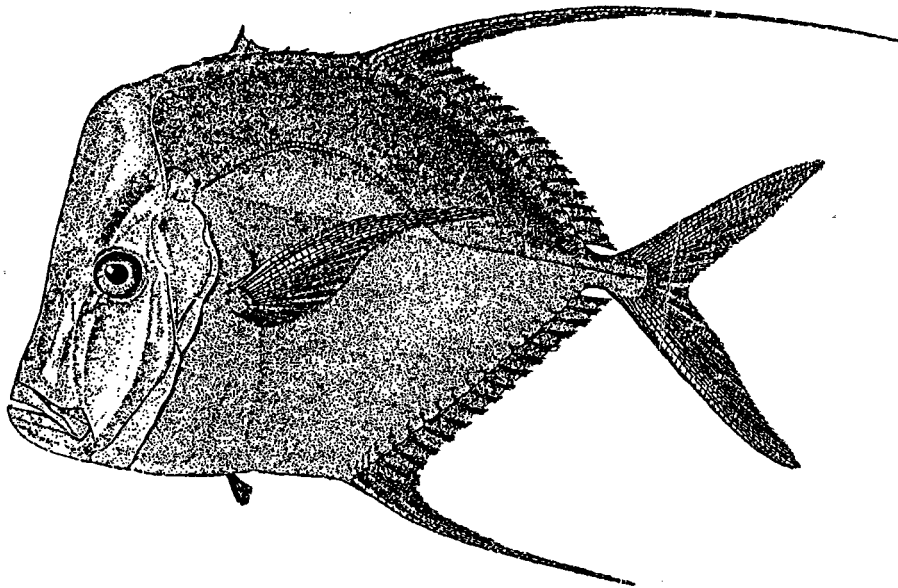


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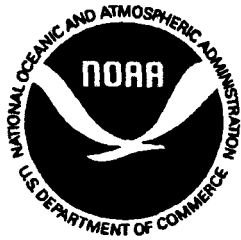
NOAA Technical Memorandum
NMFS-SEFSC-333

Selected Computer Images of Southeastern U.S. Marine Fishes



Larry L. Massey and Douglas E. Harper

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149



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Ronald H. Brown, Secretary

National Oceanic and Atmospheric Administration
D. James Baker, Under Secretary for Oceans and Atmosphere

National Marine Fisheries Service
Rolland Schmitt, Assistant Administrator for Fisheries

November 1993

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INTRODUCTION

With a grant from the Pioneer Fund of the U.S. Department of Commerce, more than a hundred illustrations of marine fishes indigenous to the southeastern United States were digitized into computer image files. The illustrations were digitized for use in scientific and resource management documents produced by the Southeast Fisheries Science Center and to make the images more available for public and private use. This report shows each image and lists its scientific nomenclature, computer file name, and publication from which it was obtained. Also, a contact address is provided for interested parties desiring to obtain instructions for accessing one or all of the computer files.

The illustrations were carefully drawn by scientific illustrators in the late nineteenth and early twentieth centuries under the auspices of renowned ichthyologists and issued in U.S. government publications. The illustrations and their associated computer files are in the public domain, carry no copyright restrictions, and may be used and distributed both privately and publicly.

The images were computerized to meet a growing need in the Southeast Fisheries Science Center for accurate and easily accessible illustrations of southeastern fishes, particularly in light of the growing graphic capabilities made available through personal computing technology. The Southeast Fisheries Science Center conducts marine fishery research and provides information to assist fishery management agencies and other fishery organizations in the southeastern continental United States, Puerto Rico, and U.S. Virgin Islands. In performing these duties, a large variety of documents is prepared concerning tropical and subtropical species of importance to commercial, recreational, and environmental groups as well as the public in general. Illustrations included within these documents have improved reader interest and understanding, particularly for less recognized species. We hope the illustrations can satisfy similar needs in the public sector.

Contained in this report are 126 figures of 118 fish species representing 46 families. The images were digitized from ten U.S. government publications listed in the section titled Sources of Illustrations for Computer Images. There are three tables that serve as an index for this report. Table 1 contains an alphabetical list of scientific names along with corresponding page numbers. Table 2 contains a similar list arranged by common names. Table 3 lists the fish images in phylogenetic order along with corresponding figure numbers, common names, and page numbers.

Each image in this report is enclosed in a box.

Within the box is important information about the image. The family name of the fish is shown in the lower-left corner of the box. In the lower-right corner is the currently accepted scientific name. In some cases the illustration was published under a scientific name that has since changed. In those cases, the scientific name in use when the illustration was drawn appears in brackets below the current scientific name. Also shown in the lower-right corner is the accepted common name for the fish. In the upper-left corner of the box is the name of the computer file that will produce the image. In the upper-right corner is a reference for the source of the illustration.

Except for the yellowtail snapper, *Lutjanus chrysurus*, all species and common names in this report follow Robins (1991). The specific name for yellowtail snapper is based upon Chow and Walsh (1992). Family names for all species follow Eschmeyer (1990).

To create the computer files, published drawings were scanned with DOS-compatible equipment and software to a width of about six inches as line art (black and white pixels) at 300 dpi (dots per inch) resolution. The files were formatted as Tagged Image File Format (TIFF) files. TIFF files are compatible with many popular image processing software packages (check the software manuals or a software representative for DOS, TIFF compatibility).

Scanned images received minor editing to remove debris from the background, add texture in the highlights, lighten solid black areas, etc. Only in one case was the image significantly altered — the third spine of the anal fin on the adult *Archosargus probatocephalus* (Figure 67) was originally drawn too small. After scanning the published illustration, this spine was redrawn larger using computer techniques. Major edits were unnecessary with the image of the young *Archosargus probatocephalus* (Figure 68).

A computer file name has five parts: 1) the first three letters of the genus, 2) an underscore, 3) the first four letters of the species, 4) a period, and 5) the letters TIF. For example, the computer file for the spotted eagle ray, *Aetobatus narinari*, is AET_NARI.TIF. In some cases two separate illustrations and computer files exist for the same species. In these cases, the number "2" is used before the period in the second file name to indicate an alternate view. For example, the dorsal view of *Aetobatus narinari* (Figure 5) is AET_NARI.TIF; the ventral view is AET_NAR2.TIF (Figure 6).

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Information on how to obtain copies of one or more computer image files depicted in this publication can be obtained by contacting the librarian at the following address:

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ACKNOWLEDGMENTS

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Table 1. Alphabetical index of scientific names. Fishes having currently available computer image files are listed below alphabetically by scientific name. The corresponding page number of this document showing the printed image is also provided.

Scientific Name	Page	Scientific Name	Page	Scientific Name	Page
<i>Abudefduf saxatilis</i>	36	<i>Epinephelus itajara</i>	17	<i>Mugil cephalus</i>	37
<i>Acanthurus coeruleus</i>	40	<i>Epinephelus morio</i>	18	<i>Mugil curema</i>	37
<i>Achirus lineatus</i>	45	<i>Epinephelus nigritus</i>	18	<i>Mustelus canis</i>	7
<i>Aetobatus narinari</i>	8,9	<i>Etelis oculatus</i>	23	<i>Mycteroperca microlepis</i>	18
<i>Agonostomus monticola</i>	37	<i>Etropus crossotus</i>	45	<i>Ocyurus chrysurus</i>	25
<i>Albula vulpes</i>	10	<i>Euthynnus alletteratus</i>	41	<i>Orthopristis chrysoptera</i>	29
<i>Anguilla rostrata</i>	10	<i>Ginglymostoma cirratum</i>	7	<i>Pagrus pagrus</i>	33
<i>Anisotremus surinamensis</i>	26	<i>Gymnothorax moringa</i>	11	<i>Paralichthys lethostigma</i>	45
<i>Anisotremus virginicus</i>	26	<i>Haemulon album</i>	27	<i>Pogonias cromis</i>	35
<i>Archosargus probatocephalus</i>	29,30	<i>Haemulon aurolineatum</i>	27	<i>Pomacanthus paru</i>	36
<i>Arius felis</i>	12	<i>Haemulon chrysargyreum</i>	28	<i>Pomatomus saltatrix</i>	19
<i>Aulostomus maculatus</i>	14	<i>Haemulon parra</i>	28	<i>Pristis pectinata</i>	8
<i>Auxis thazard</i>	41	<i>Haemulon plumieri</i>	28	<i>Rhomboplites aurorubens</i>	25
<i>Bagre marinus</i>	12	<i>Haemulon sciurus</i>	29	<i>Rypticus bistrispinus</i>	19
<i>Bollmannia boqueronensis</i>	40	<i>Halichoeres bivittatus</i>	38	<i>Sarda sarda</i>	42
<i>Brevoortia patronus</i>	11	<i>Hemiramphus brasiniensis</i>	13	<i>Scarus guacamaia</i>	39
<i>Brevoortia tyrannus</i>	12	<i>Hyporhamphus unifasciatus</i>	13	<i>Sciaenops ocellatus</i>	35
<i>Calamus arctifrons</i>	30	<i>Ichthyapus ophioneus</i>	11	<i>Scomber japonicus</i>	42
<i>Calamus bajonado</i>	30	<i>Katsuwonus pelamis</i>	42	<i>Scomber scombrus</i>	43
<i>Calamus calamus</i>	31	<i>Kyphosus sectatrix</i>	36	<i>Scomberomorus cavalla</i>	43
<i>Calamus penna</i>	31	<i>Lachnolaimus maximus</i>	39	<i>Scomberomorus maculatus</i>	43
<i>Calamus proridens</i>	31	<i>Lactophrys polygonia</i>	46	<i>Scomberomorus regalis</i>	44
<i>Caranx crysos</i>	20	<i>Lactophrys trigonus</i>	46	<i>Scorpaena albifimbria</i>	14
<i>Caranx hippos</i>	20	<i>Lactophrys triqueter</i>	47	<i>Scorpaena bergi</i>	15
<i>Caranx latus</i>	20	<i>Lagocephalus laevigatus</i>	48	<i>Scorpaena brasiliensis</i>	15
<i>Centropomus undecimalis</i>	16	<i>Lagodon rhomboides</i>	32	<i>Scorpaena grandicornis</i>	15
<i>Centropristis striata</i>	16	<i>Leiostomus xanthurus</i>	34	<i>Selar crumenophthalmus</i>	21
<i>Chilomycterus schoepfi</i>	48	<i>Lobotes surinamensis</i>	26	<i>Selene setapinnis</i>	21
<i>Chloroscombrus chrysurus</i>	21	<i>Lutjanus analis</i>	23	<i>Selene vomer</i>	22
<i>Citharichthys arenaceus</i>	44	<i>Lutjanus apodus</i>	24	<i>Sphoeroides spengleri</i>	49
<i>Cynoscion nebulosus</i>	34	<i>Lutjanus campechanus</i>	24	<i>Sphyraena barracuda</i>	38
<i>Diodon hystrix</i>	48	<i>Lutjanus griseus</i>	24	<i>Squalus acanthias</i>	7
<i>Diplectrum formosum</i>	17	<i>Lutjanus synagris</i>	25	<i>Stenotomus caprinus</i>	33
<i>Diplodus holbrooki</i>	32	<i>Megalops atlanticus</i>	10	<i>Stenotomus chrysops</i>	33
<i>Echeneis naucrates</i>	19	<i>Menticirrhus americanus</i>	34	<i>Synodus foetens</i>	13
<i>Eleotris pisonis</i>	40	<i>Micropogonias undulatus</i>	35	<i>Thunnus alalunga</i>	44
<i>Elops saurus</i>	9	<i>Monacanthus ciliatus</i>	47	<i>Trachinotus falcatus</i>	22
<i>Emblemaria pandionis</i>	39	<i>Monacanthus hispidus</i>	47	<i>Trachinotus goodei</i>	23
<i>Epinephelus adscensionis</i>	17	<i>Morone saxatilis</i>	16	<i>Trichiurus lepturus</i>	41
				<i>Tylosurus crocodilus</i>	14

Table 2. Alphabetical index of common names. Fishes having currently available computer image files are listed below alphabetically by common name. The corresponding page number of this document showing the printed image is also provided.

