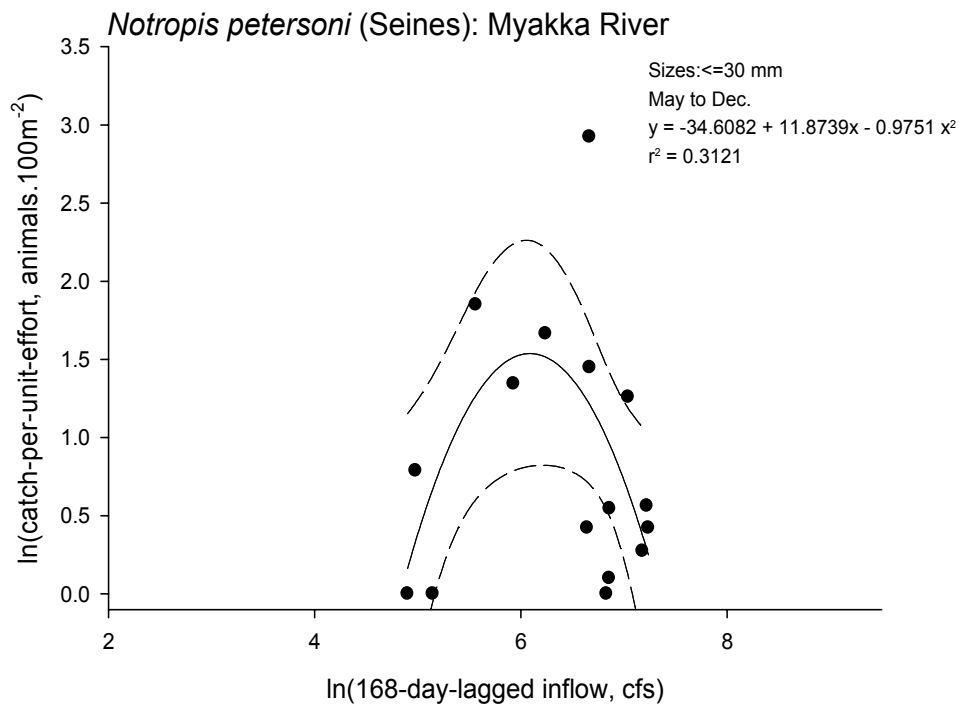


Fig. I18. Abundance response of Coastal shiner (≤ 30 mm) in the Myakka River estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

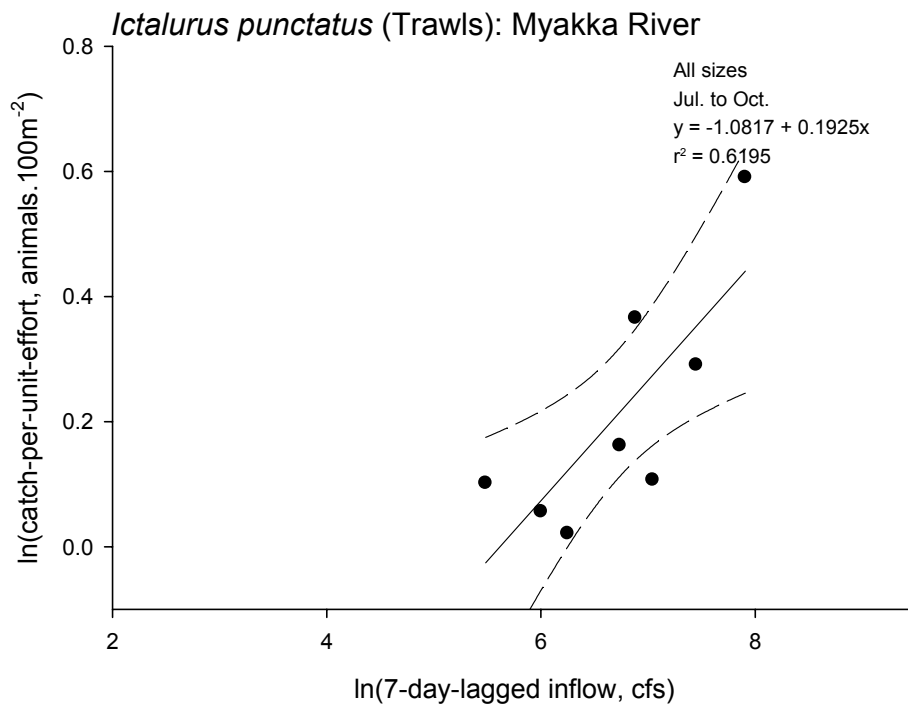


Fig. I19. Abundance response of Channel catfish (All sizes) in the Myakka River estuary to 7-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

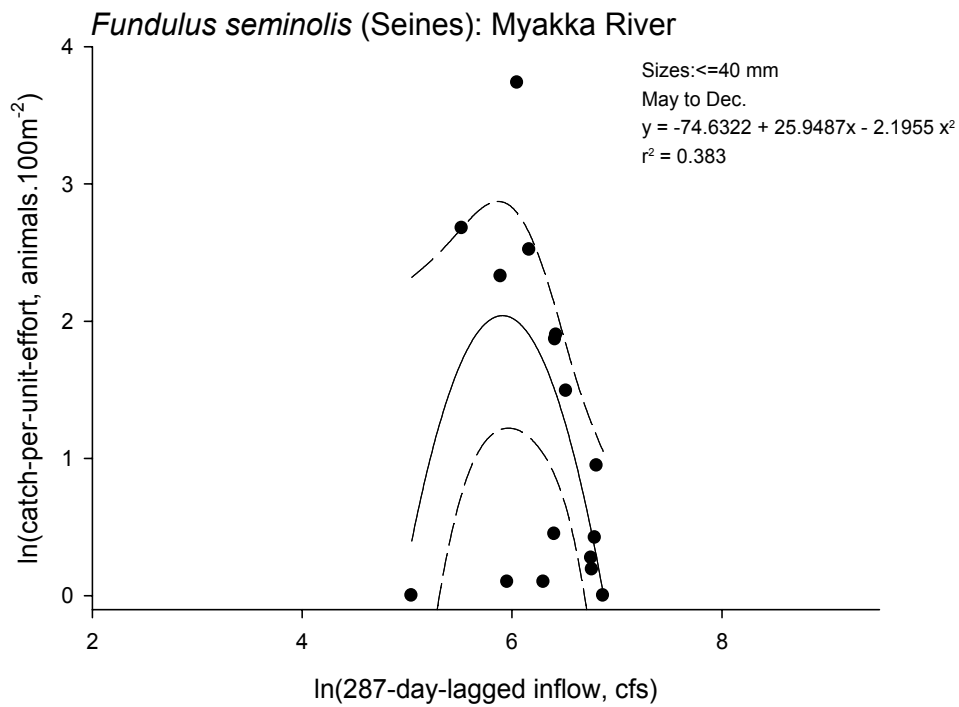


Fig. I20. Abundance response of Seminole killifish (≤ 40 mm) in the Myakka River estuary to 287-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

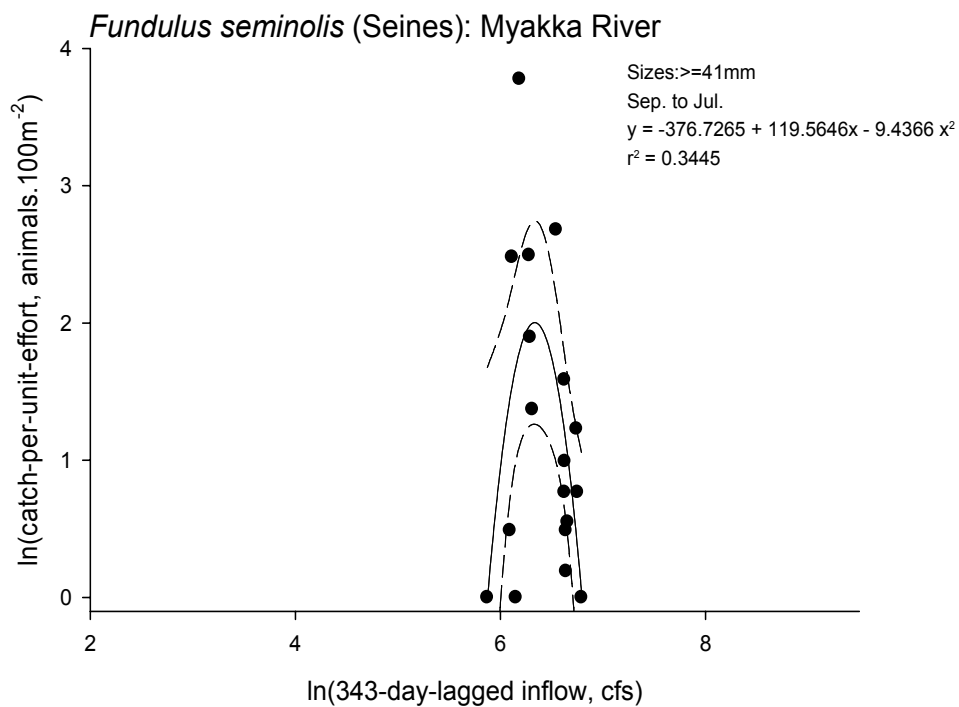


Fig. I21. Abundance response of Seminole killifish (≥ 41 mm) in the Myakka River estuary to 343-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

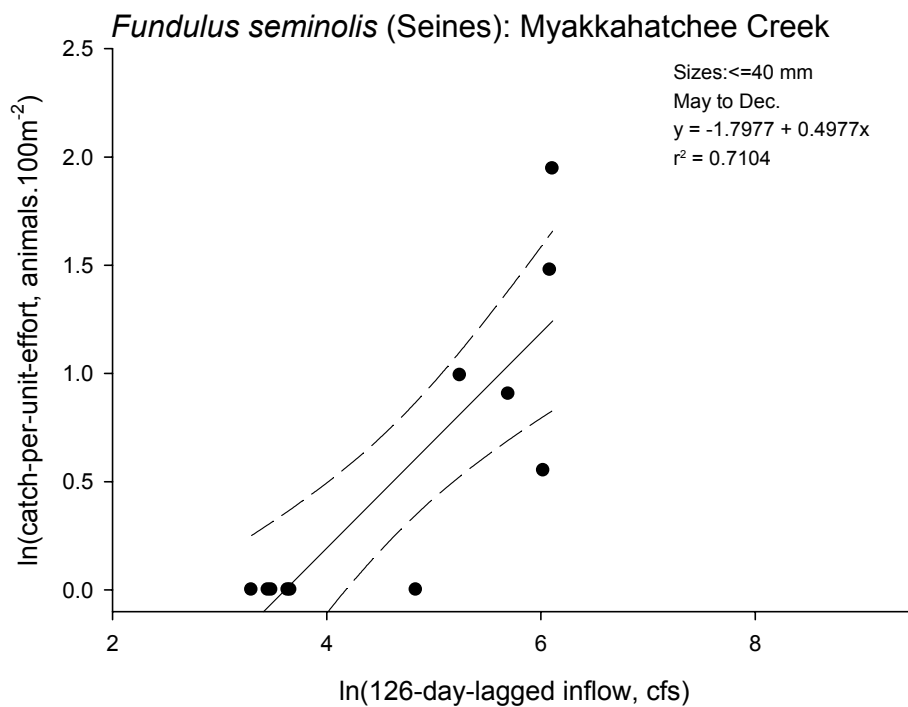


Fig. I22. Abundance response of Seminole killifish (≤ 40 mm) in the Myakkahatchee Creek estuary to 126-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

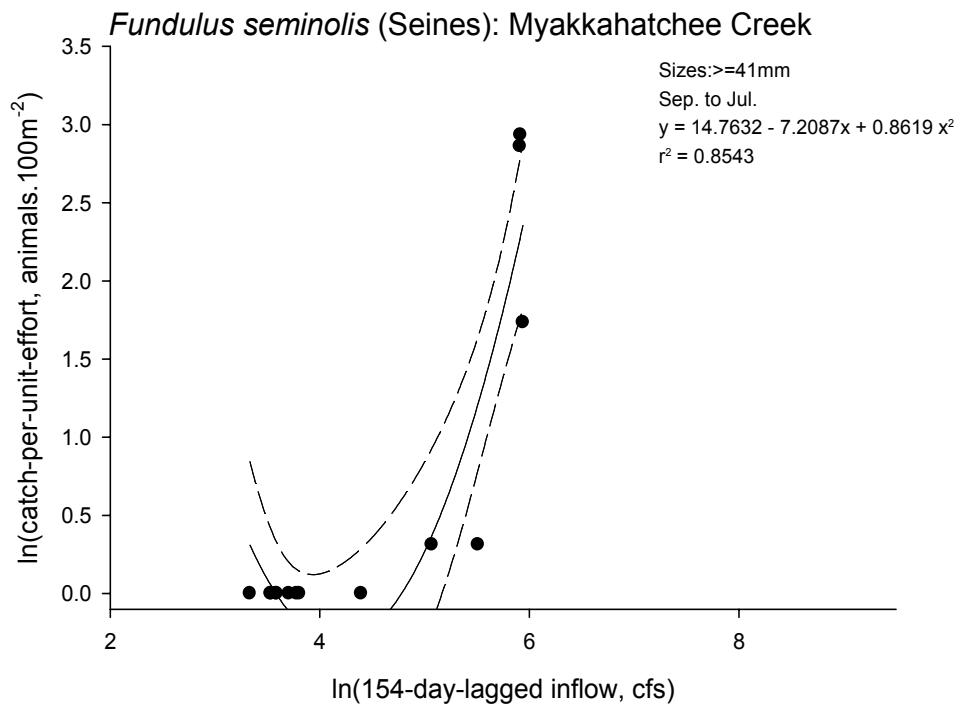


Fig. I23. Abundance response of Seminole killifish (≥ 41 mm) in the Myakkahatchee Creek estuary to 154-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