Common Name	Page	Common Name	Page	Common Name	Page
albacore	44	hogfish	39	sand whiff	44
American eel	10	honycomb cowfish	46	saucereye porgy	31
Atlantic bonito	42	horned dogfish	7	schoolmaster	24
Atlantic bumper	21	horse-eye jack	20	scup	33
Atlantic cutlassfish	41	houndfish	14	sergeant major	36
Atlantic mackerel	43	inshore lizardfish	13	sharksucker	19
Atlantic menhaden	12	jewfish	17	sheepshead porgy	31
ballyhoo	13	jolthead porgy	30	sheepshead	29, 30
bandtail puffer	49	king mackerel	43	silverstripe halfbeak	13
barbfish	15	ladyfish	9	skipjack tuna	42
Bermuda chub	36	lane snapper	25	slippery dick	38
bigeye scad	21	lined sole	45	smallmouth grunt	28
black drum	35	little tunny	41	smalltooth sawfish	8
black margate	26	littlehead porgy	31	smooth dogfish	7
black sea bass	16	longspine porgy	33	smooth puffer	48
blue runner	20	lookdown	22	smooth trunkfish	47
blue tang	40	margate	27	southern flounder	45
bluefish	19	moonfish	21	Spanish mackerel	43
bluestriped grunt	29	mountain mullet	37	spinycheek sleeper	40
bonefish	10	mutton snapper	23	spot	34
cero	44	nurse shark	7	spottail pinfish	32
chub mackerel	42	palometa	23	spotted eagle ray	8, 9
common snook	16	permit	22	spotted moray	11
coral scorpionfish	14	pigfish	29	spotted seatrout	34
crevalle jack	20	pinfish	32	striped bass	16
croaker	35	planehead filefish	47	striped burrfish	48
freckled soapfish	19	plumed scorpionfish	15	striped mullet	37
French angelfish	36	porcupinefish	48	surf eel	11
frigate mackerel	41	porkfish	26	tarpon	10
fringed filefish	47	queen snapper	23	tomtate	27
fringed flounder	45	rainbow parrotfish	39	tripletail	26
gafftopsail catfish	12	red drum	35	trumpetfish	14
gag	18	red grouper	18	trunkfish	46
goosehead scorpionfish	15	red porgy	33	vermillion snapper	25
grass porgy	30	red snapper	24	warsaw grouper	18
gray snapper	24	rock hind	17	white grunt	28
great barracuda	38	sailfin blenny	39	white mullet	37
gulf menhaden	11	sailors choice	28	white-eye goby	40
hardhead catfish	12	sand perch	17	whiting	34
				yellowtail snapper	25

Table 3. Phylogenetic listing of images. Fishes having currently available computer image files are listed below in phylogenetic order. The corresponding figure number, scientific species name, common name, and page number of this document showing the printed image is also provided.

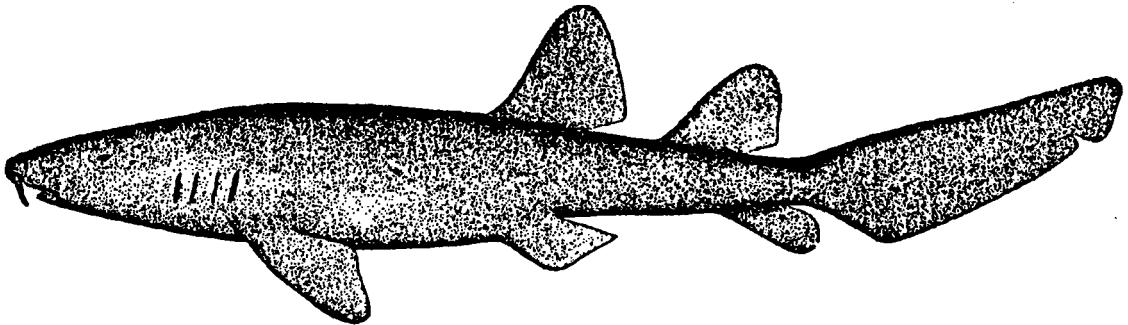
Family	Fig.	Scientific Name	Common Name	Page	Family	Fig.	Scientific Name	Common Name	Page
Rhincodontidae					Scorpaenidae				
	1	<i>Ginglymostoma cirratum</i>	nurse shark	7	22	<i>Scorpaena albifimbria</i>	coral scorpionfish		14
Carcharhinidae					23	<i>Scorpaena bergi</i>	goosehead scorpionfish		15
	2	<i>Mustelus canis</i>	smooth dogfish	7	24	<i>Scorpaena brasiliensis</i>	barbfish		15
Squalidae					25	<i>Scorpaena grandicornis</i>	plumed scorpionfish		15
	3	<i>Squalus acanthias</i>	horned dogfish	7	Centroprismidae				
Pristidae					26	<i>Centroprismus undecimalis</i>	common snook		16
	4	<i>Pristis pectinata</i>	smalltooth sawfish	8	Percichthyidae				
Myliobatidae					27	<i>Morone saxatilis</i>	striped bass		16
	5	<i>Aetobatus narinari</i>	spotted eagle ray	8	Serranidae				
	6	<i>Aetobatus narinari</i>	spotted eagle ray	9	28	<i>Centropristis striata</i>	black sea bass		16
Elopidae					29	<i>Dipllectrum formosum</i>	sand perch		17
	7	<i>Elops saurus</i>	ladyfish	9	30	<i>Epinephelus adscensionis</i>	rock hind		17
	8	<i>Megalops atlanticus</i>	tarpon	10	31	<i>Epinephelus itajara</i>	jewfish		17
Albulidae					32	<i>Epinephelus morio</i>	red grouper		18
	9	<i>Albula vulpes</i>	bonefish	10	33	<i>Epinephelus nigritus</i>	warsaw grouper		18
Anguillidae					34	<i>Mycteroperca microlepis</i>	gag		18
	10	<i>Anguilla rostrata</i>	American eel	10	35	<i>Rypticus bistrispinus</i>	freckled soapfish		19
Muraenidae					Pomatomidae				
	11	<i>Gymnothorax moringa</i>	spotted moray	11	36	<i>Pomatomus saltatrix</i>	bluefish		19
Ophichthidae					Echeneidae				
	12	<i>Ichthyapus ophioneus</i>	surf eel	11	37	<i>Echeneis naucrates</i>	sharksucker		19
Clupeidae					Carangidae				
	13	<i>Brevoortia patronus</i>	gulf menhaden	11	38	<i>Caranx crysos</i>	blue runner		20
	14	<i>Brevoortia tyrannus</i>	Atlantic menhaden	12	39	<i>Caranx hippos</i>	crevalle jack		20
Ariidae					40	<i>Caranx latus</i>	horse-eye jack		20
	15	<i>Arius felis</i>	hardhead catfish	12	41	<i>Chloroscombrus chrysurus</i>	Atlantic bumper		21
	16	<i>Bagre marinus</i>	gafftopsail catfish	12	42	<i>Selar crumenophthalmus</i>	bigeye scad		21
Synodontidae					43	<i>Selene setapinnis</i>	moonfish		21
	17	<i>Synodus foetens</i>	inshore lizardfish	13	44	<i>Selene vomer</i>	lookdown		22
Exocoetidae					45	<i>Selene vomer</i>	lookdown		22
	18	<i>Hemiramphus brasiliensis</i>	ballyhoo	13	46	<i>Trachinotus falcatus</i>	permit		22
	19	<i>Hyporhamphus unifasciatus</i>	silverstripe halfbeak	13	47	<i>Trachinotus goodei</i>	palometa		23
Belonidae					Lutjanidae				
	20	<i>Tylosurus crocodilus</i>	houndfish	14	48	<i>Etelis oculatus</i>	queen snapper		23
Aulostomidae					49	<i>Lutjanus analis</i>	mutton snapper		23
	21	<i>Aulostomus maculatus</i>	trumpetfish	14	50	<i>Lutjanus campechanus</i>	red snapper		24
					51	<i>Lutjanus apodus</i>	schoolmaster		24
					52	<i>Lutjanus griseus</i>	gray snapper		24
					53	<i>Lutjanus synagris</i>	lane snapper		25
					54	<i>Ocyurus chrysurus</i>	yellowtail snapper		25
					55	<i>Rhomboplites aurorubens</i>	vermillion snapper		25
					Lobotidae				
					56	<i>Lobotes surinamensi</i>	tripletail		26

Table 3. (continued) Phylogenetic listing of images. Fishes having currently available computer image files are listed below in phylogenetic order. The corresponding figure number, scientific species name, common name, and page number of this document showing the printed image is also provided.

Family				Family			
Fig.	Scientific Name	Common Name	Page	Fig.	Scientific Name	Common Name	Page
Haemulidae				Scaridae			
57	<i>Anisotremus surinamensis</i>	black margate	26	96	<i>Scarus guacamaia</i>	rainbow parrotfish	39
58	<i>Anisotremus virginicus</i>	porkfish	26	Clinidae			
59	<i>Haemulon album</i>	margate	27	97	<i>Emblemaria pandionis</i>	sailfin blenny	39
60	<i>Haemulon aurolineatum</i>	tomtate	27	Eleotridae			
61	<i>Haemulon aurolineatum</i>	tomtate	27	98	<i>Eleotris pisonis</i>	spinycheek sleeper	40
62	<i>Haemulon chrysargyreum</i>	smallmouth grunt	28	Gobiidae			
63	<i>Haemulon parra</i>	sailors choice	28	99	<i>Bolmannia boqueronensis</i>	white-eye goby	40
64	<i>Haemulon plumieri</i>	white grunt	28	Acanthuridae			
65	<i>Haemulon sciurus</i>	bluestriped grunt	29	100	<i>Acanthurus coeruleus</i>	blue tang	40
66	<i>Orthopristis chrysoptera</i>	pigfish	29	Trichiuridae			
Sparidae				101	<i>Trichiurus lepturus</i>	Atlantic cutlassfish	41
67	<i>Archosargus probatocephalus</i>	sheepshead	29	Scombridae			
68	<i>Archosargus probatocephalus</i>	sheepshead	30	102	<i>Auxis thazard</i>	frigate mackerel	41
69	<i>Calamus arcifrons</i>	grass porgy	30	103	<i>Euthymus alletteratus</i>	little tunny	41
70	<i>Calamus bajonado</i>	jolthead porgy	30	104	<i>Katsuwonus pelamis</i>	skipjack tuna	42
71	<i>Calamus calamus</i>	saucereye porgy	31	105	<i>Sarda sarda</i>	Atlantic bonito	42
72	<i>Calamus penna</i>	sheepshead porgy	31	106	<i>Scomber japonicus</i>	chub mackerel	42
73	<i>Calamus proridens</i>	littlehead porgy	31	107	<i>Scomber scombrus</i>	Atlantic mackerel	43
74	<i>Diplodus holbrooki</i>	spottail pinfish	32	108	<i>Scomberomorus cavalla</i>	king mackerel	43
75	<i>Diplodus holbrooki</i>	spottail pinfish	32	109	<i>Scomberomorus maculatus</i>	Spanish mackerel	43
76	<i>Lagodon rhomboides</i>	pinfish	32	110	<i>Scomberomorus regalis</i>	cero	44
77	<i>Pagrus pagrus</i>	red porgy	33	111	<i>Thunnus alalunga</i>	albacore	44
78	<i>Stenotomus caprinus</i>	longspine porgy	33	Paralichthyidae			
79	<i>Stenotomus chrysops</i>	scup	33	112	<i>Citharichthys arenaceus</i>	sand whiff	44
Sciaenidae				113	<i>Etropus crossotus</i>	fringed flounder	45
80	<i>Cynoscion nebulosus</i>	spotted seatrout	34	114	<i>Paralichthys lethostigma</i>	southern flounder	45
81	<i>Leiostomus xanthurus</i>	spot	34	Achridae			
82	<i>Menticirrhus americanus</i>	whiting	34	115	<i>Achirus lineatus</i>	lined sole	45
83	<i>Micropogonias undulatus</i>	croaker	35	Ostraciidae			
84	<i>Pogonias cromis</i>	black drum	35	116	<i>Lactophrys polygona</i>	honeycomb cowfish	46
85	<i>Sciaenops ocellatus</i>	red drum	35	117	<i>Lactophrys trigonus</i>	trunkfish	46
Kyphosidae				118	<i>Lactophrys trigonus</i>	trunkfish	46
86	<i>Kyphosus sectatrix</i>	Bermuda chub	36	119	<i>Lactophrys triqueter</i>	smooth trunkfish	47
Pomacanthidae				Monacanthidae			
87	<i>Pomacanthus paru</i>	French angelfish	36	120	<i>Monacanthus ciliatus</i>	fringed filefish	47
88	<i>Abudefduf saxatilis</i>	sergeant major	36	121	<i>Monacanthus hispidus</i>	planehead filefish	47
Mugilidae				Diodontidae			
89	<i>Agonostomus monticola</i>	mountain mullet	37	122	<i>Diodon hystrix</i>	porcupinefish	48
90	<i>Mugil cephalus</i>	striped mullet	37	123	<i>Chilomycterus schoepfi</i>	striped burrfish	48
91	<i>Mugil curema</i>	white mullet	37	Tetraodontidae			
Sphyraenidae				124	<i>Lagocephalus laevigatus</i>	smooth puffer	48
92	<i>Sphyraena barracuda</i>	great barracuda	38	125	<i>Sphoeroides spengleri</i>	bandtail puffer	49
Labridae				126	<i>Sphoeroides spengleri</i>	bandtail puffer	49
93	<i>Halichoeres bivittatus</i>	slippery dick	38				
94	<i>Halichoeres bivittatus</i>	slippery dick	38				
95	<i>Lachnolaimus maximus</i>	hogfish	39				

GIN_CIRR.TIF

Evermann and Marsh, 1902, Fig. 3



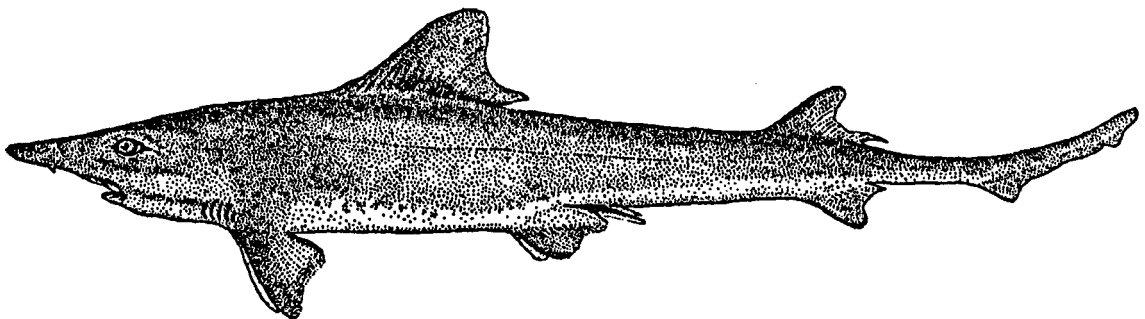
Rhincodontidae

Figure 1

Ginglymostoma cirratum
nurse shark

MUS_CANI.TIF

Field, 1906, Plate 1



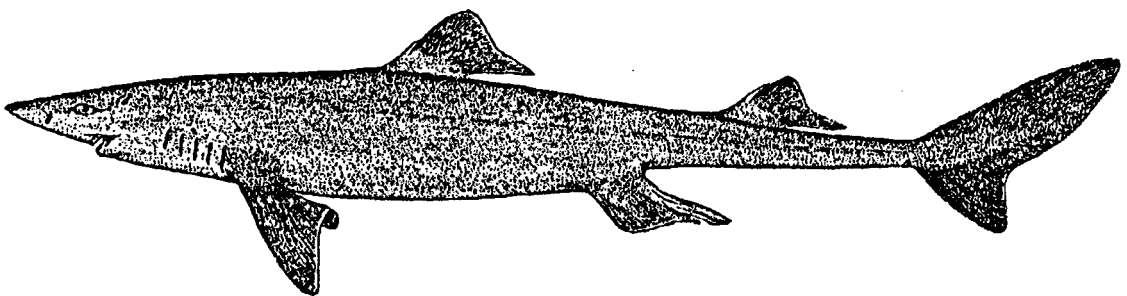
Carcharhinidae

Figure 2

Mustelus canis
smooth dogfish

SQU_ACAN.TIF

Field, 1906, Plate 1



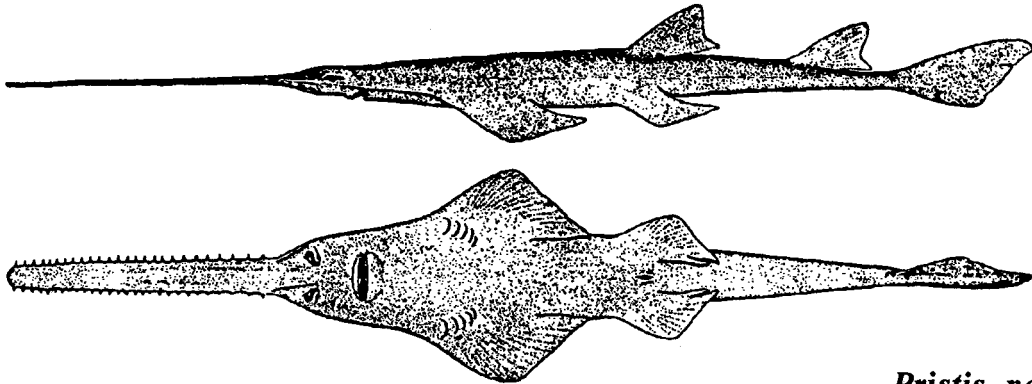
Squalidae

Figure 3

Squalus acanthias
horned dogfish

PRI_PECT.TIF

Evermann and Bean, 1898, Plate 23



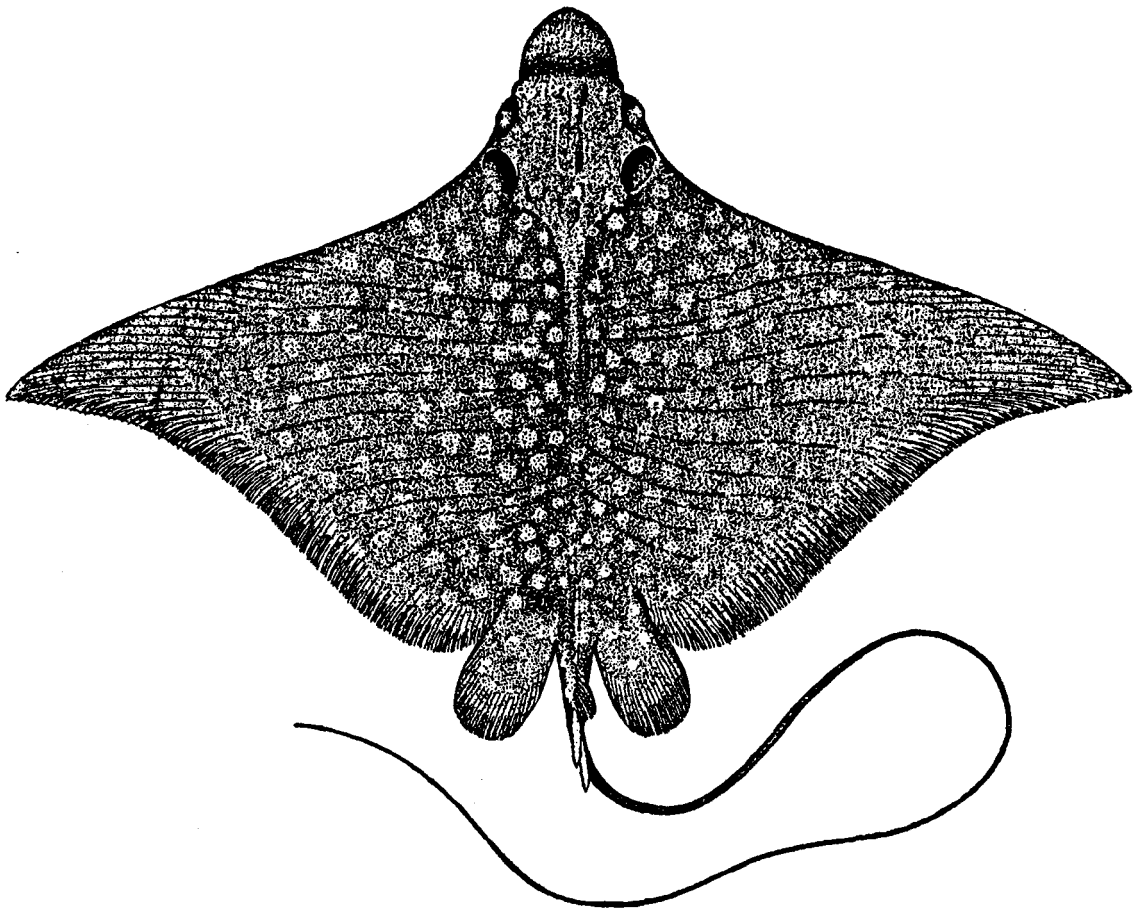
Pristidae

Figure 4

Pristis pectinata
[*Pristis pectinatus*]
smalltooth sawfish

AET_NARI.TIF

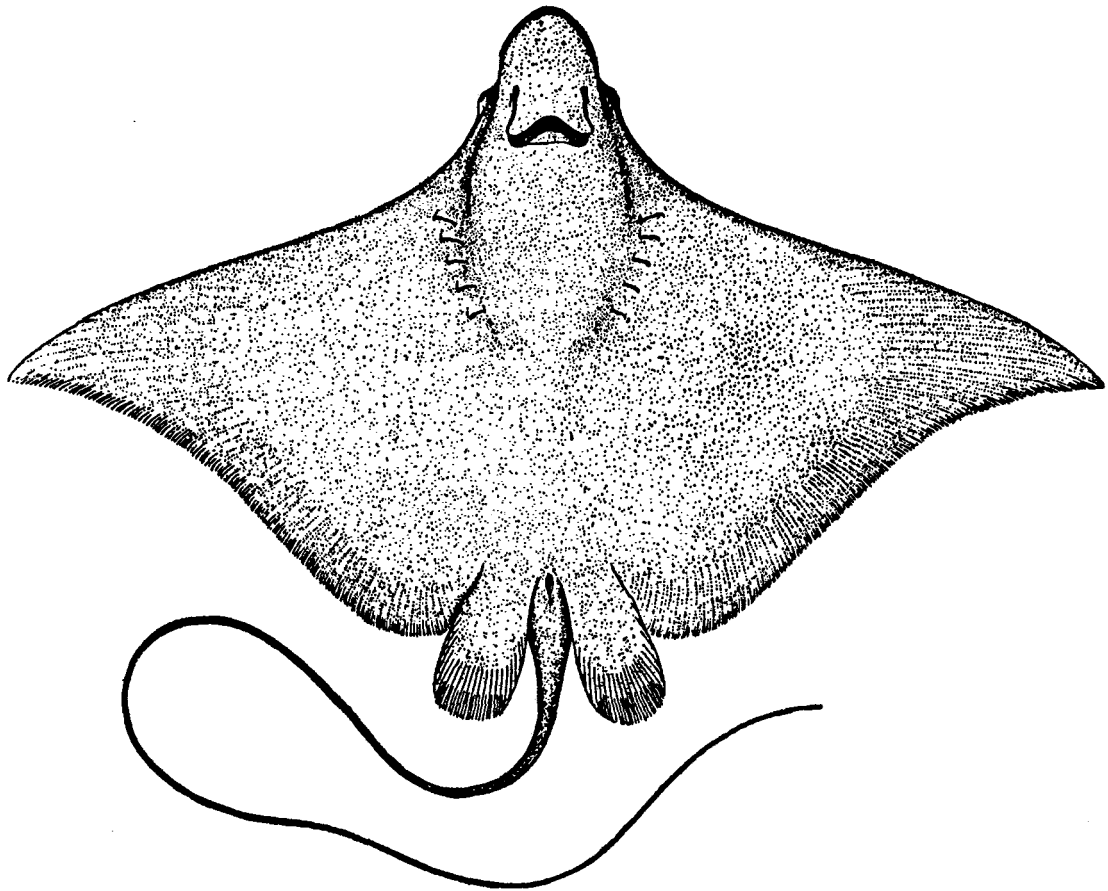
Evermann and Marsh, 1902, Fig. 4



Myliobatidae

Figure 5

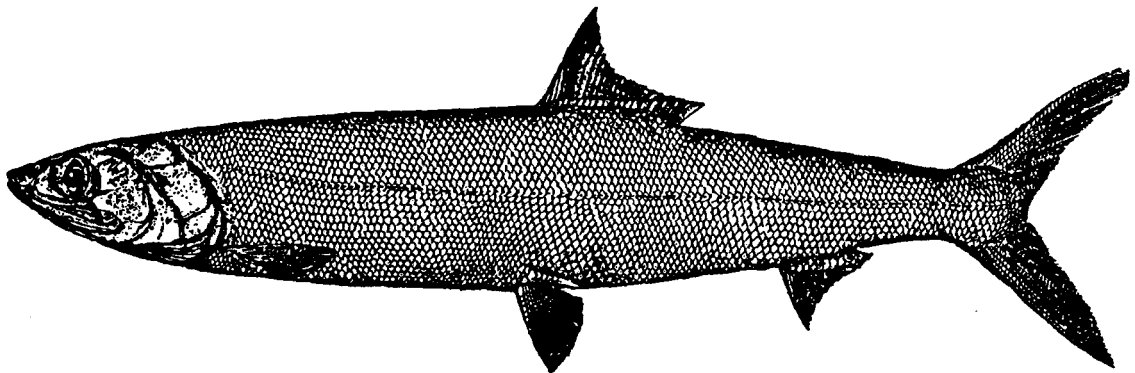
Aetobatus narinari
spotted eagle ray



Myliobatidae

Figure 6

Aetobatus narinari
spotted eagle ray



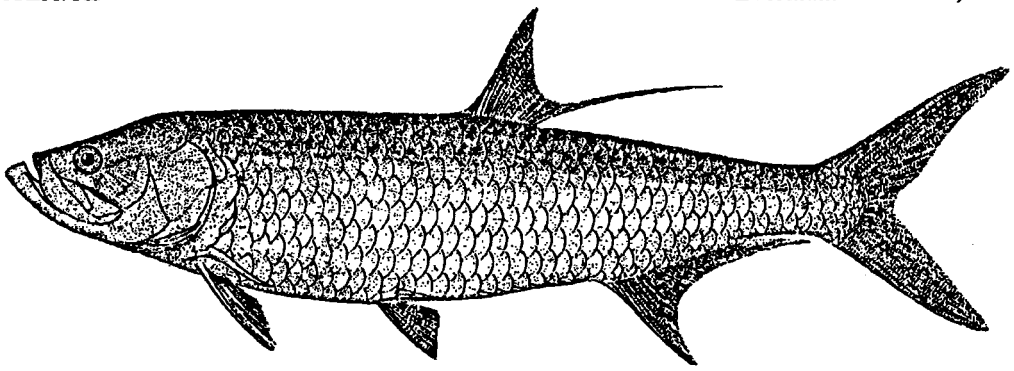
Elopidae

Figure 7

Elops saurus
ladyfish

MEG_ATLA.TIF

Evermann and Bean, 1898, Plate 27



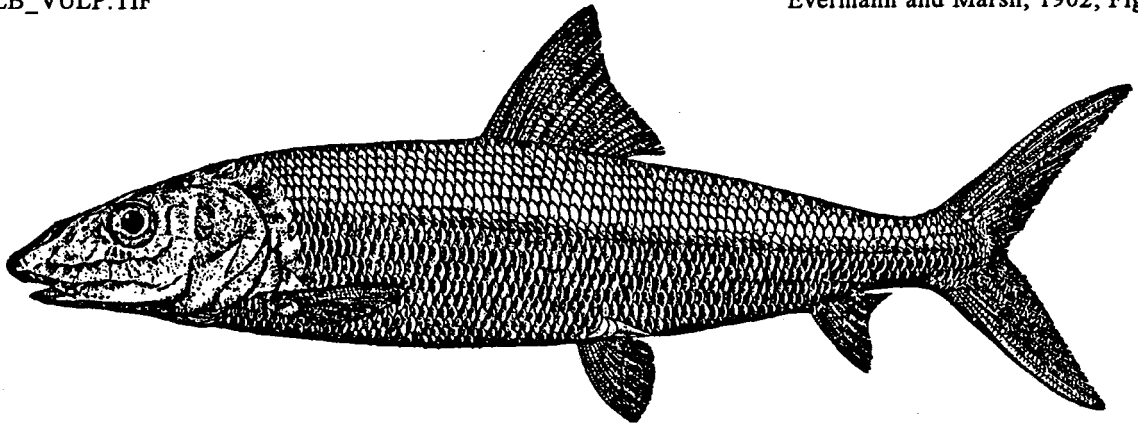
Elopidae

Figure 8

Megalops atlanticus
[*Tarpon atlanticus*]
tarpon

ALB_VULP.TIF

Evermann and Marsh, 1902, Fig. 12



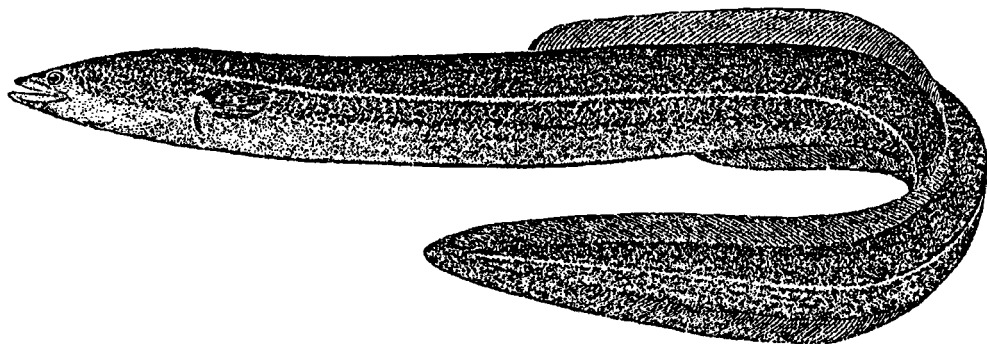
Albulidae

Figure 9

Albula vulpes
bonefish

ANG_ROST.TIF

Jordan and Davis, 1892, Plate 80



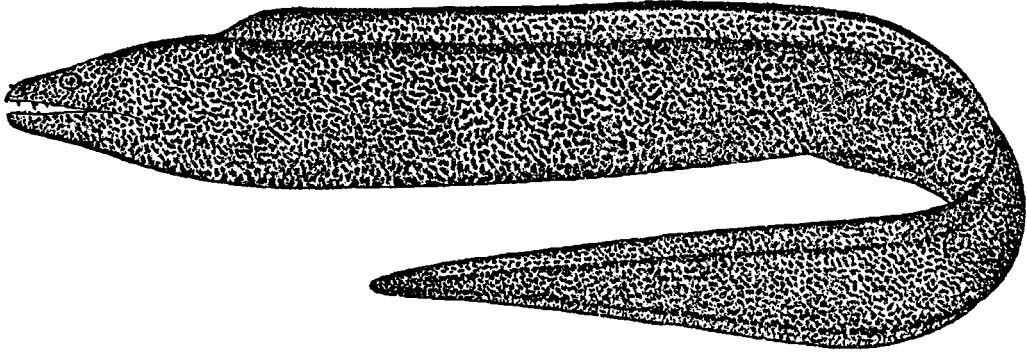
Anguillidae

Figure 10

Anguilla rostrata
[*Anguilla chrysypa*]
American eel

GYM_MORI.TIF

Jordan and Davis, 1892, Plate 74



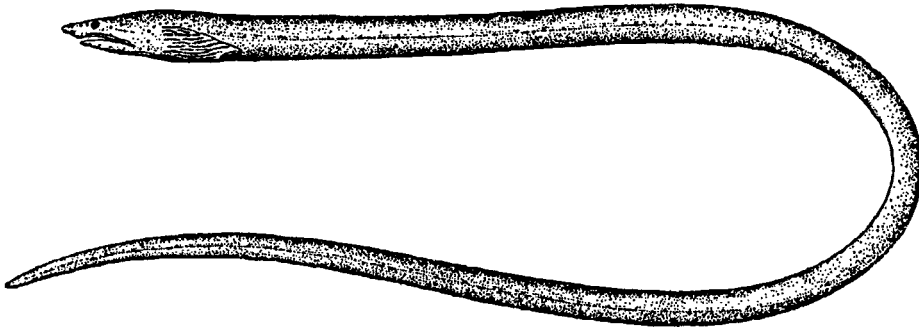
Muraenidae

Figure 11

Gymnothorax moringa
spotted moray

ICH_OPHI.TIF

Evermann and Marsh, 1902, Fig. 7



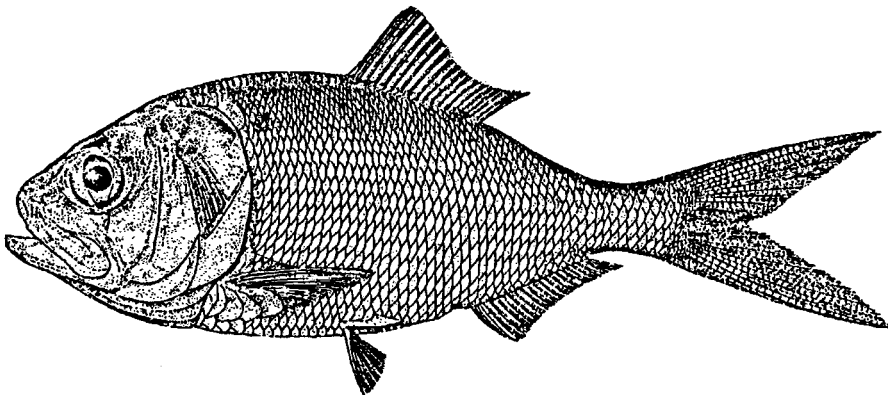