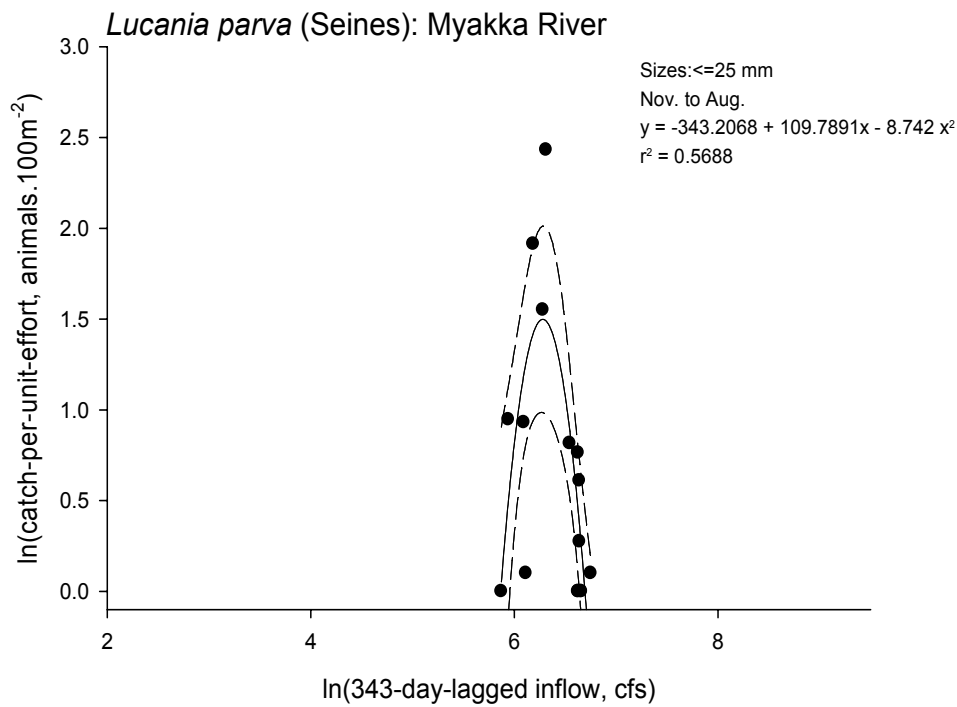


Fig. I24. Abundance response of Rainwater killifish (≤ 25 mm) in the Myakka River estuary to 343-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

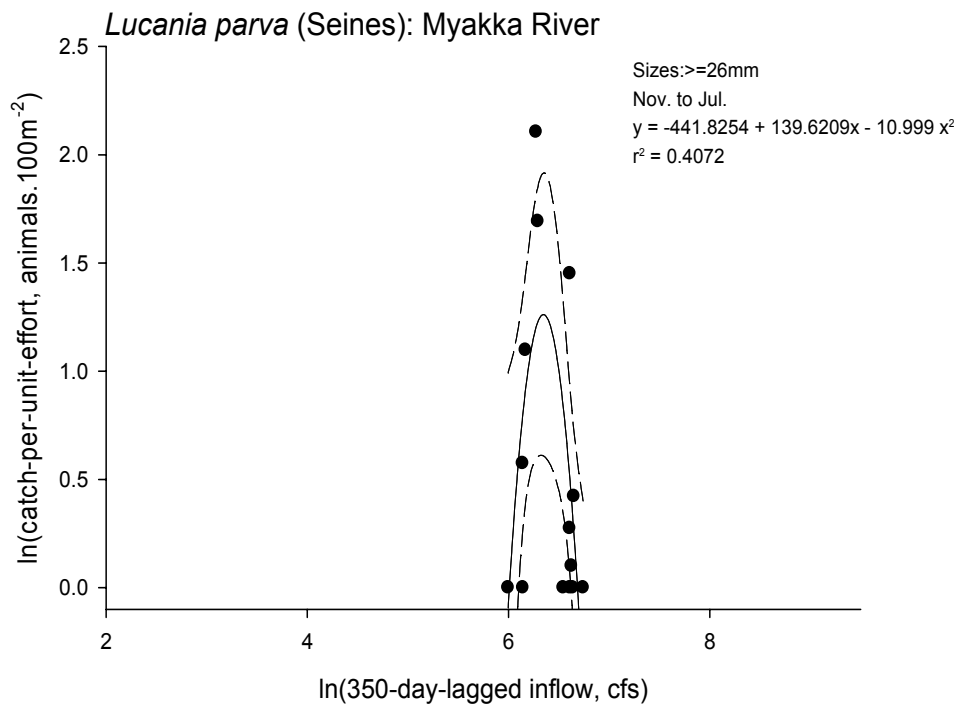


Fig. I25. Abundance response of Rainwater killifish (≥ 26 mm) in the Myakka River estuary to 350-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

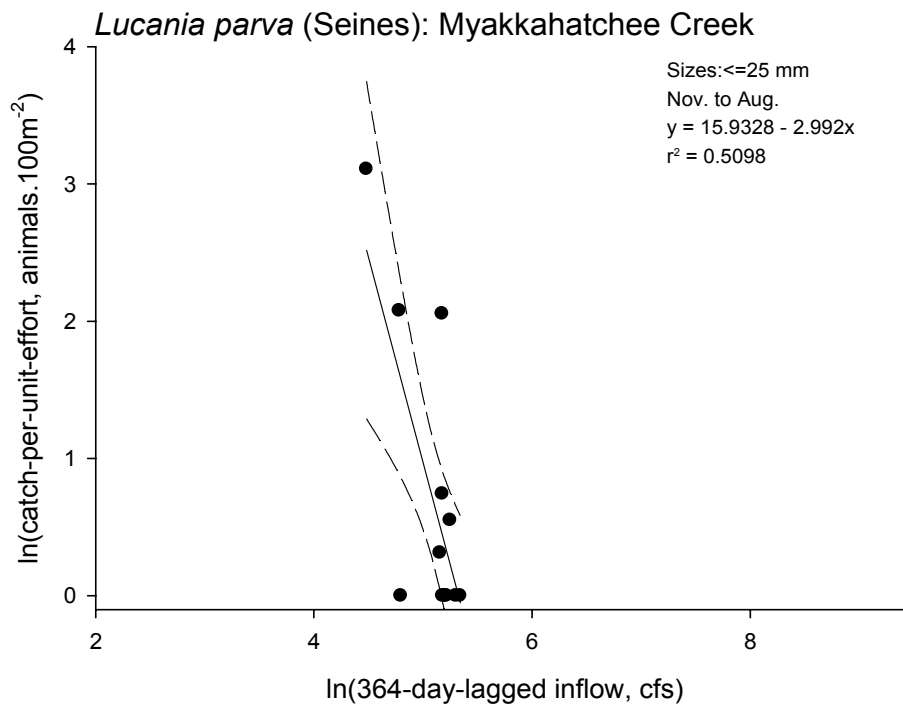


Fig. I26. Abundance response of Rainwater killifish (≤ 25 mm) in the Myakkahatchee Creek estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

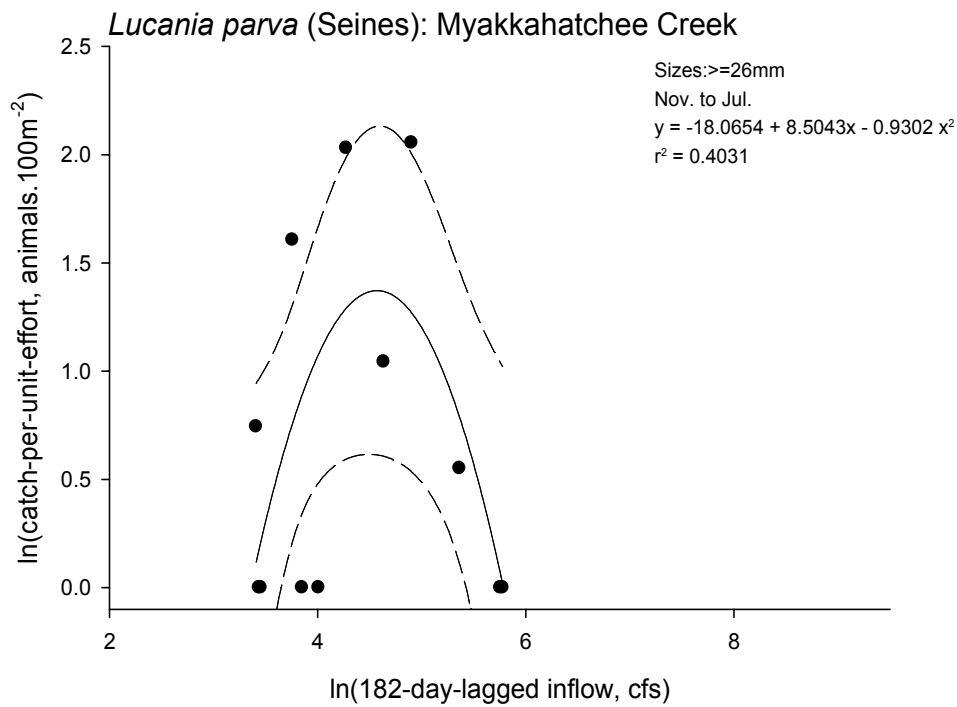


Fig. I27. Abundance response of Rainwater killifish (≥ 26 mm) in the Myakkahatchee Creek estuary to 182-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

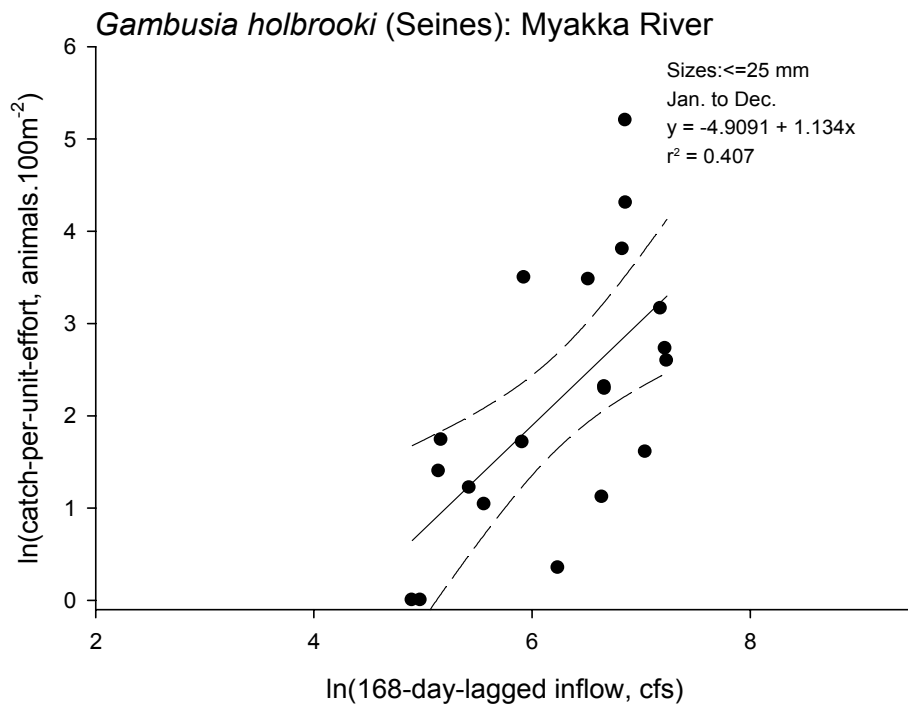


Fig. I28. Abundance response of Eastern mosquitofish (≤ 25 mm) in the Myakka River estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

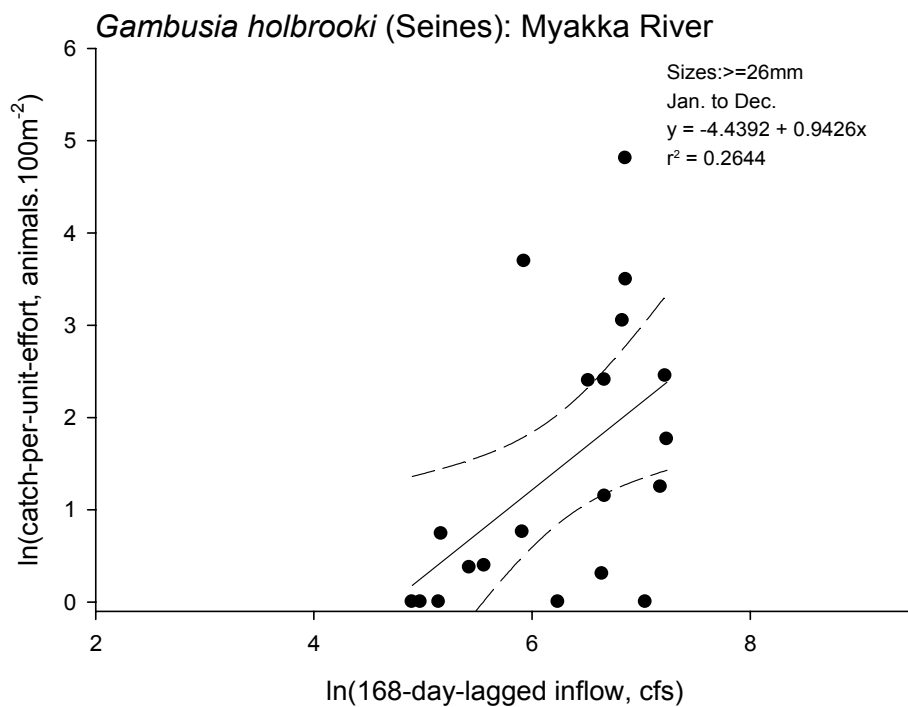


Fig. I29. Abundance response of Eastern mosquitofish (≥ 26 mm) in the Myakka River estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

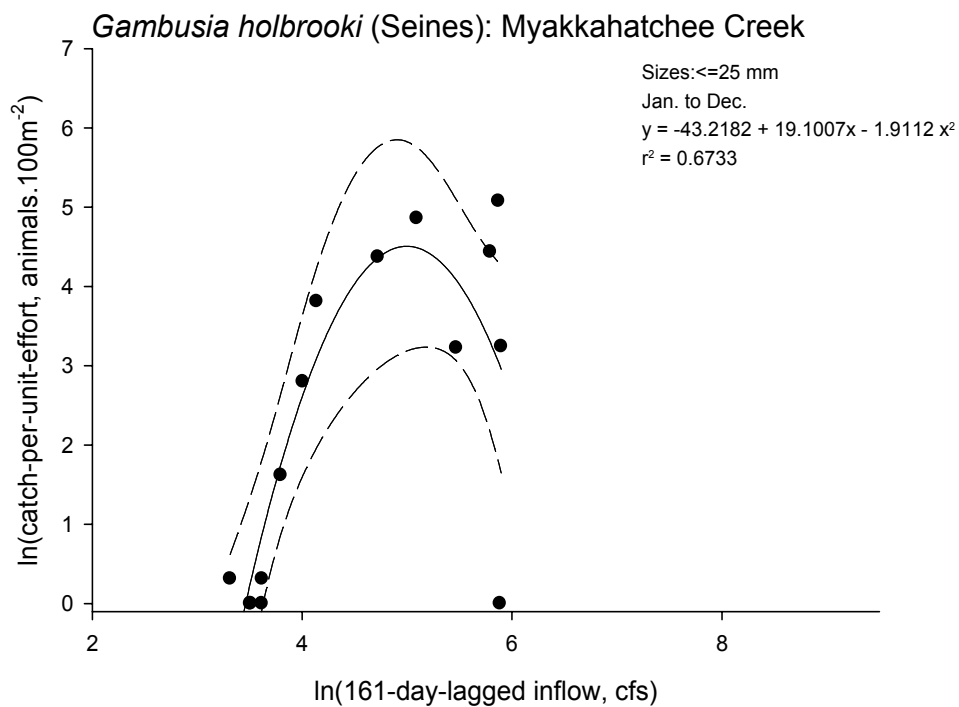


Fig. I30. Abundance response of Eastern mosquitofish (≤ 25 mm) in the Myakkahatchee Creek estuary to 161-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

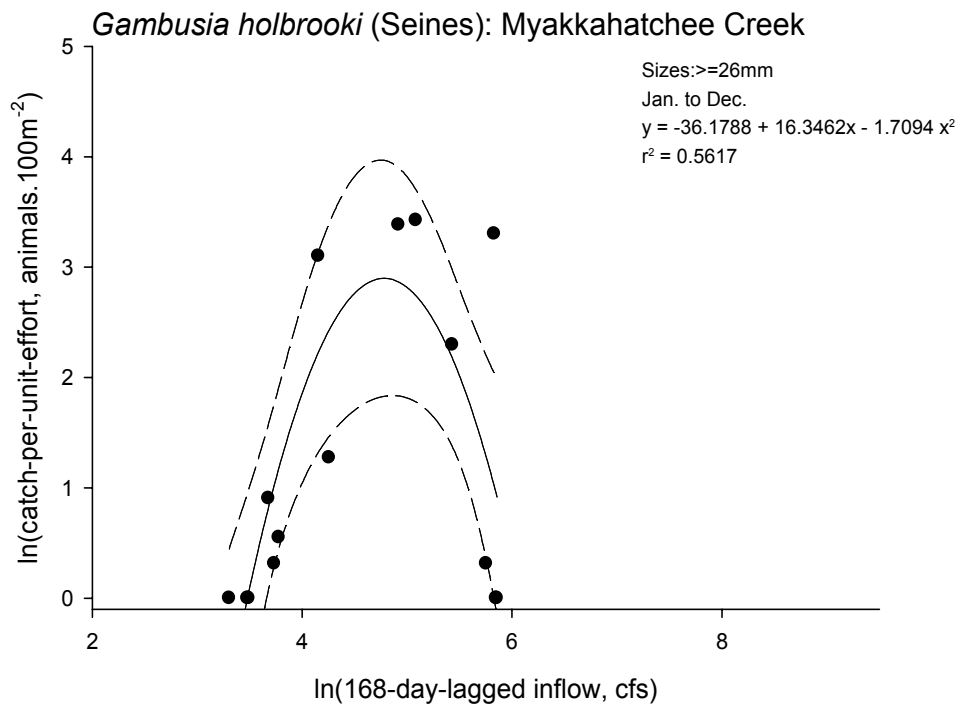


Fig. I31. Abundance response of Eastern mosquitofish (≥ 26 mm) in the Myakkahatchee Creek estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

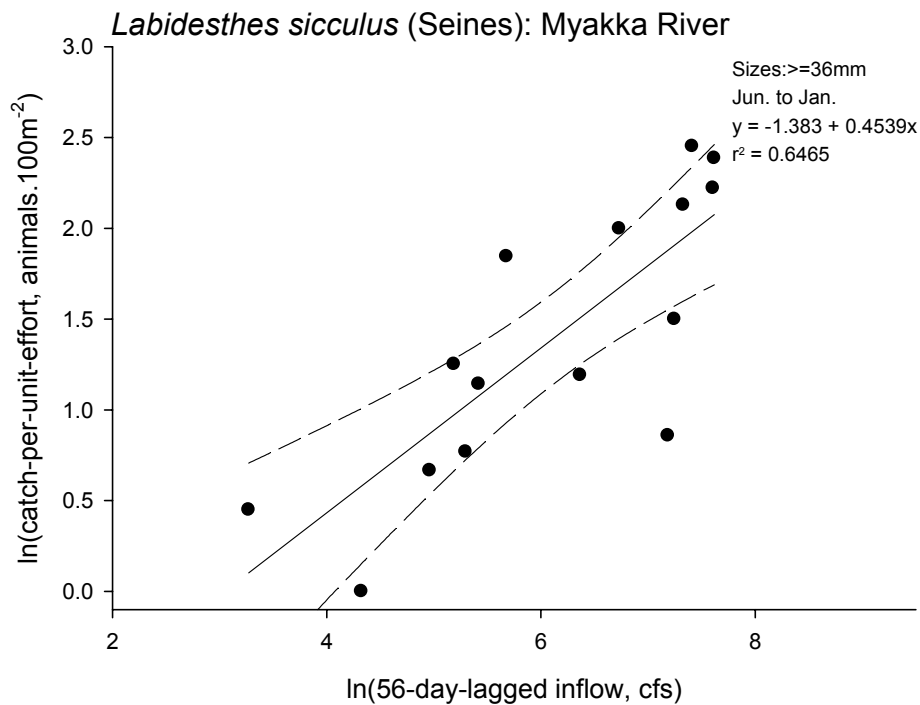


Fig. I32. Abundance response of Brook silverside (≥ 36 mm) in the Myakka River estuary to 56-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

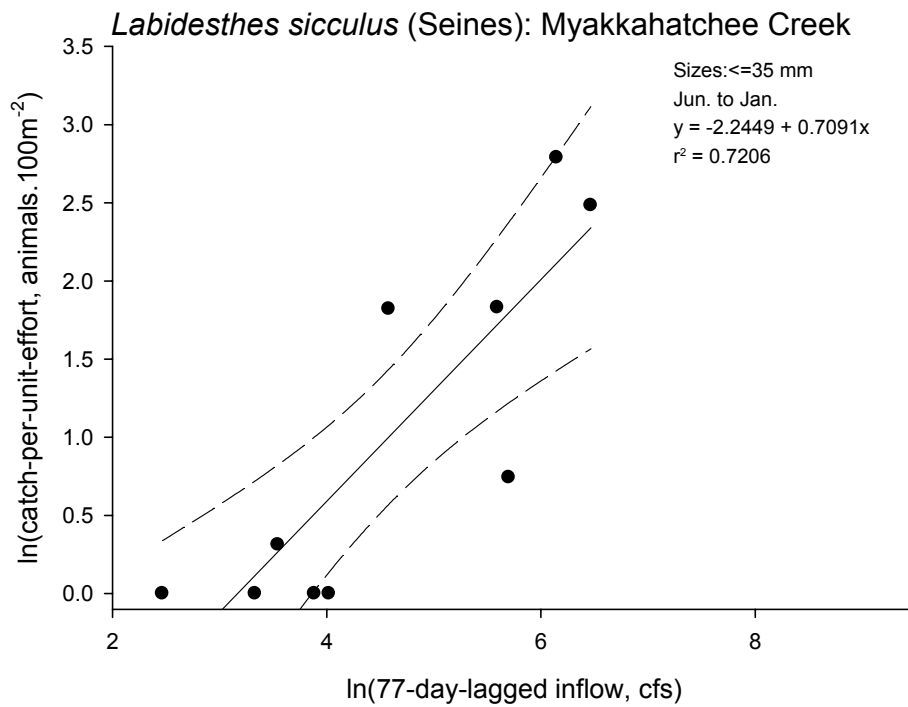


Fig. I33. Abundance response of Brook silverside (≤ 35 mm) in the Myakkahatchee Creek estuary to 77-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

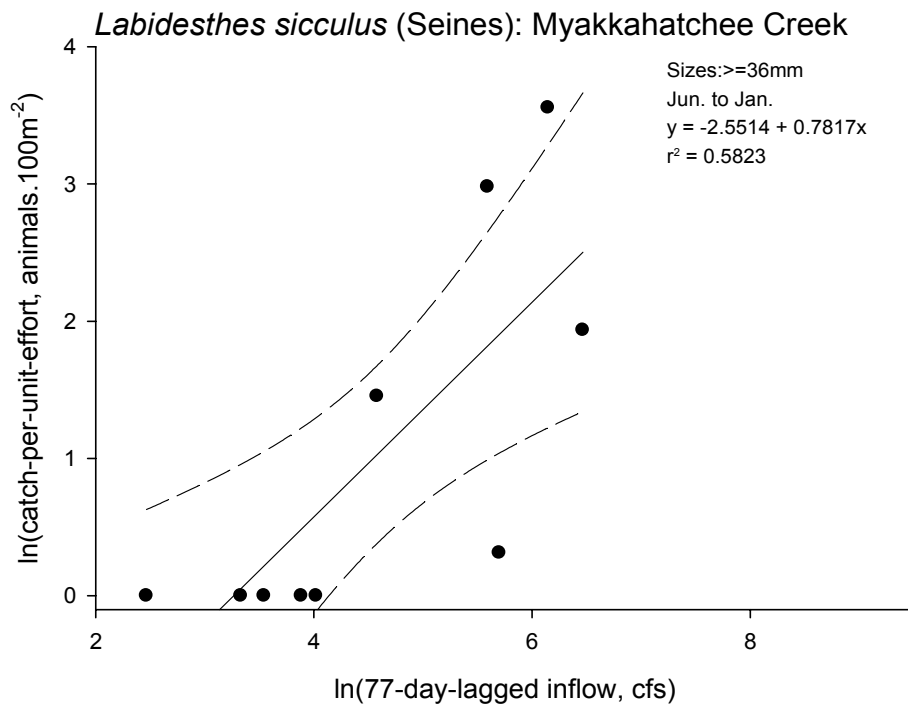


Fig. I34. Abundance response of Brook silverside (≥ 36 mm) in the Myakkahatchee Creek estuary to 77-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

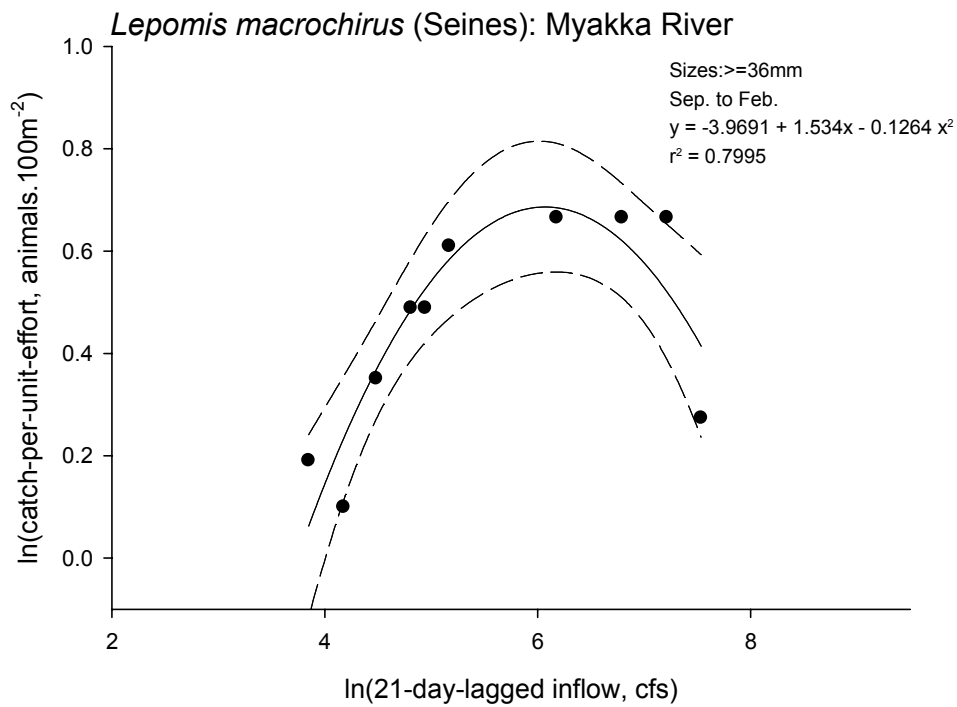


Fig. I35. Abundance response of Bluegill (≥ 36 mm) in the Myakka River estuary to 21-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

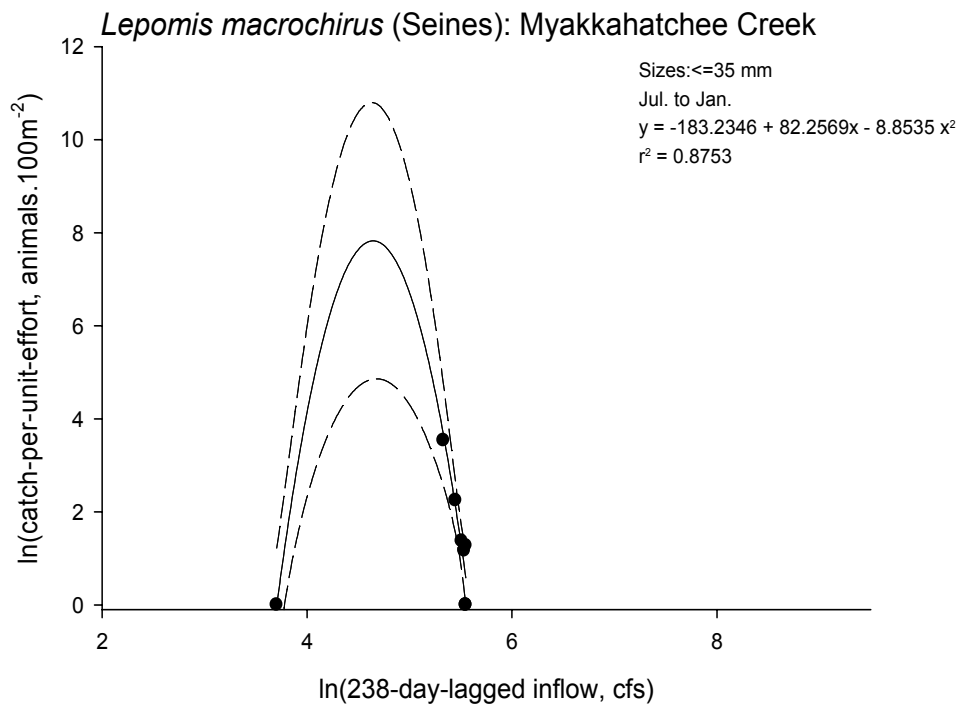


Fig. I36. Abundance response of Bluegill (≤ 35 mm) in the Myakkahatchee Creek estuary to 238-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