Ophichthidae

Figure 12

Ichthyapus ophioneus
[*Sphagebranchus ophioneus*]
surf eel

BRE_PATR.TIF

Evermann, 1899, Plate 22



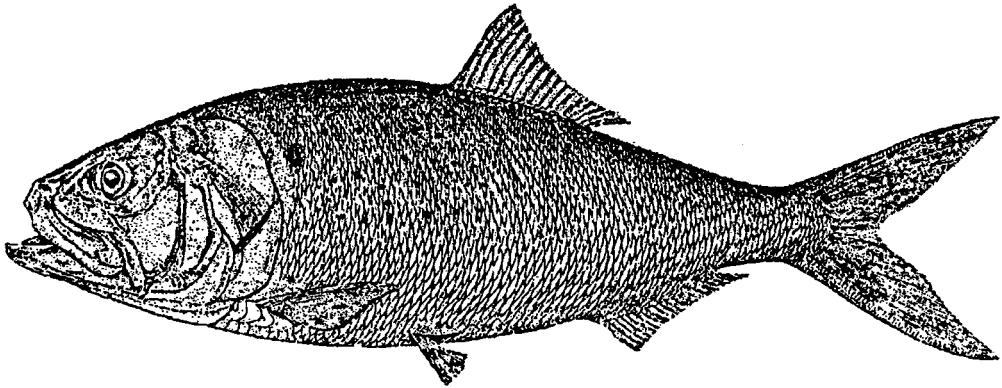
Clupeidae

Figure 13

Brevoortia patronus
[*Brevoortia tyrannus patrons*]
gulf menhaden

BRE_TYRA.TIF

Evermann and Bean, 1898, Plate 29



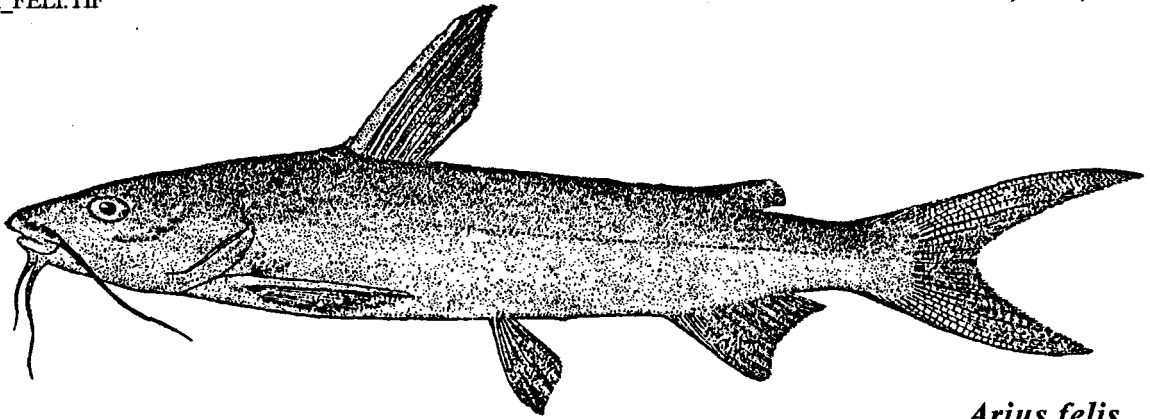
Clupeidae

Figure 14

Brevoortia tyrannus
Atlantic menhaden

ARI_FELI.TIF

Evermann, 1899, Plate 9



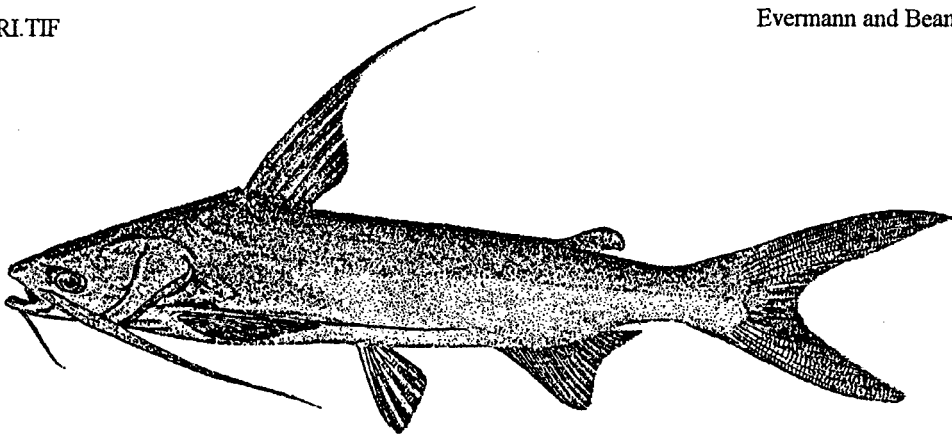
Ariidae

Figure 15

Arius felis
[*Galeichthys felis*]
hardhead catfish

BAG_MARI.TIF

Evermann and Bean 1898, Plate 24



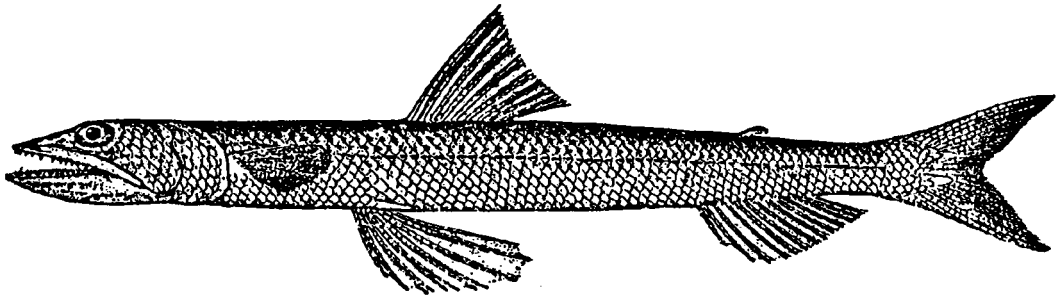
Ariidae

Figure 16

Bagre marinus
[*Felichthys marinus*]
gafftopsail catfish

SYN_FOET.TIF

Evermann and Marsh, 1902, Fig. 16



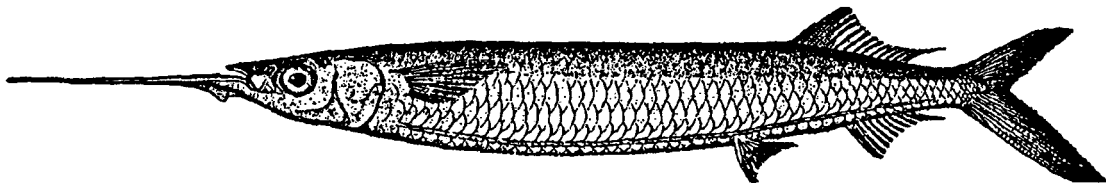
Synodontidae

Figure 17

Synodus foetens
inshore lizardfish

HEM_BRAS.TIF

Evermann and Marsh, 1902, Fig. 19



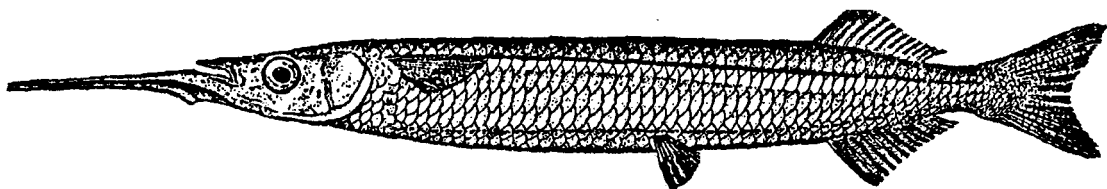
Exocoetidae

Figure 18

Hemiramphus brasiliensis
[*Hemirhamphus brasiliensis*]
ballyhoo

HYP_UNIF.TIF

Evermann and Marsh, 1902, Fig. 18



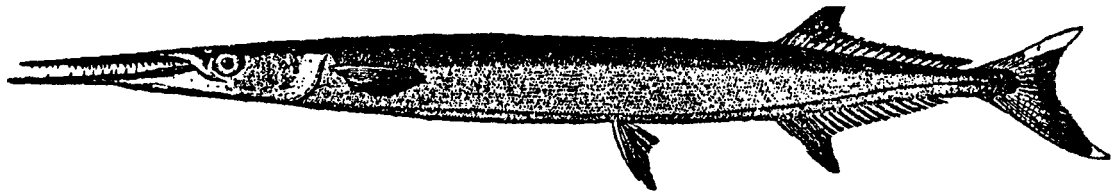
Exocoetidae

Figure 19

Hyporhamphus unifasciatus
silverstripe halfbeak

TYL_CROC.TIF

Evermann and Marsh, 1902, Fig. 17



Tylosurus crocodilus
[*Tylosurus raphidoma*]
houndfish

Belonidae

Figure 20

AUL_MACU.TIF

Evermann and Marsh, 1902, Fig. 20



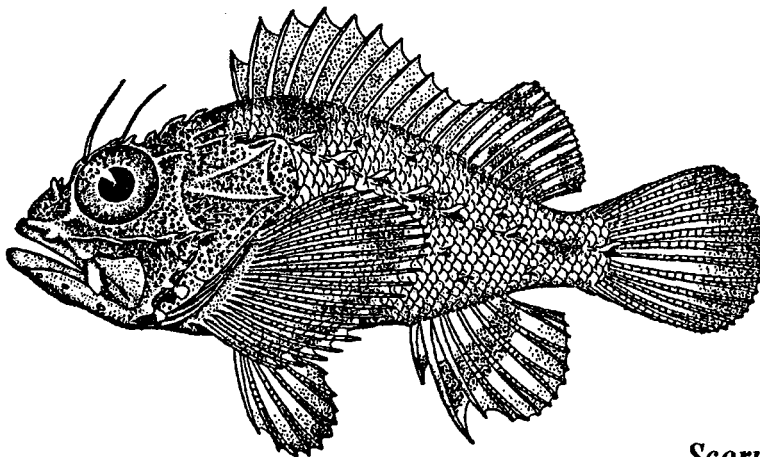
Aulostomus maculatus
trumpetfish

Aulostomidae

Figure 21

SCO_ALBI.TIF

Evermann and Marsh, 1902, Fig. 82



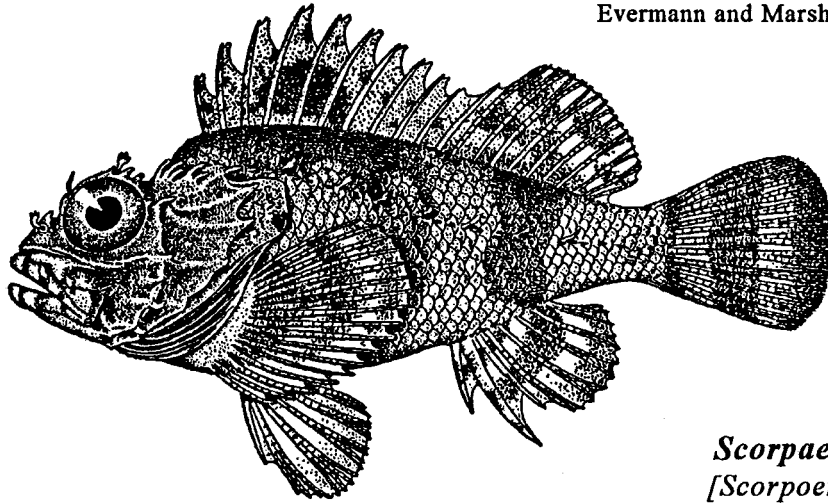
Scorpaena albifimbria
coral scorpionfish