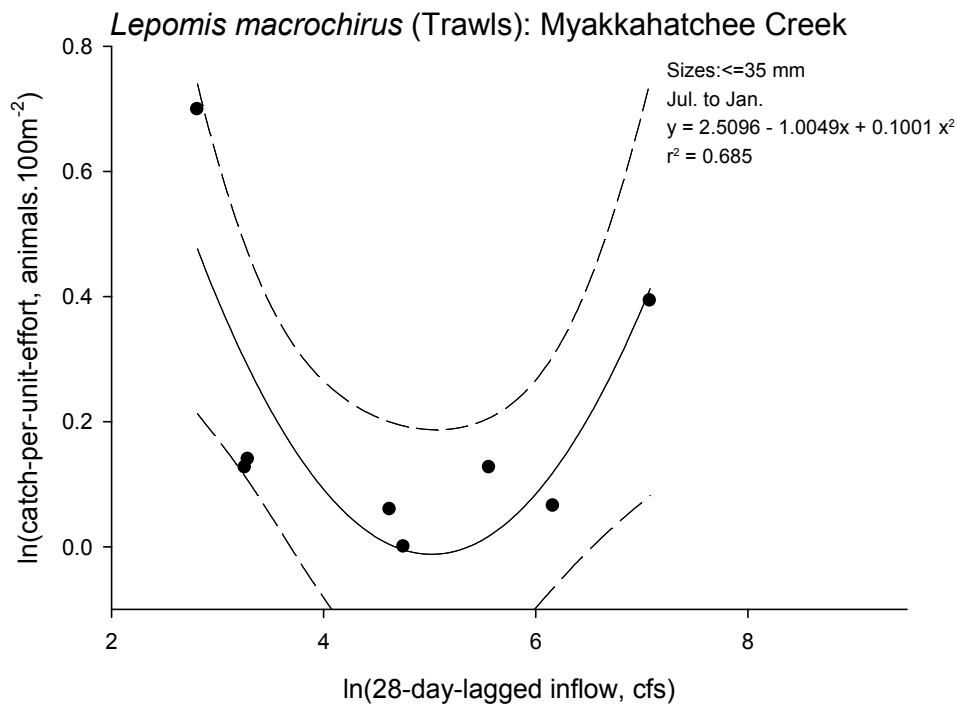


Fig. I37. Abundance response of Bluegill (≤ 35 mm) in the Myakkahatchee Creek estuary to 28-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

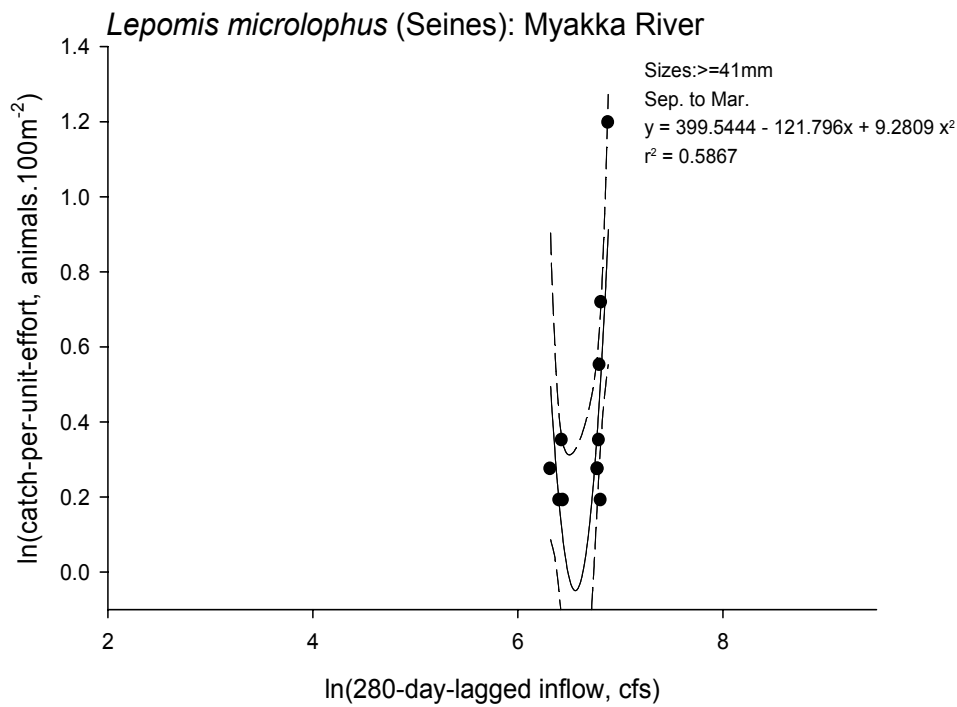


Fig. I38. Abundance response of Redear sunfish (≥ 41 mm) in the Myakka River estuary to 280-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

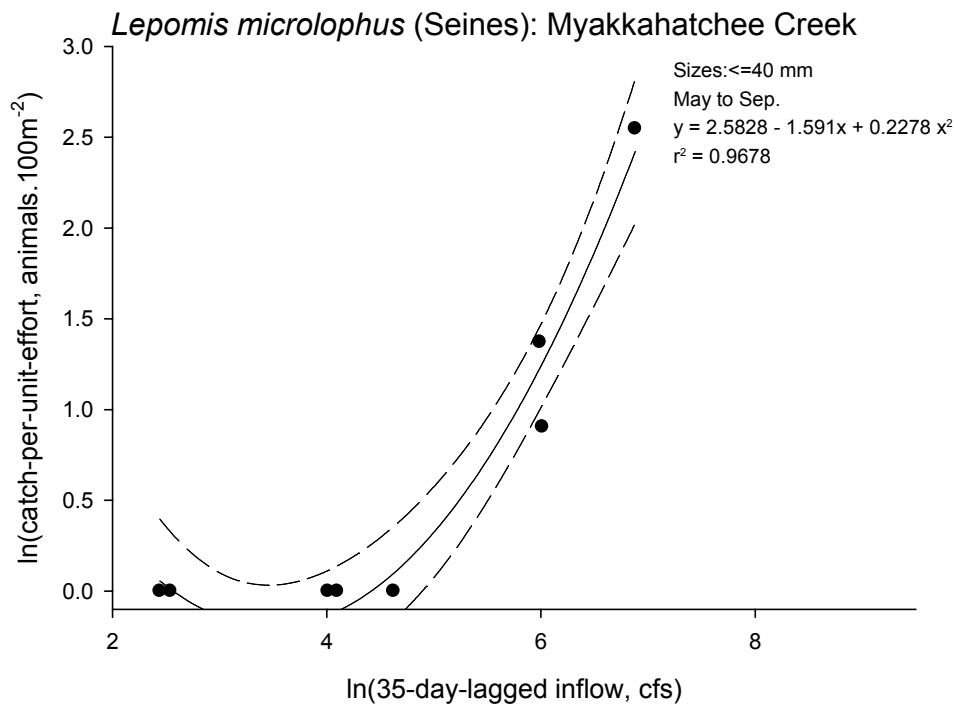


Fig. I39. Abundance response of Redear sunfish (≤ 40 mm) in the Myakkahatchee Creek estuary to 35-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

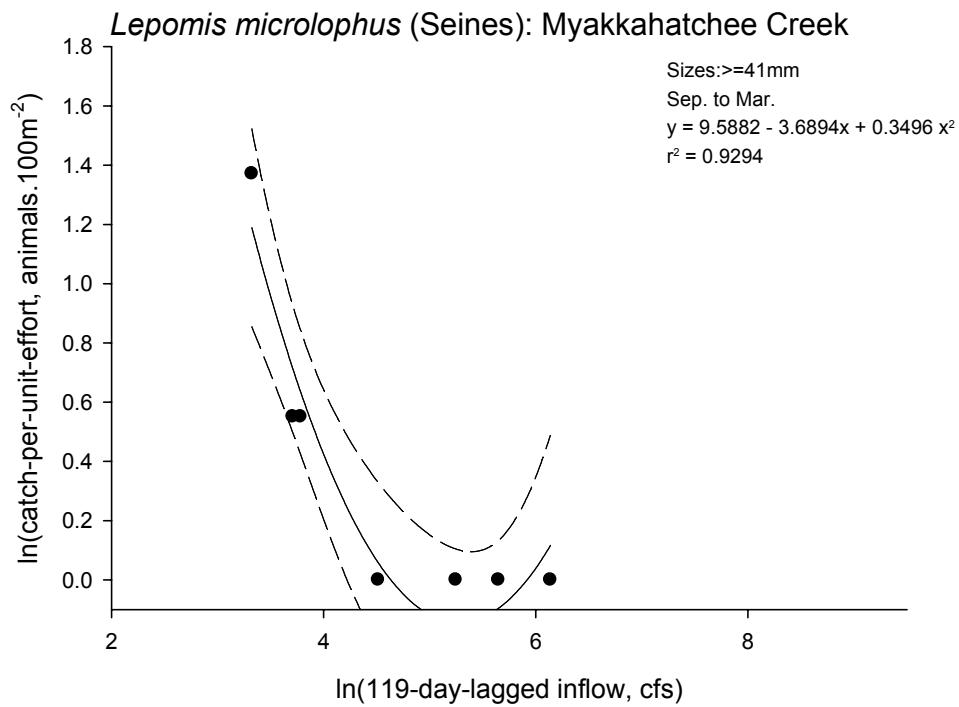


Fig. I40. Abundance response of Redear sunfish (≥ 41 mm) in the Myakkahatchee Creek estuary to 119-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

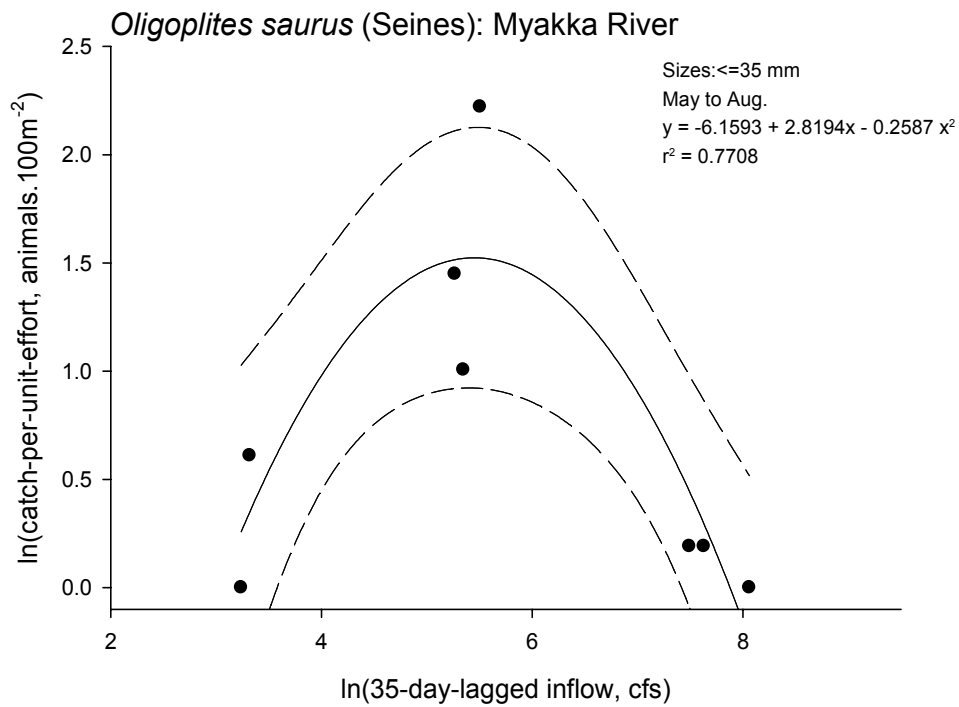


Fig. I41. Abundance response of Leatherjack (≤ 35 mm) in the Myakka River estuary to 35-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

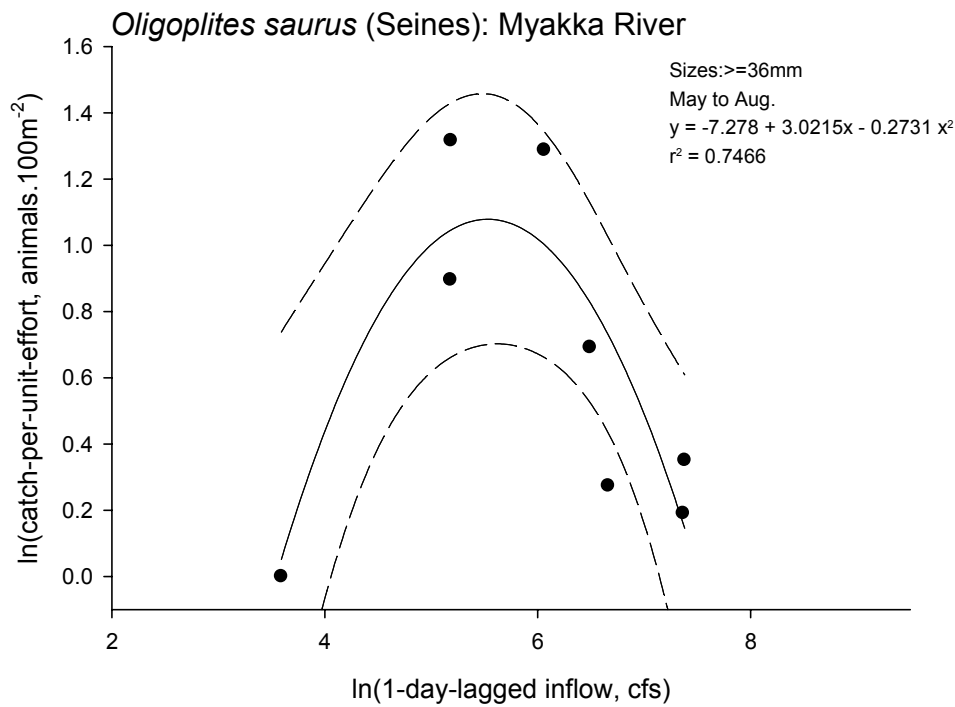


Fig. I42. Abundance response of Leatherjack (≥ 36 mm) in the Myakka River estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