Scorpaenidae

Figure 22

SCO_BERG.TIF

Evermann and Marsh, 1902, Fig. 83



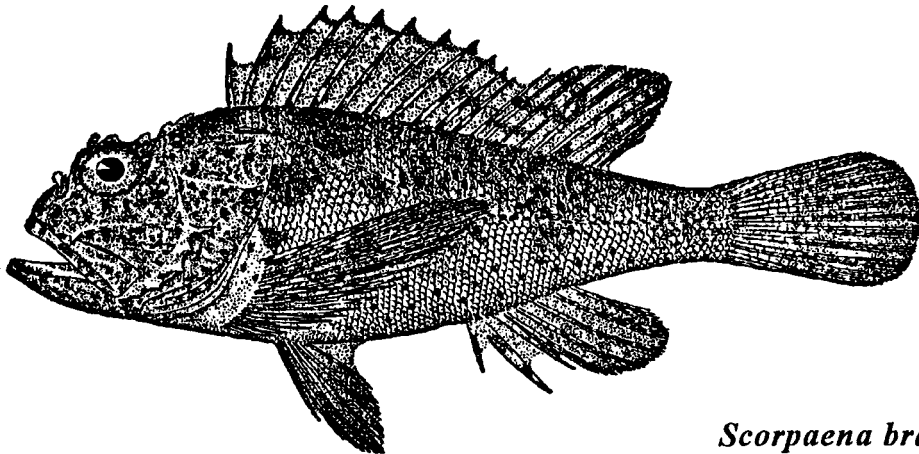
Scorpaenidae

Figure 23

Scorpaena bergi
[*Scorpoena bergii*]
goosehead scorpionfish

SCO_BRAS.TIF

Evermann and Marsh, 1902, Fig. 81



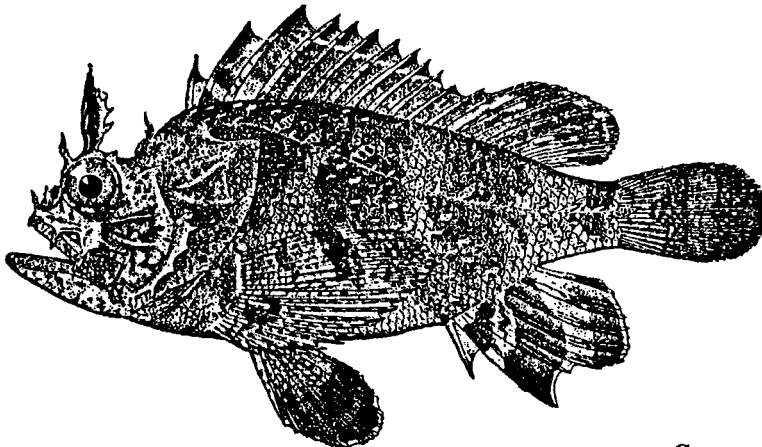
Scorpaenidae

Figure 24

Scorpaena brasiliensis
barbfish

SCO_GRAN.TIF

Evermann and Marsh, 1902, Fig. 84



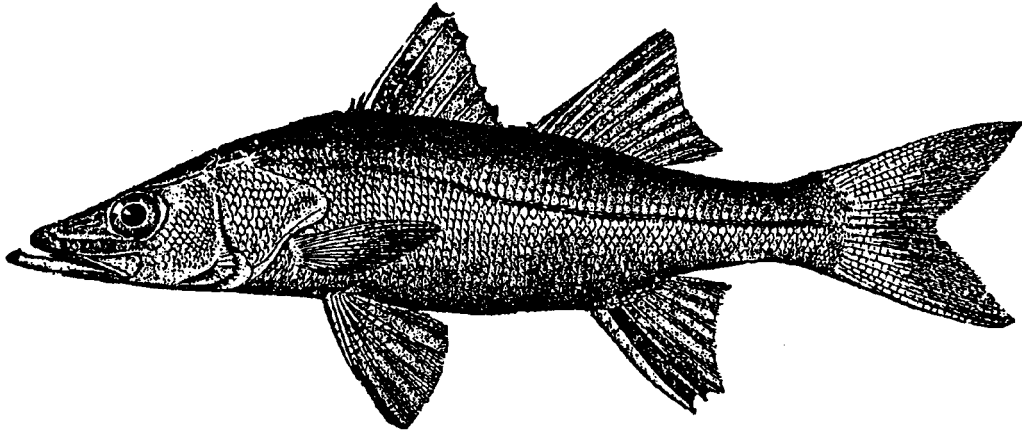
Scorpaenidae

Figure 25

Scorpaena grandicornis
plumed scorpionfish

CEN_UNDE.TIF

Evermann and Marsh, 1902, Fig. 42



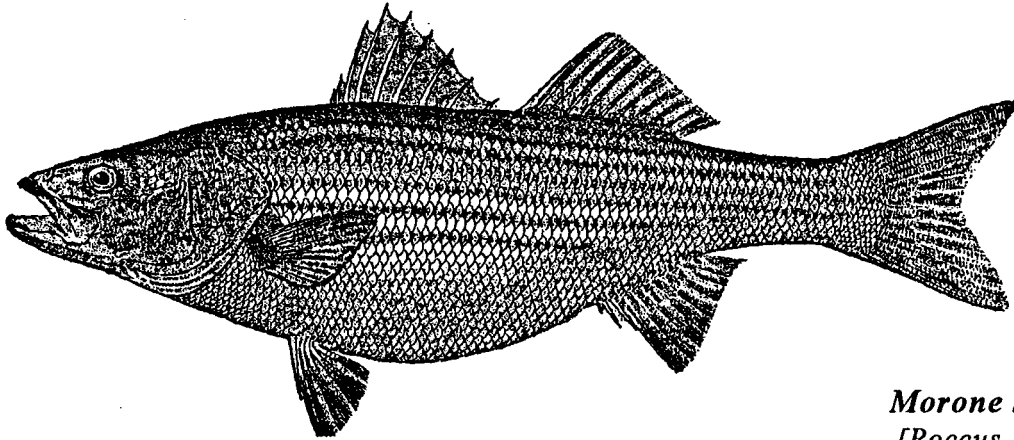
Centropomidae

Figure 26

Centropomus undecimalis
common snook

MOR_SAXA.TIF

Jordan and Eigenmann, 1890, Plate 69



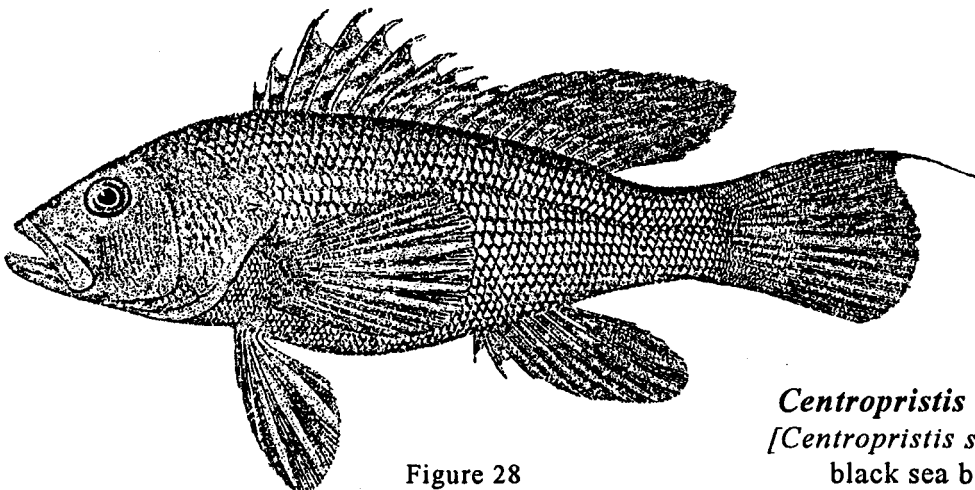
Percichthyidae

Figure 27

Morone saxatilis
[*Roccus lineatus*]
striped bass

CEN_STRI.TIF

Jordan and Eigenmann, 1890, Plate 64



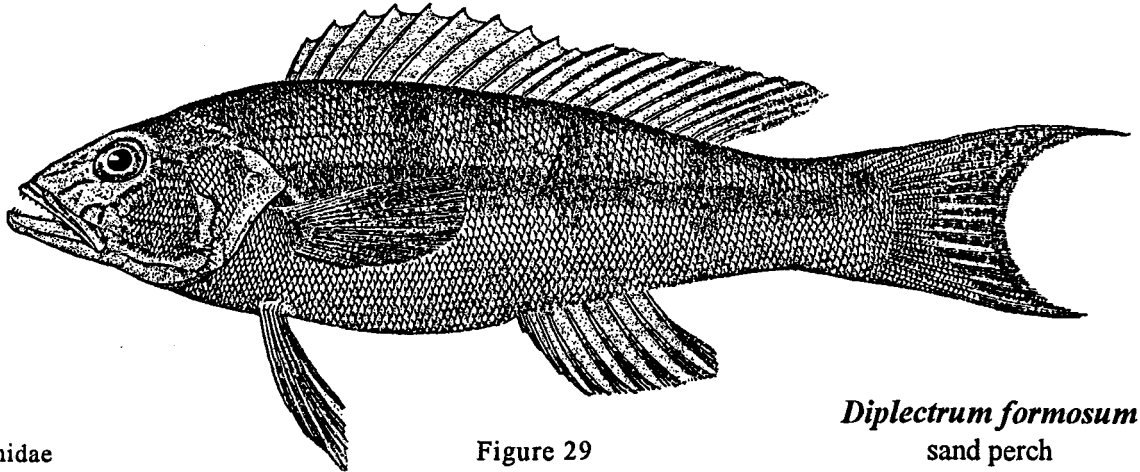
Serranidae

Figure 28

Centropristis striata
[*Centropristis striatus*]
black sea bass

DIP_FORM.TIF

Jordan and Eigenmann, 1890, Plate 65



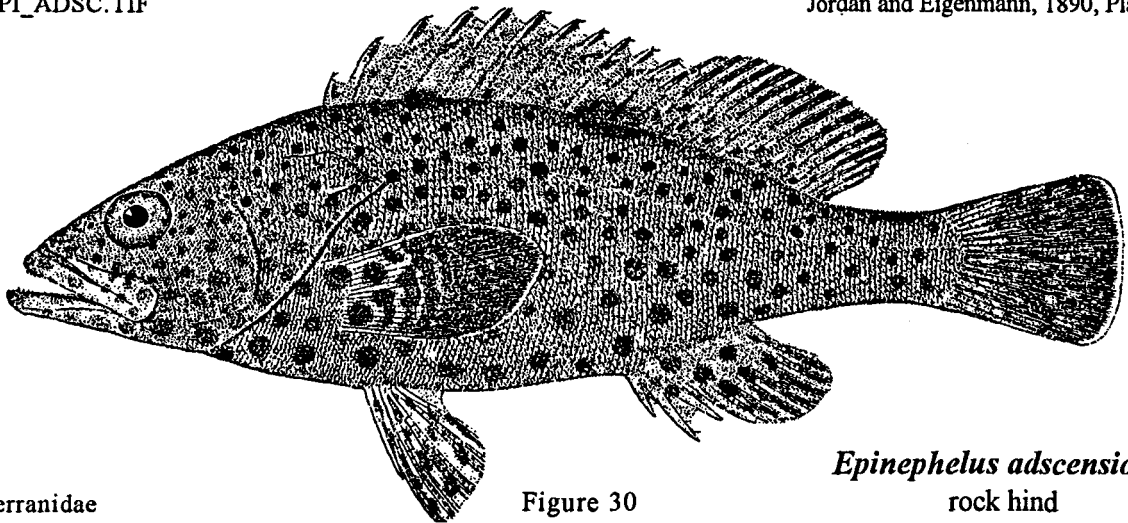