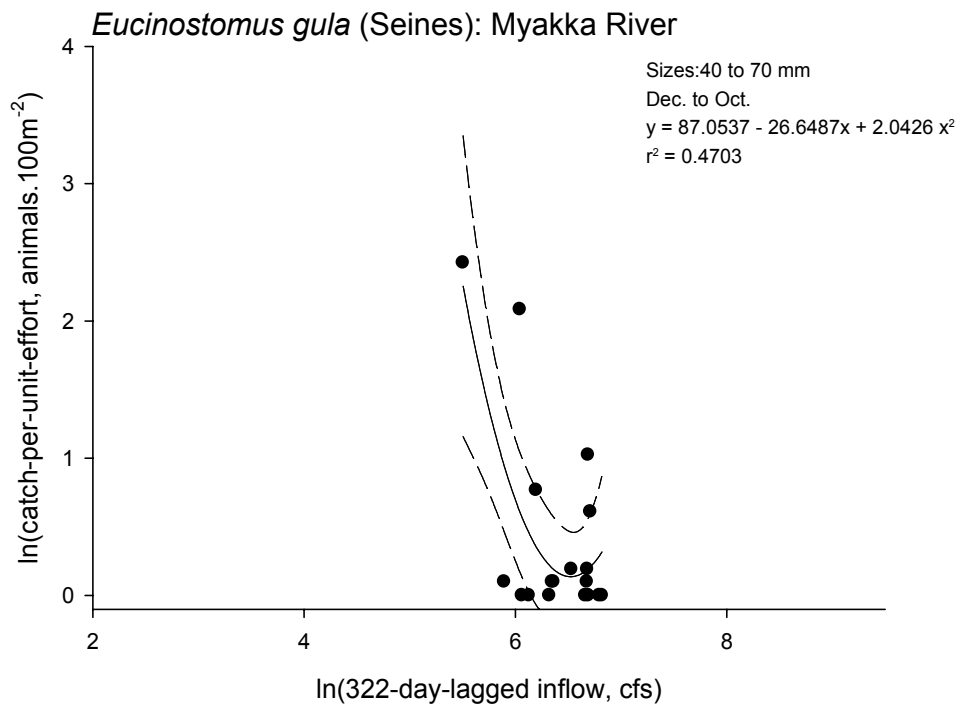


Fig. I43. Abundance response of Silver jenny (40 to 70 mm) in the Myakka River estuary to 322-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

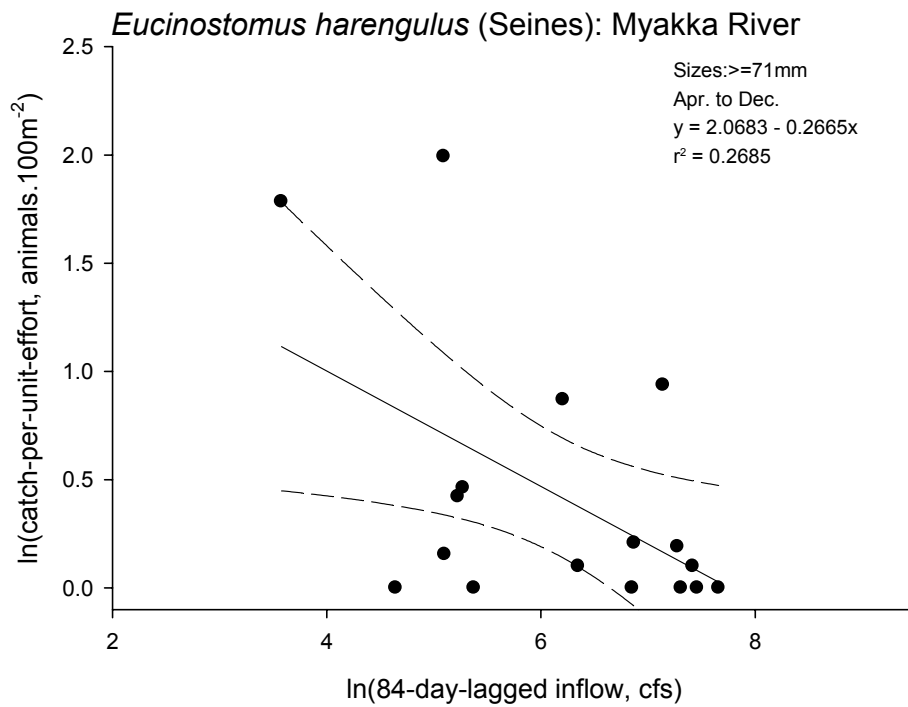


Fig. I44. Abundance response of Tidewater mojarra (≥ 71 mm) in the Myakka River estuary to 84-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

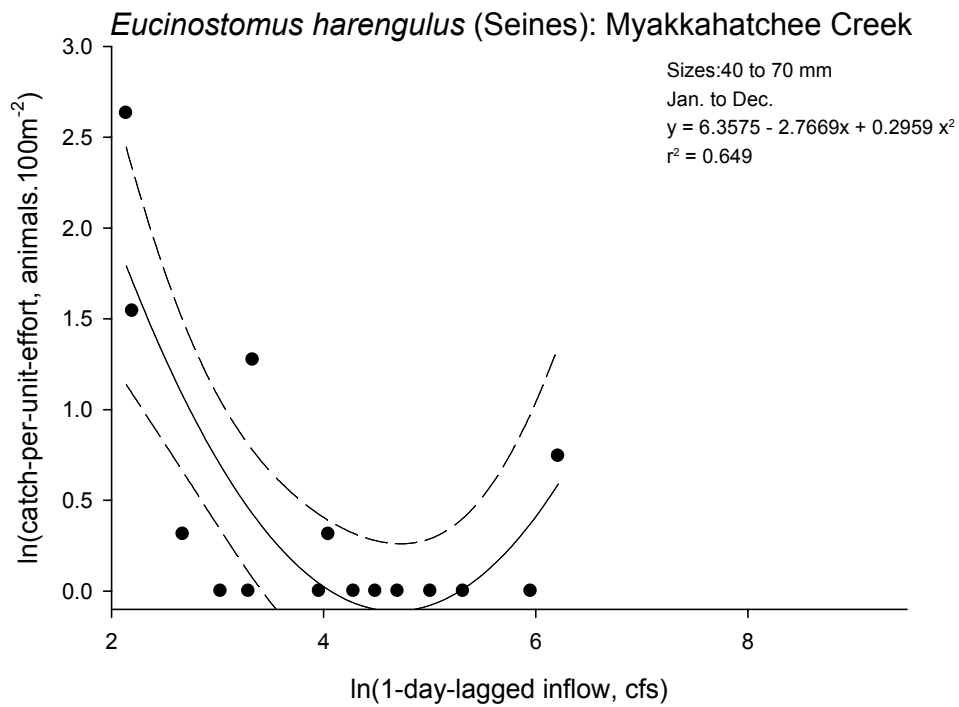


Fig. I45. Abundance response of Tidewater mojarra (40 to 70 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

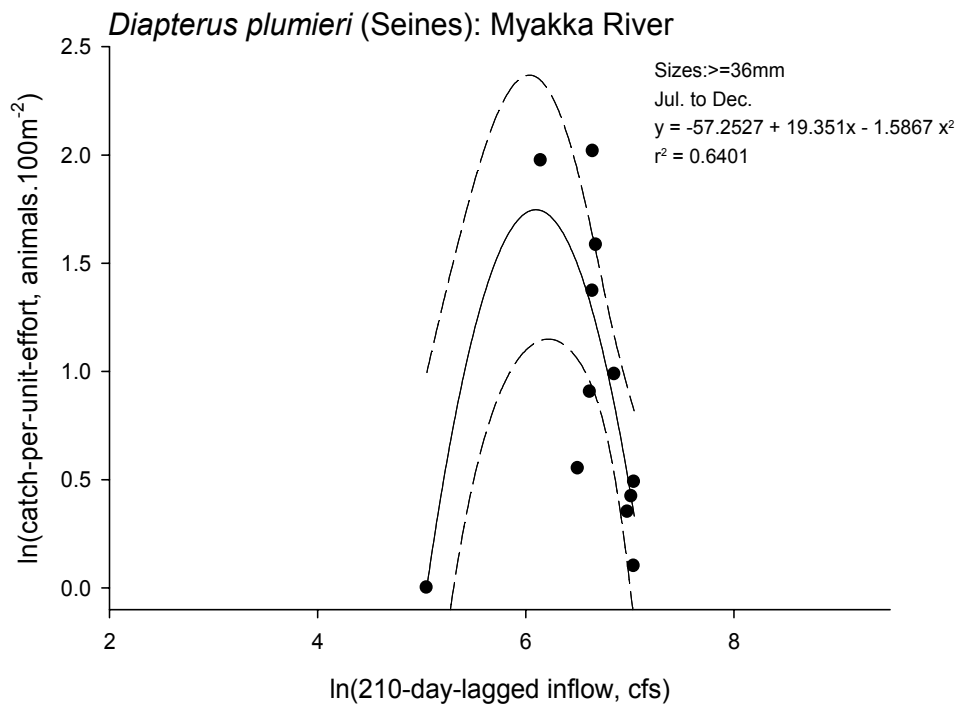


Fig. I46. Abundance response of Striped mojarra (≥ 36 mm) in the Myakka River estuary to 210-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

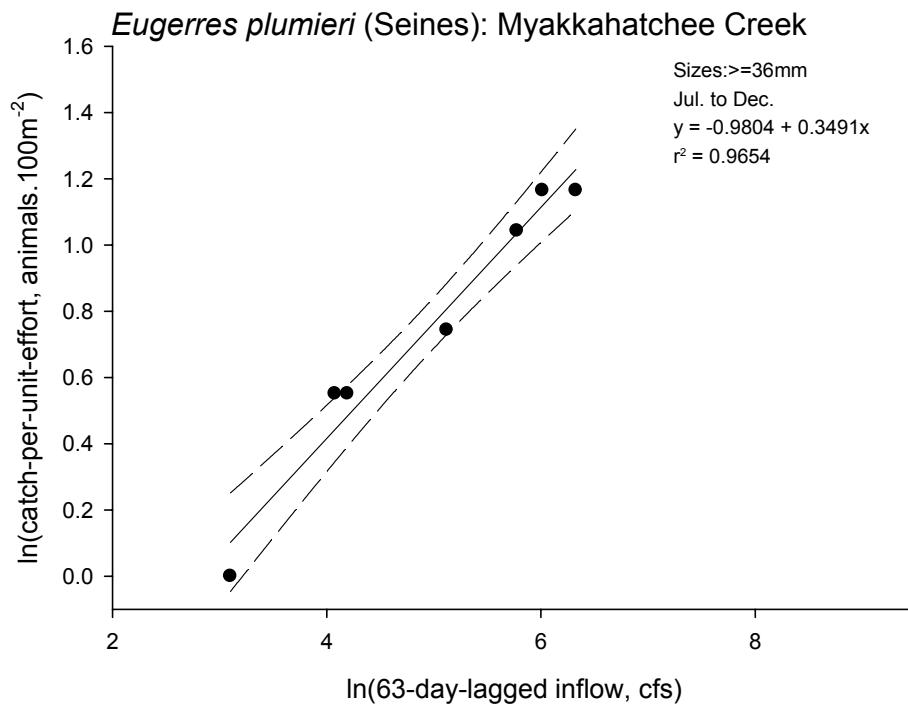


Fig. I47. Abundance response of Striped mojarra (≥ 36 mm) in the Myakkahatchee Creek estuary to 63-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

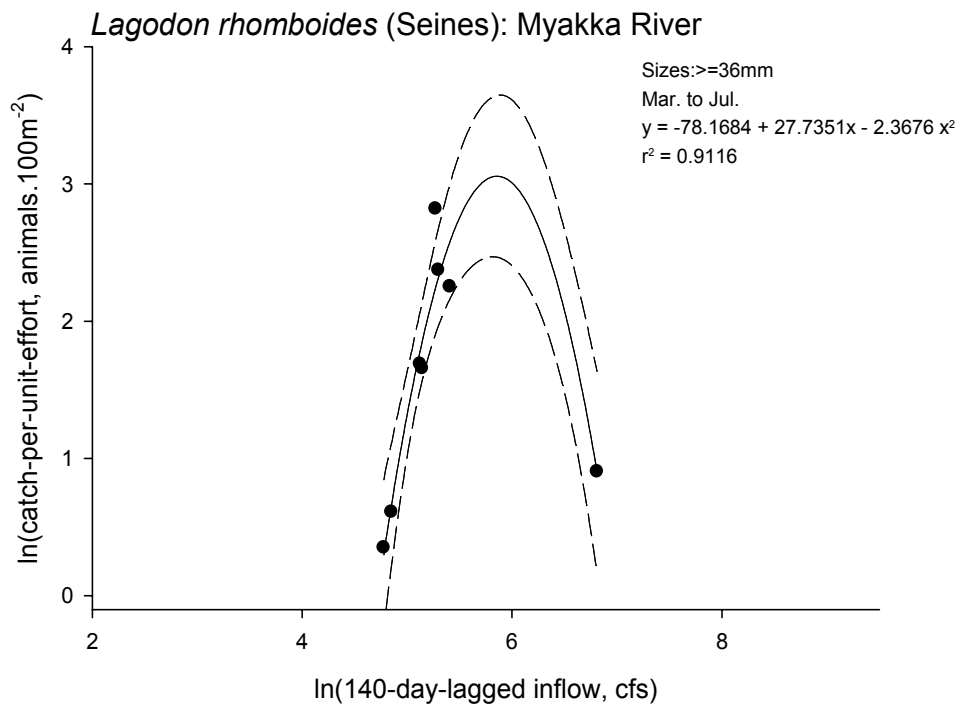


Fig. I48. Abundance response of Pinfish (≥ 36 mm) in the Myakka River estuary to 140-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

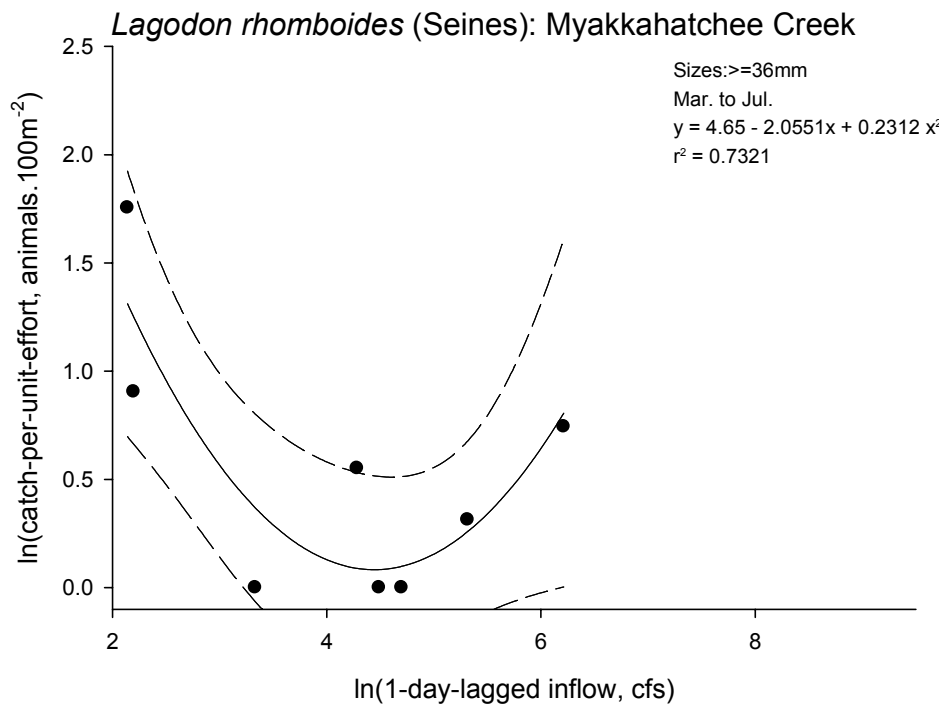


Fig. I49. Abundance response of Pinfish (≥ 36 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