Serranidae

Figure 29

Diplectrum formosum
sand perch

EPI_ADSC.TIF

Jordan and Eigenmann, 1890, Plate 60



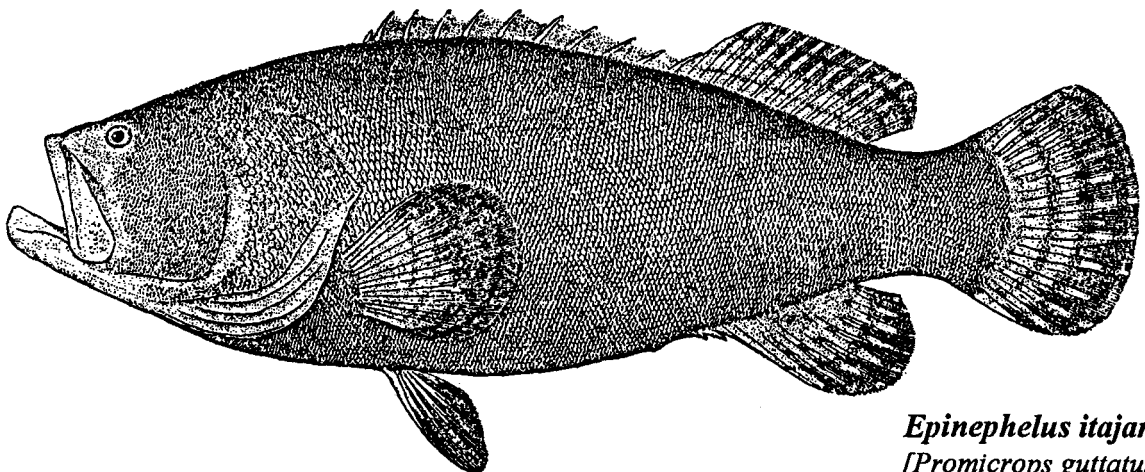
Serranidae

Figure 30

Epinephelus adscensionis
rock hind

EPI_ITAJ.TIF

Jordan and Eigenmann, 1890, Plate 62



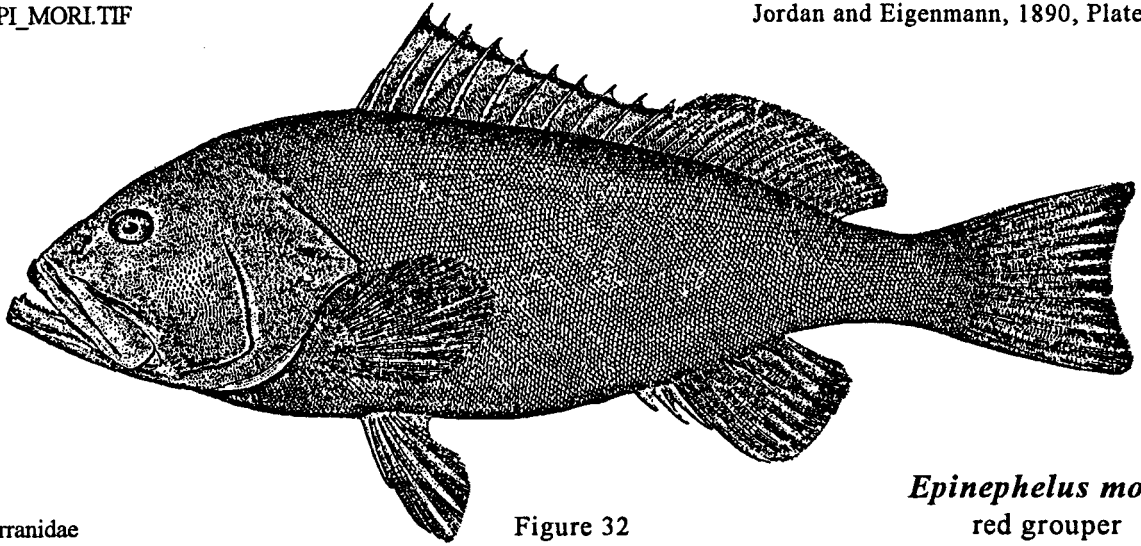
Serranidae

Figure 31

Epinephelus itajara
[*Promicrops guttatus*]
jewfish

EPI_MORI.TIF

Jordan and Eigenmann, 1890, Plate 61



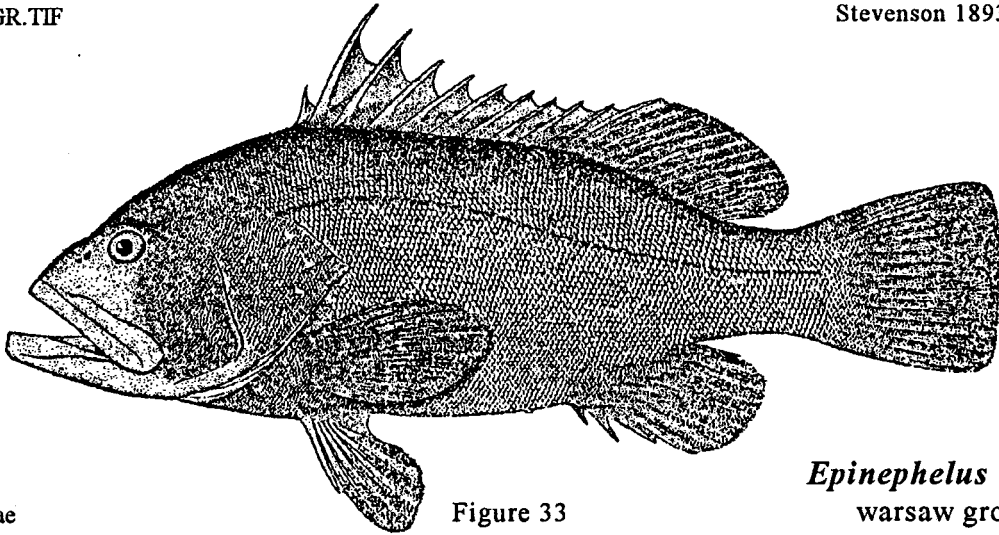
Serranidae

Figure 32

Epinephelus morio
red grouper

EPI_NIGR.TIF

Stevenson 1893, Plate 19



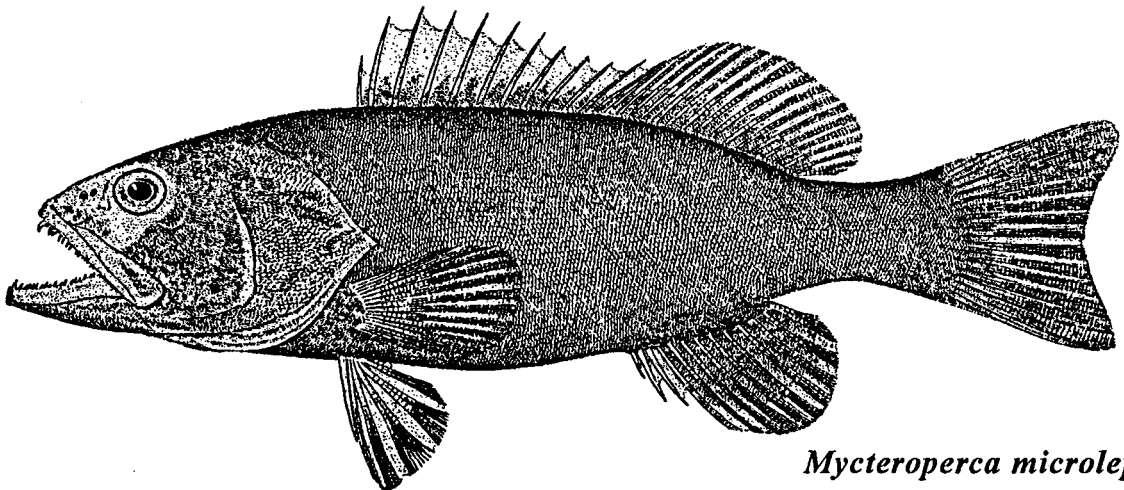
Serranidae

Figure 33

Epinephelus nigrinus
warsaw grouper

MYC_MICR.TIF

Jordan and Eigenmann, 1890, Plate 63



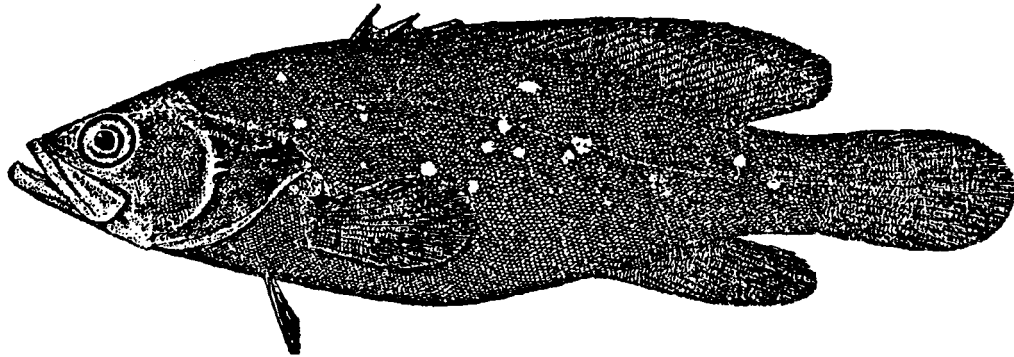
Serranidae

Figure 34

Mycteroperca microlepis
gag

RYP_BIST.TIF

Evermann and Marsh, 1902, Fig. 46



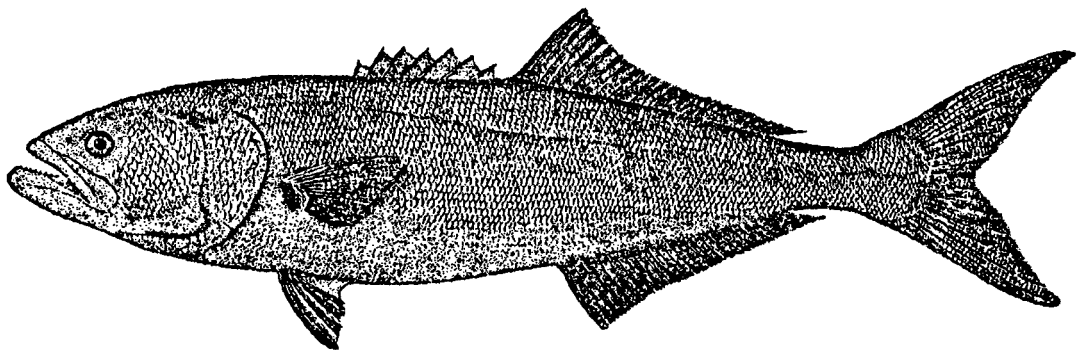
Serranidae

Figure 35

Rypiticus bistrispinus
freckled soapfish

POM_SALT.TIF

Stevenson, 1893, Plate 16



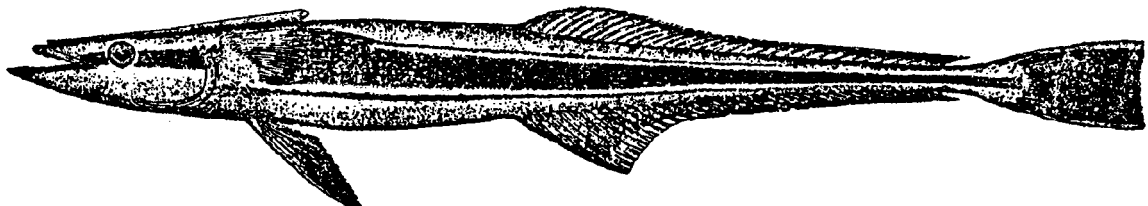
Pomatomidae

Figure 36

Pomatomus saltatrix
bluefish

ECH_NAUC.TIF

Evermann and Marsh, 1902, Fig. 94



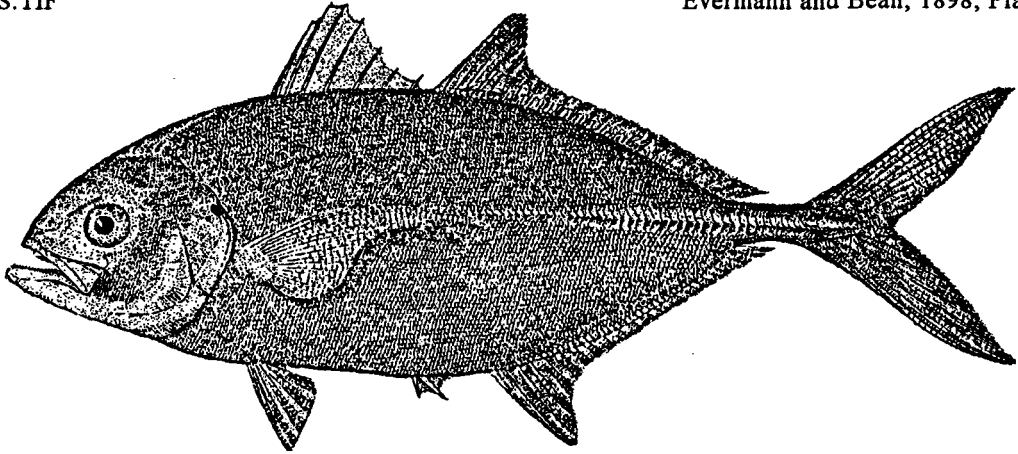
Echeneidae

Figure 37

Echeneis naucrates
[*Echeneis naucrates*]
sharksucker

CAR_CRY.S.TIF

Evermann and Bean, 1898, Plate 34



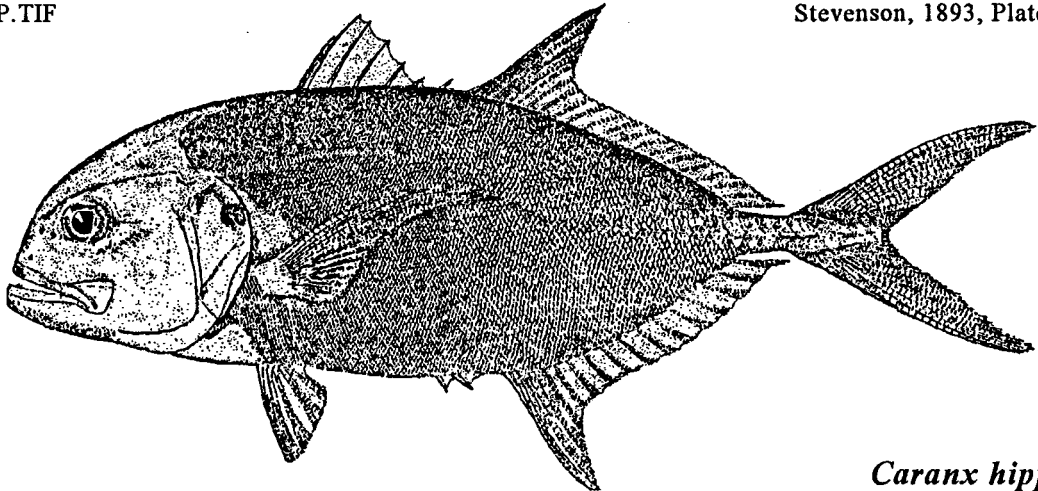
Carangidae

Figure 38

Caranx crysos
blue runner

CAR_HIPP.TIF

Stevenson, 1893, Plate 15



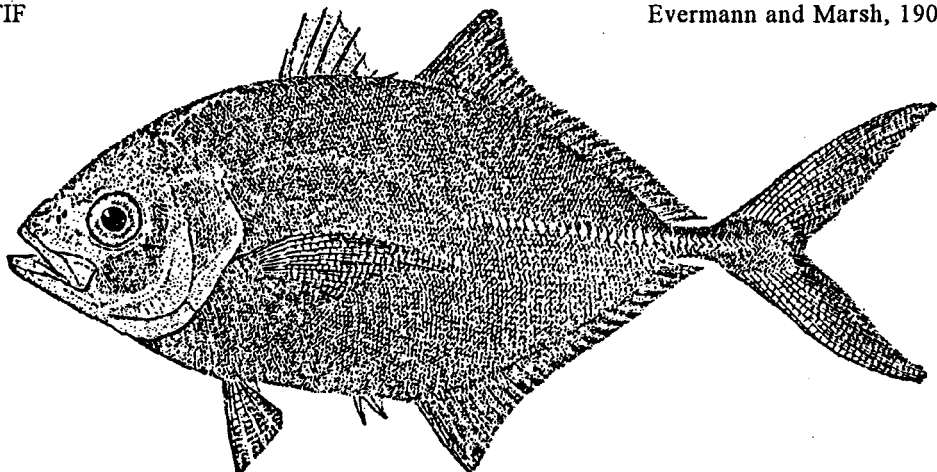
Carangidae

Figure 39

Caranx hippos
crevalle jack

CAR_LATU.TIF

Evermann and Marsh, 1902, Fig. 33



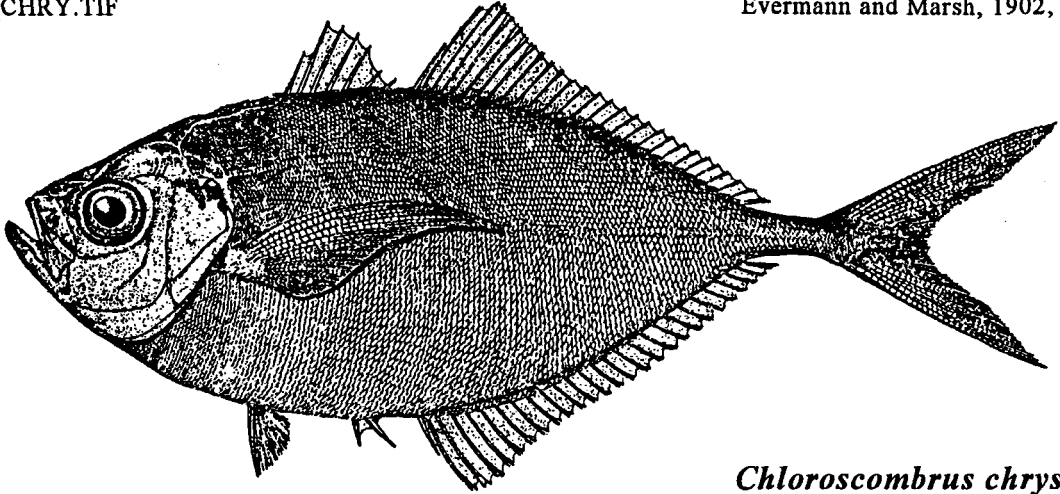
Carangidae

Figure 40

Caranx latus
horse-eye jack

CHL_CHRY.TIF

Evermann and Marsh, 1902, Fig. 36



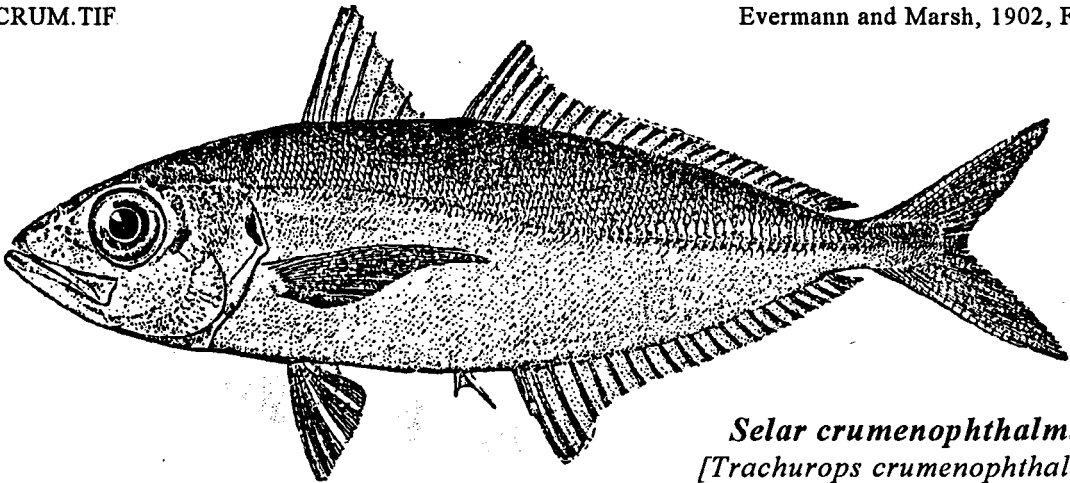
Carangidae

Figure 41

Chloroscombrus chrysurus
Atlantic bumper

SEL_CRUM.TIF

Evermann and Marsh, 1902, Fig. 30



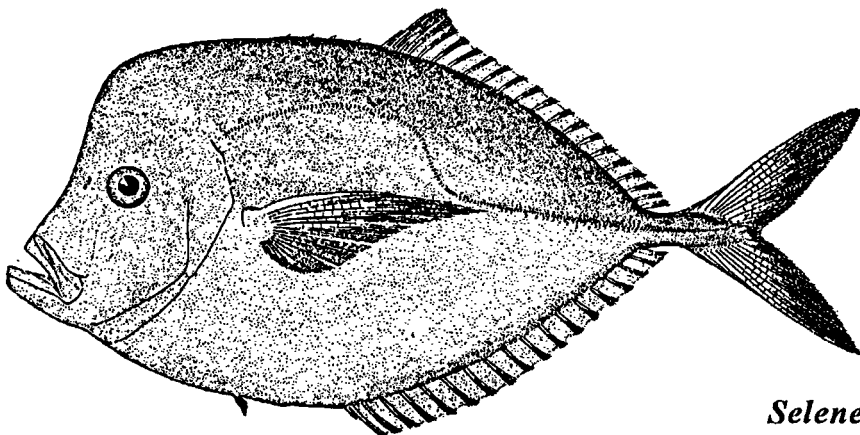
Carangidae

Figure 42

Selar crumenophthalmus
[*Trachurops crumenophthalmus*]
bigeye scad

SEL_SETA.TIF

Evermann and Bean, 1898, Plate 35



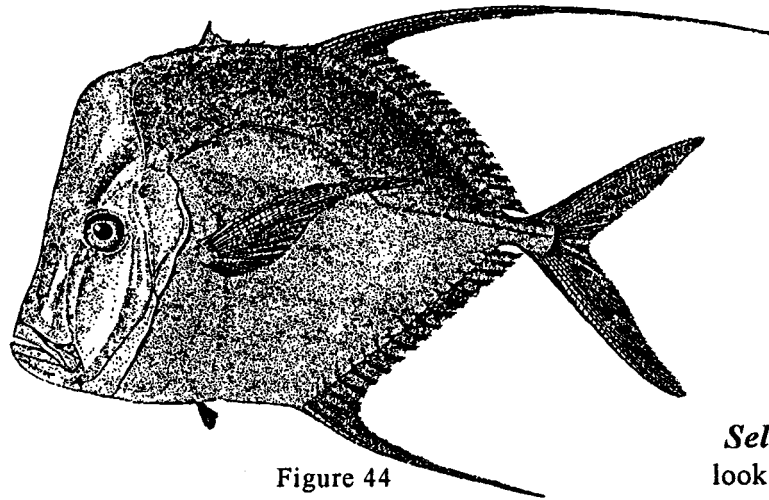
Carangidae

Figure 43

Selene setapinnis
[*Vomer setipinnis*]
moonfish