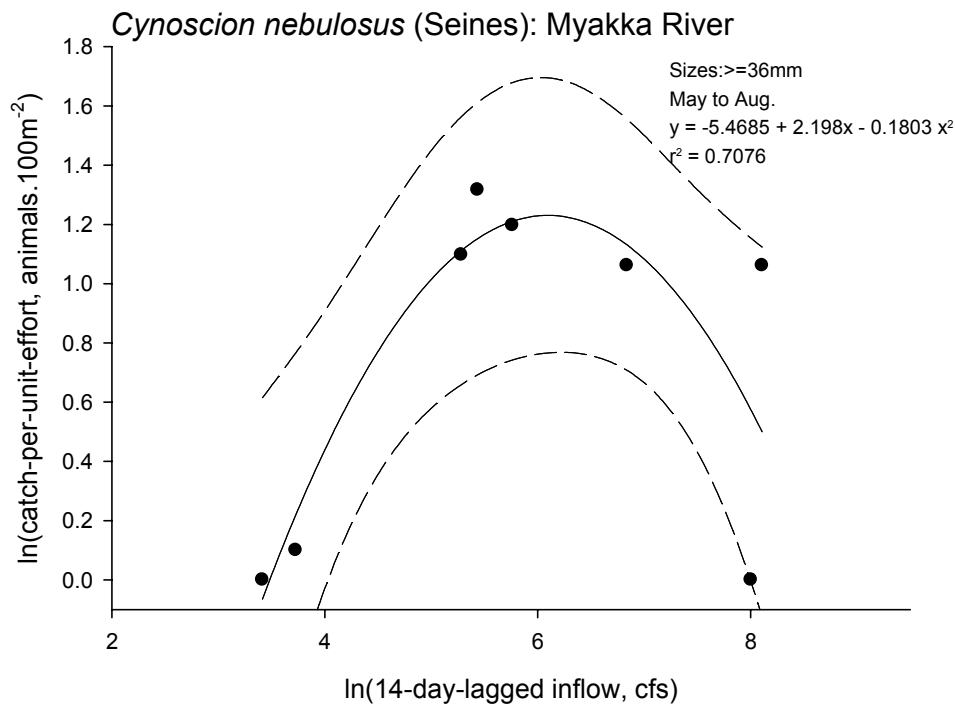


Fig. I50. Abundance response of Spotted seatrout (≥ 36 mm) in the Myakka River estuary to 14-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

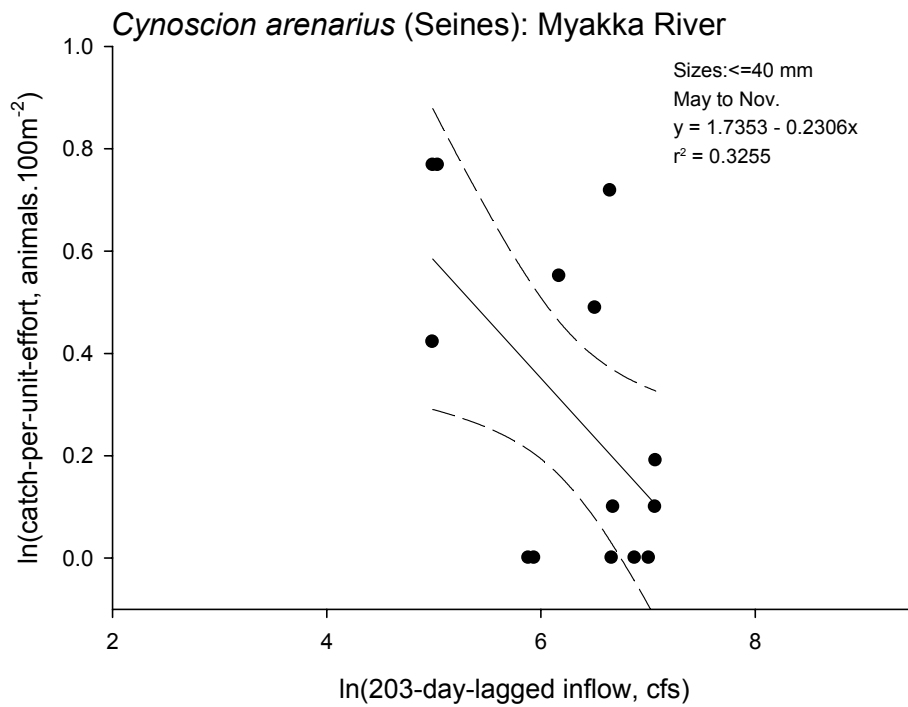


Fig. I51. Abundance response of Sand seatrout (≤ 40 mm) in the Myakka River estuary to 203-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

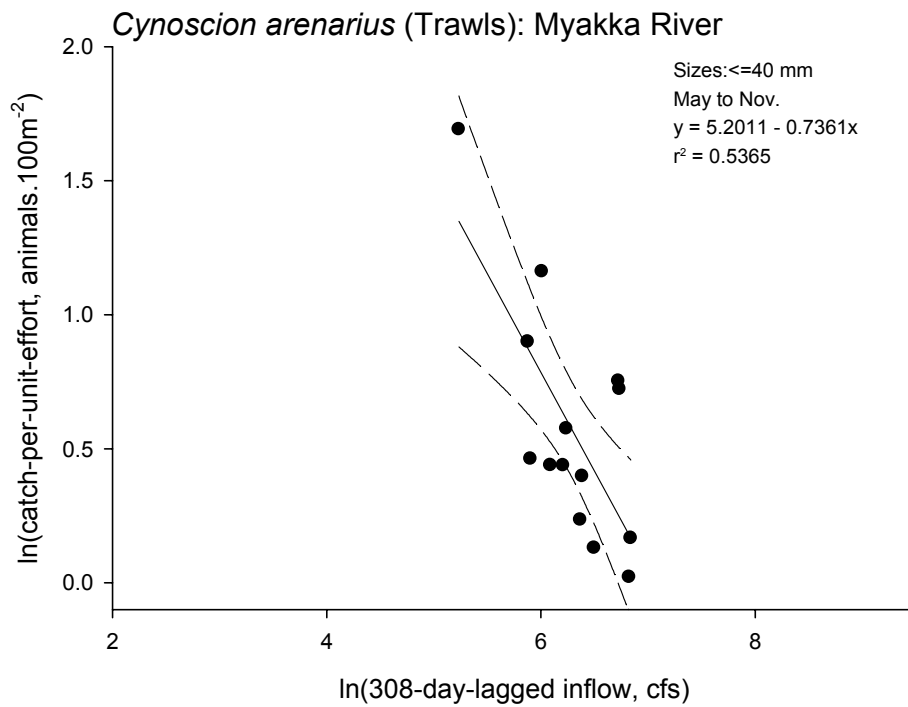


Fig. I52. Abundance response of Sand seatrout (≤ 40 mm) in the Myakka River estuary to 308-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

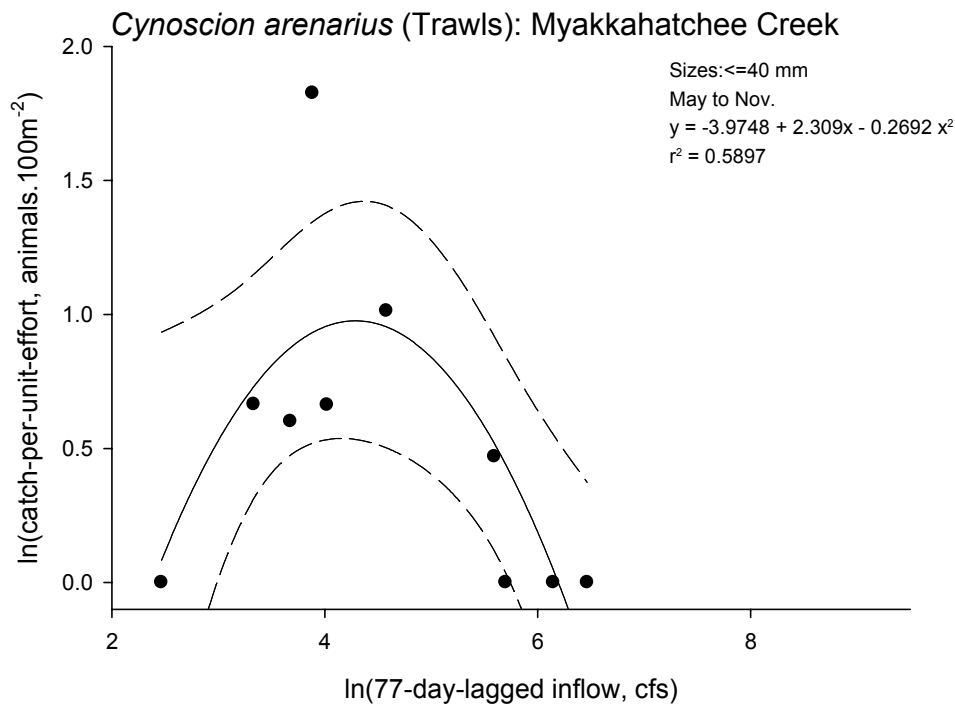


Fig. I53. Abundance response of Sand seatrout (≤ 40 mm) in the Myakkahatchee Creek estuary to 77-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

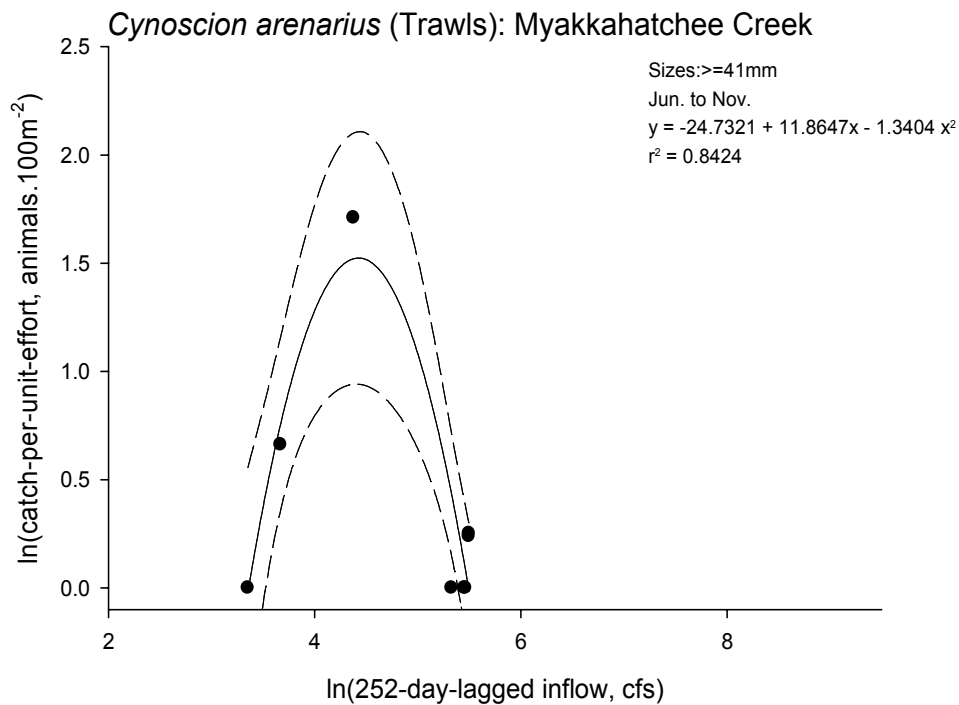


Fig. I54. Abundance response of Sand seatrout (≥ 41 mm) in the Myakkahatchee Creek estuary to 252-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

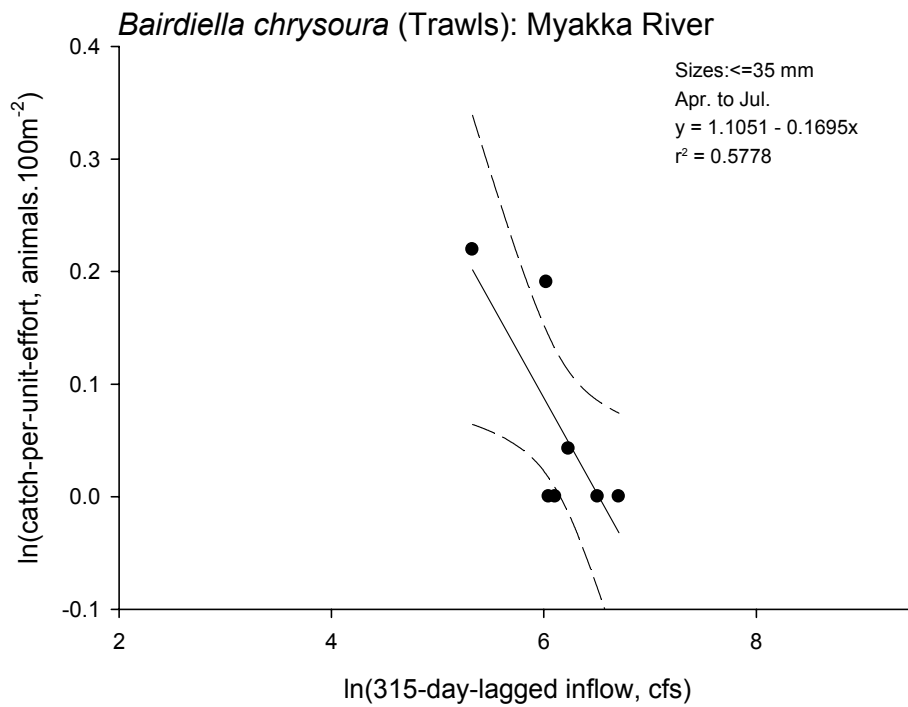


Fig. I55. Abundance response of Silver perch (≤ 35 mm) in the Myakka River estuary to 315-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

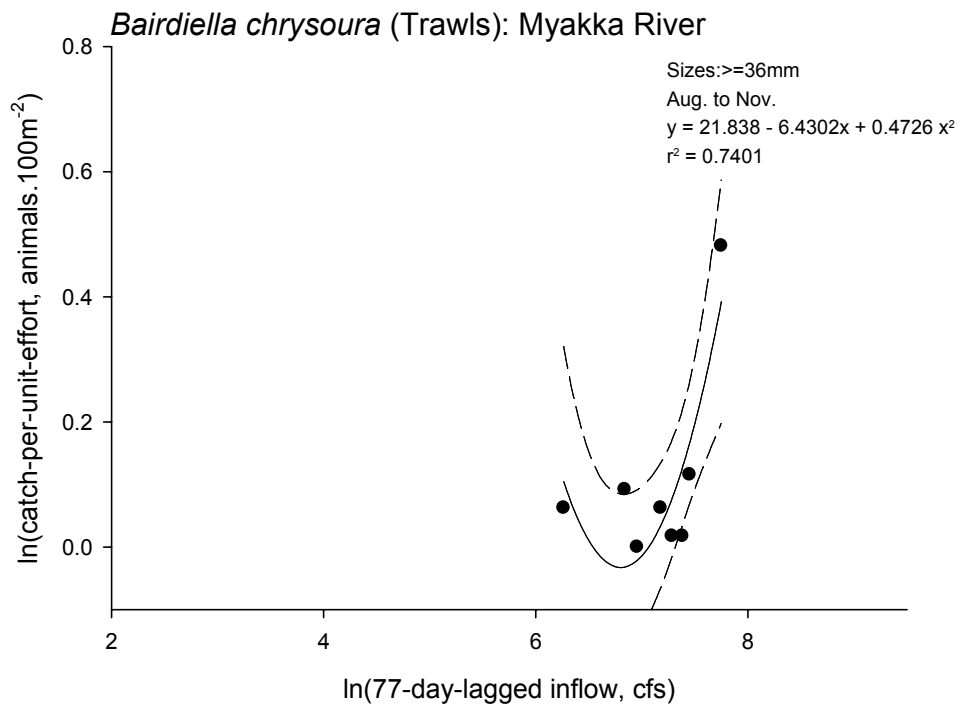


Fig. I56. Abundance response of Silver perch (≥ 36 mm) in the Myakka River estuary to 77-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

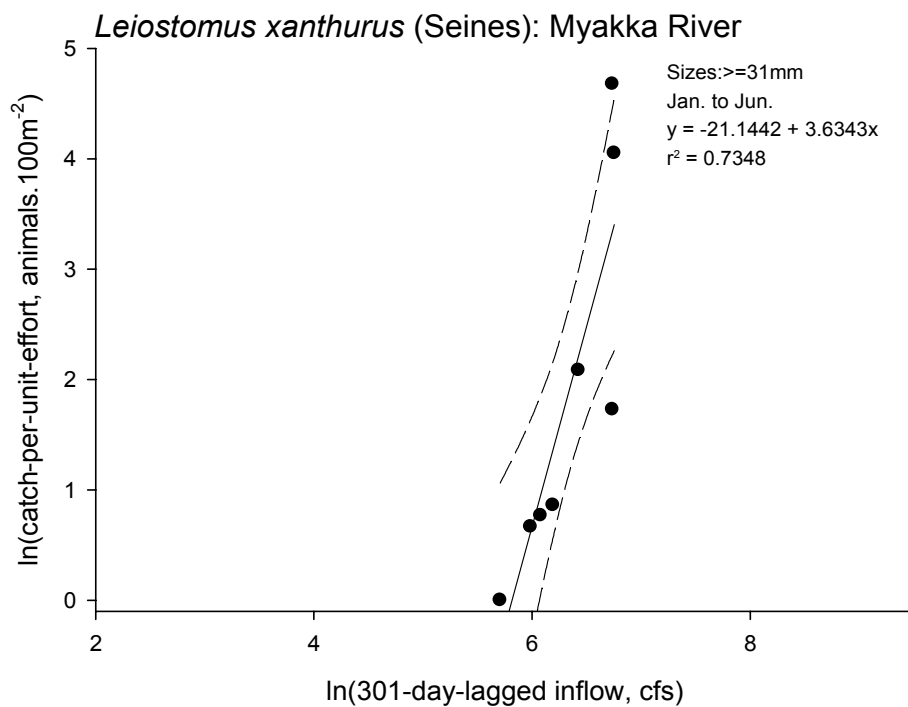


Fig. I57. Abundance response of Spot (≥ 31 mm) in the Myakka River estuary to 301-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

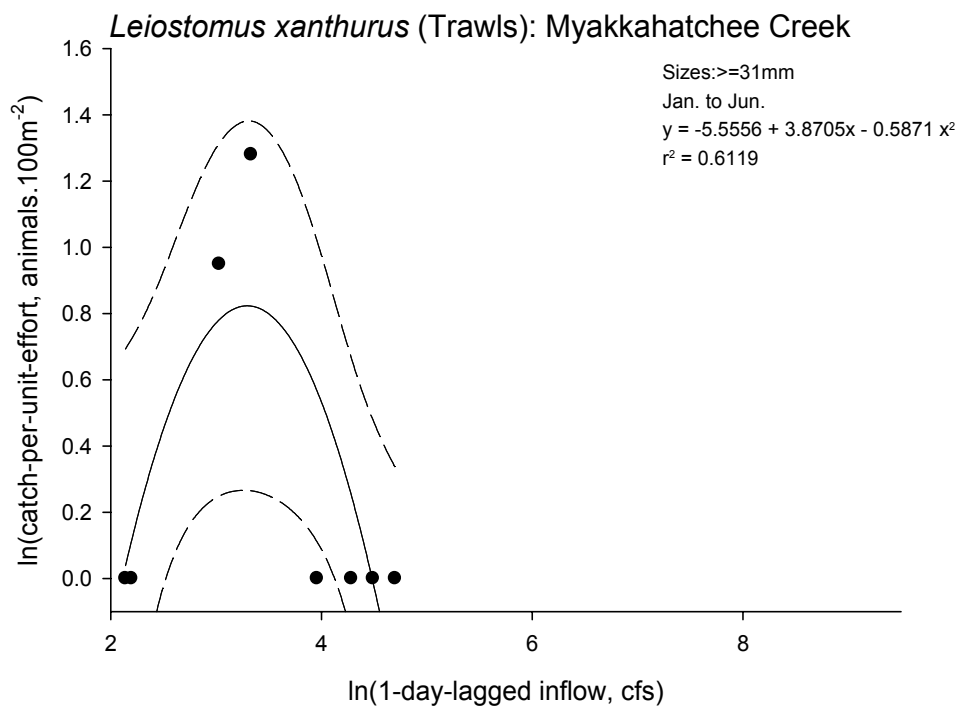


Fig. I58. Abundance response of Spot (≥ 31 mm) in the Myakkahatchee Creek estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

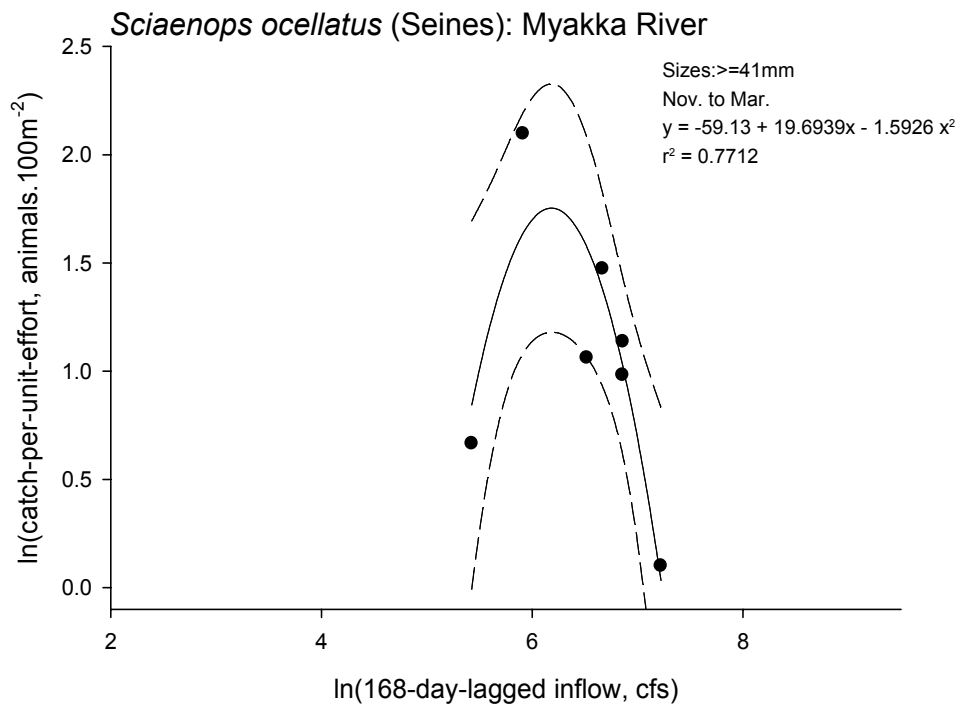


Fig. I59. Abundance response of Red drum (≥ 41 mm) in the Myakka River estuary to 168-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

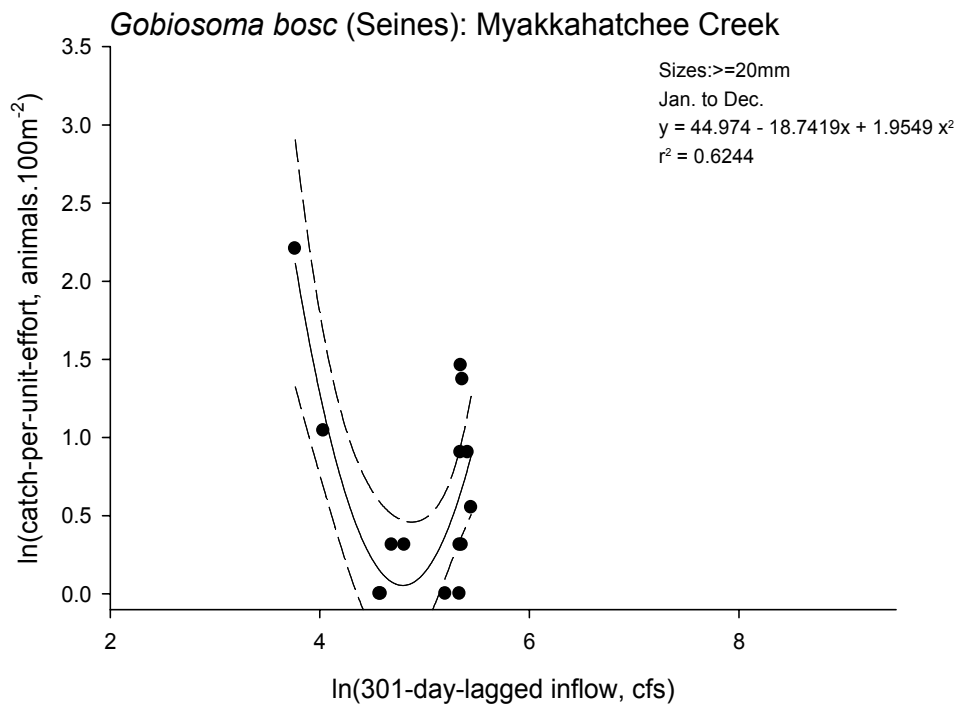


Fig. I60. Abundance response of Naked goby (≥ 20 mm) in the Myakkahatchee Creek estuary to 301-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

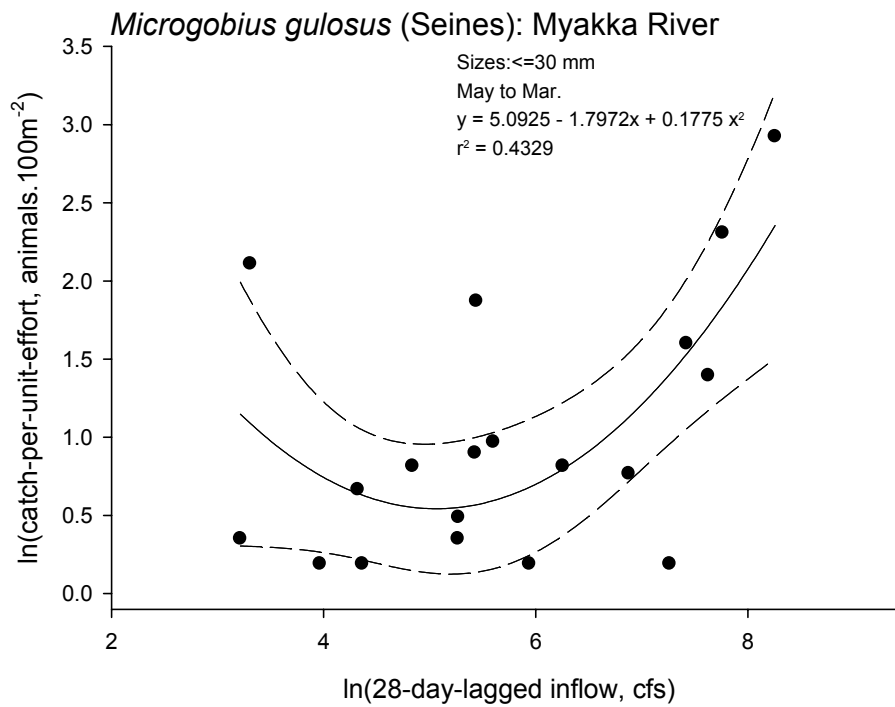


Fig. I61. Abundance response of Clown goby (≤ 30 mm) in the Myakka River estuary to 28-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

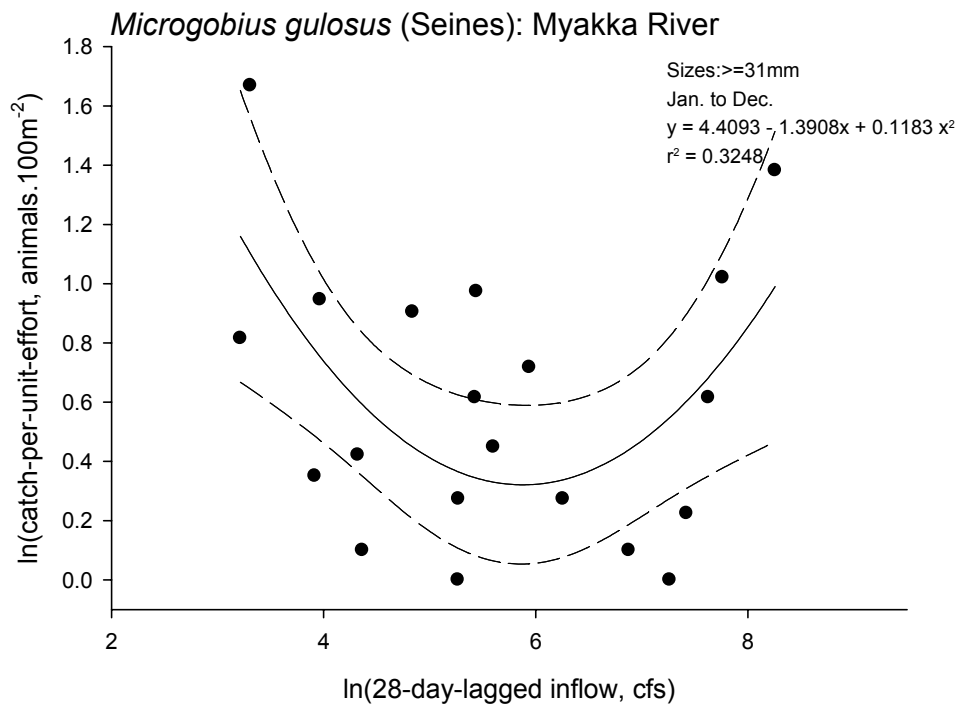


Fig. I62. Abundance response of Clown goby (≥ 31 mm) in the Myakka River estuary to 28-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

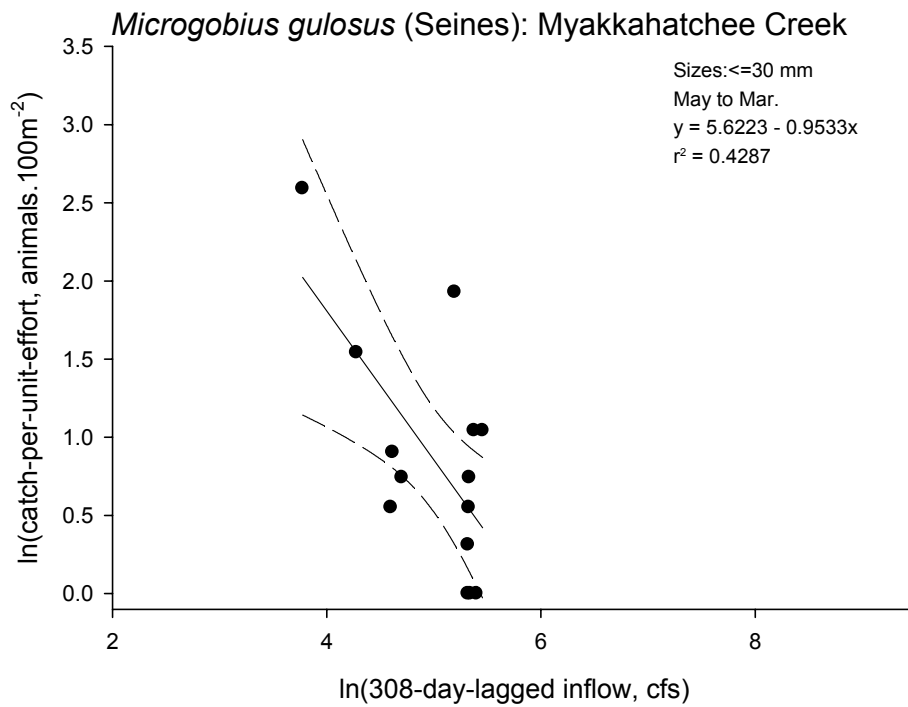


Fig. I63. Abundance response of Clown goby (≤ 30 mm) in the Myakkahatchee Creek estuary to 308-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

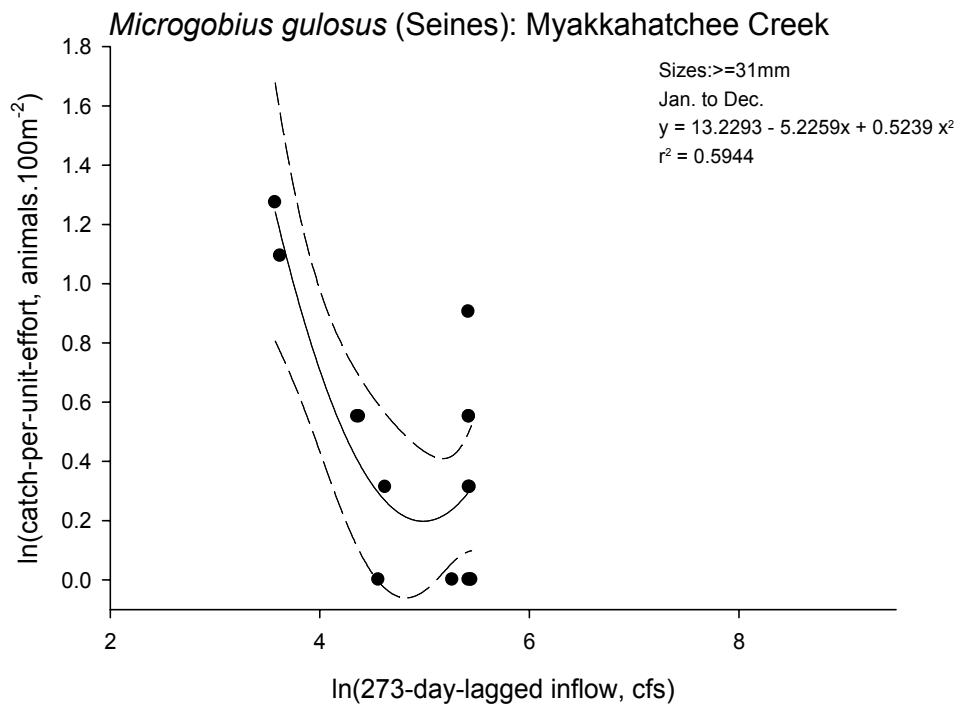


Fig. I64. Abundance response of Clown goby (≥ 31 mm) in the Myakkahatchee Creek estuary to 273-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

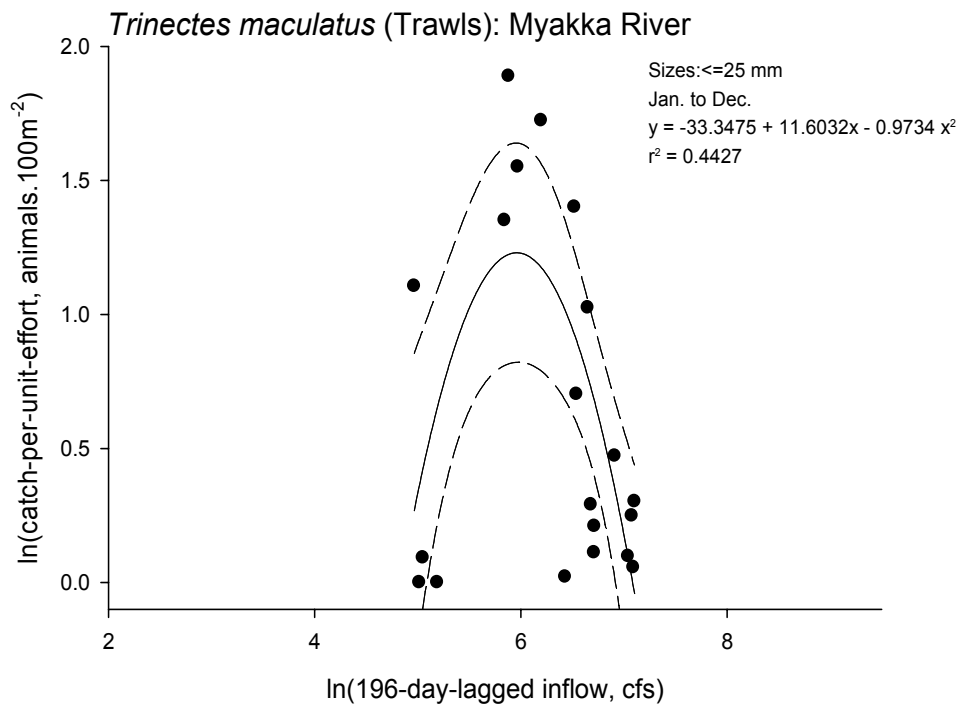


Fig. I65. Abundance response of Hogchoker (≤ 25 mm) in the Myakka River estuary to 196-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

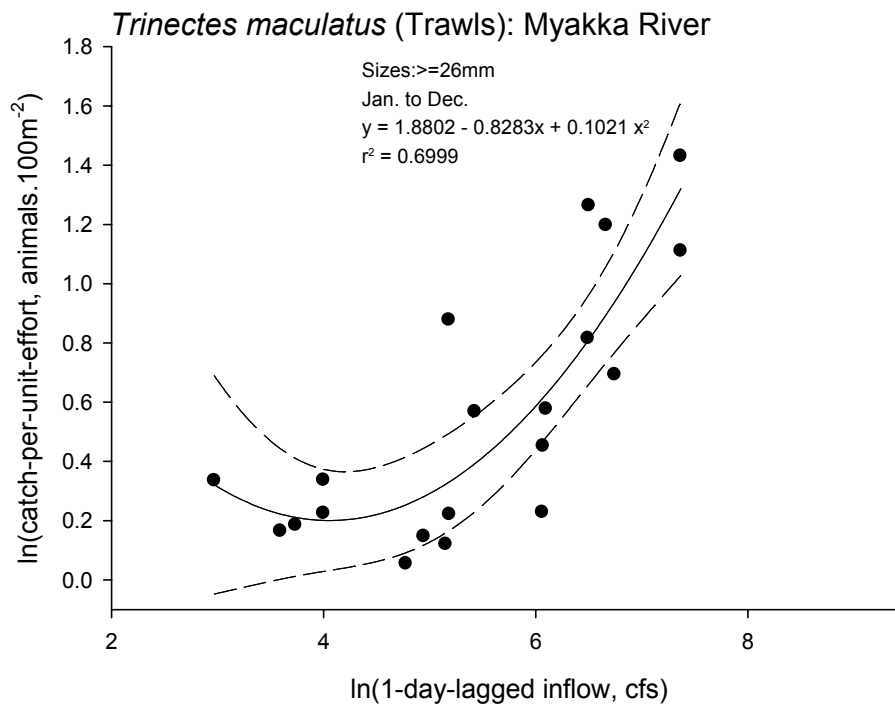


Fig. I66. Abundance response of Hogchoker (≥ 26 mm) in the Myakka River estuary to 1-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

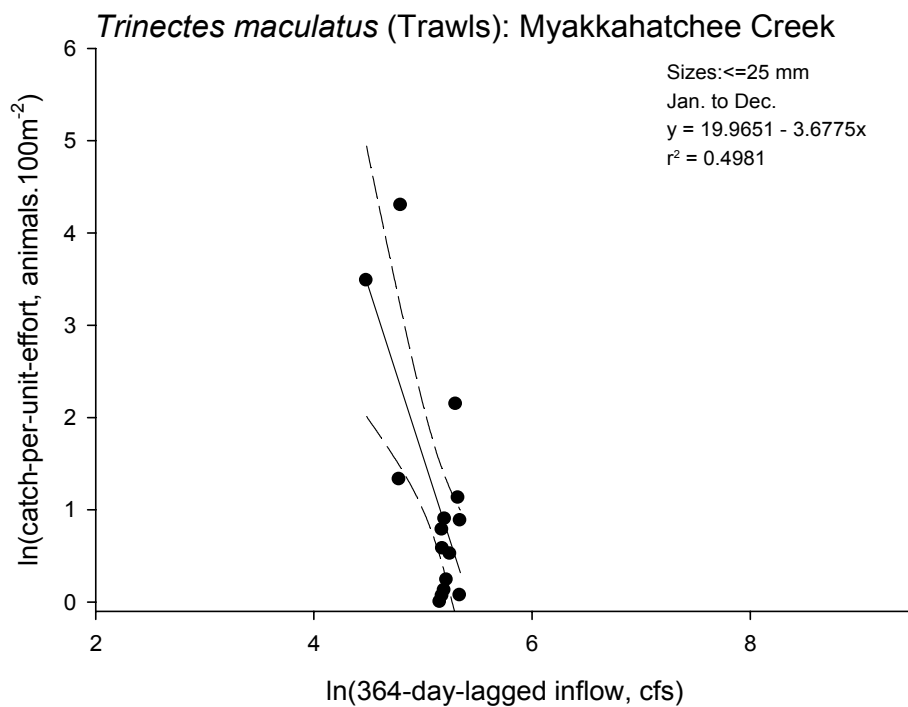


Fig. I67. Abundance response of Hogchoker (≤ 25 mm) in the Myakkahatchee Creek estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.

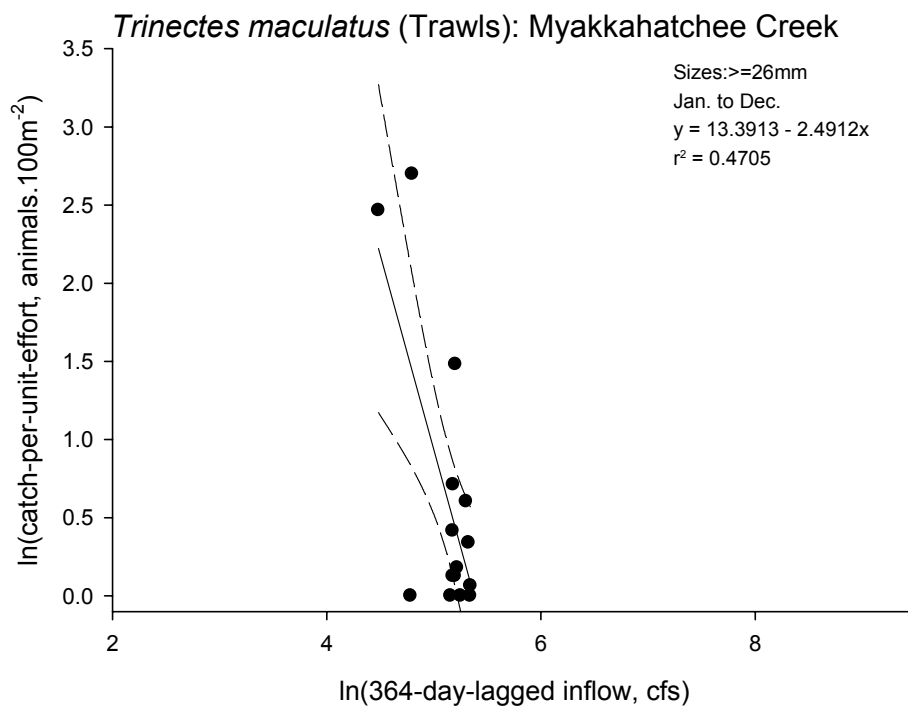


Fig. I68. Abundance response of Hogchoker (≥ 26 mm) in the Myakkahatchee Creek estuary to 364-day-lagged inflow. Solid lines: predicted values; dashed lines: 95% CI.