SEL_VOME.TIF

Evermann and Bean, 1898, Plate 36



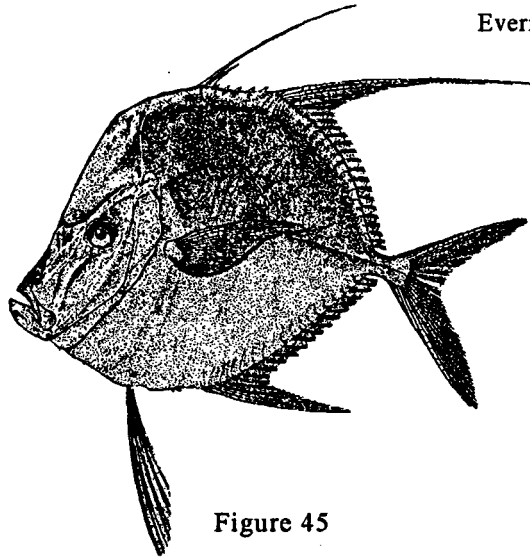
Carangidae

Figure 44

Selene vomer
lookdown (adult)

SEL_VOM2.TIF

Evermann and Marsh, 1902, Fig. 34



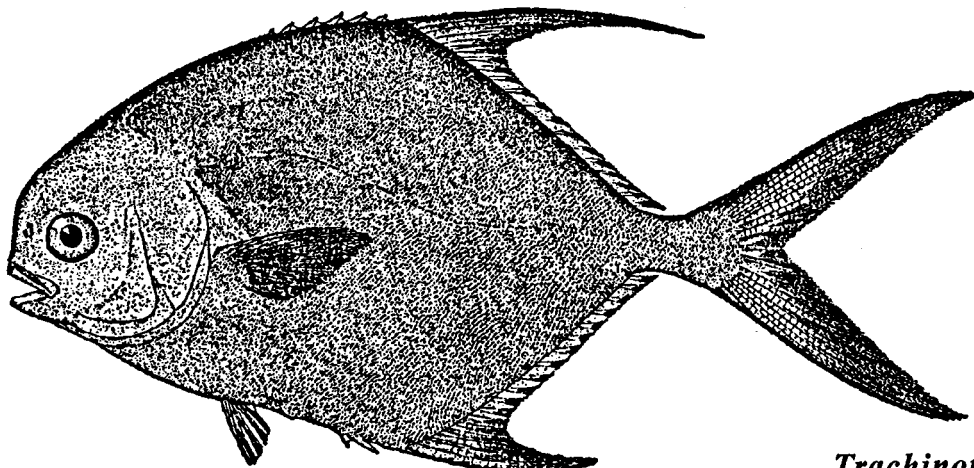
Carangidae

Figure 45

Selene vomer
lookdown (young)

TRA_FALC.TIF

Evermann and Marsh, 1902, Fig. 38



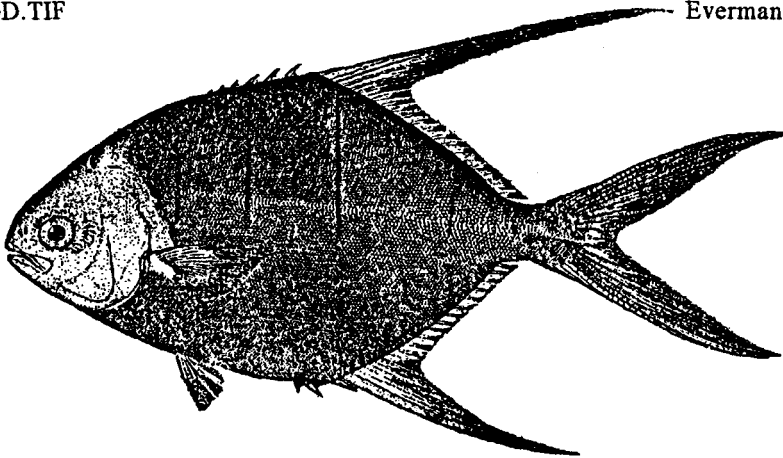
Carangidae

Figure 46

Trachinotus falcatus
permit

TRA_GOOD.TIF

Evermann and Marsh, 1902, Fig. 37



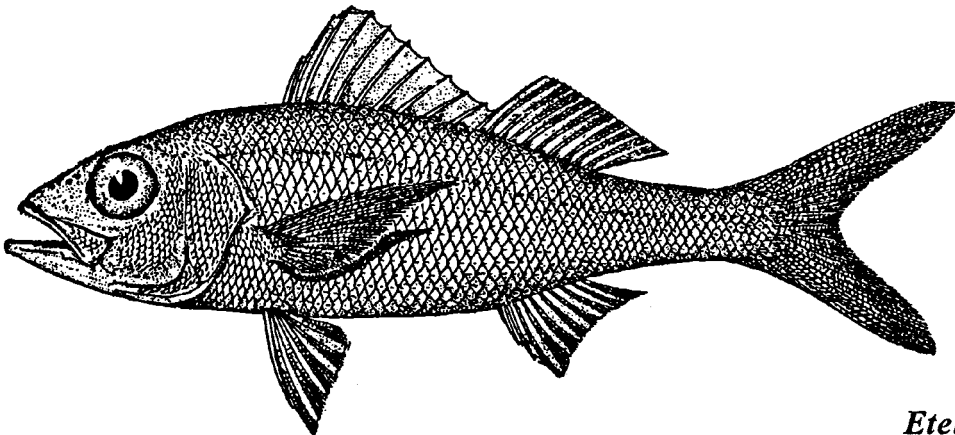
Carangidae

Figure 47

Trachinotus goodei
[*Trachinotus glaucus*]
palometa

ETE_OCUL.TIF

Evermann and Marsh, 1902, Fig. 50



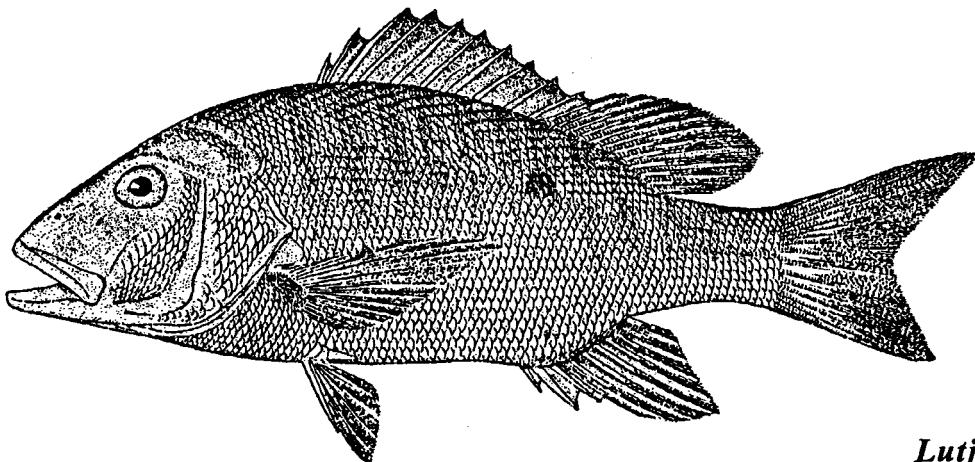
Lutjanidae

Figure 48

Etelis oculatus
queen snapper

LUT_ANAL.TIF

Jordan and Fesler, 1893, Plate 31



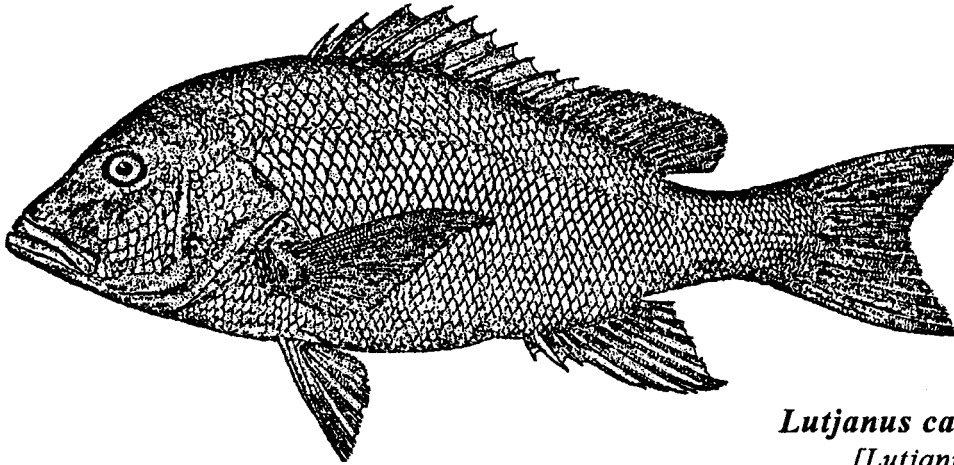
Lutjanidae

Figure 49

Lutjanus analis
mutton snapper

LUT_CAMP.TIF

Stevenson, 1893, Plate 20



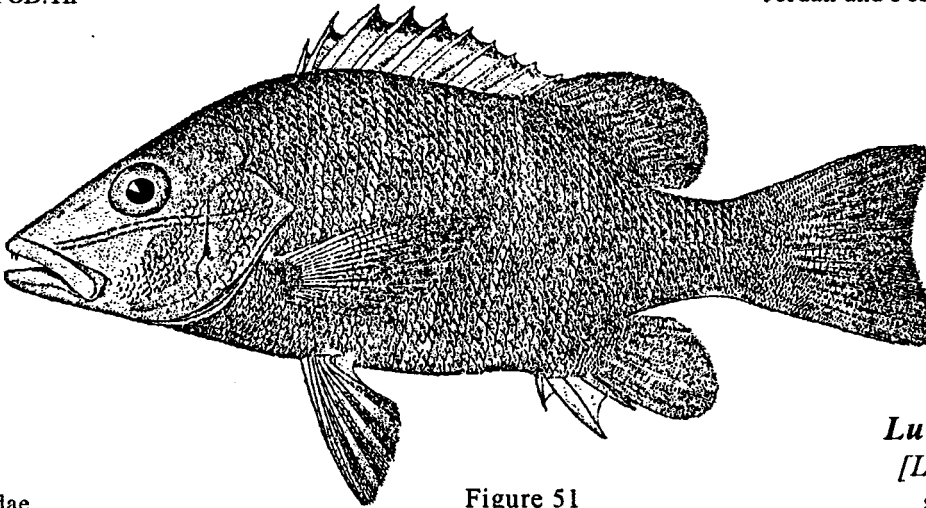
Lutjanidae

Figure 50

Lutjanus campechanus
[*Lutjanus aya*]
red snapper

LUT_APOD.TIF

Jordan and Fesler, 1893, Plate 29



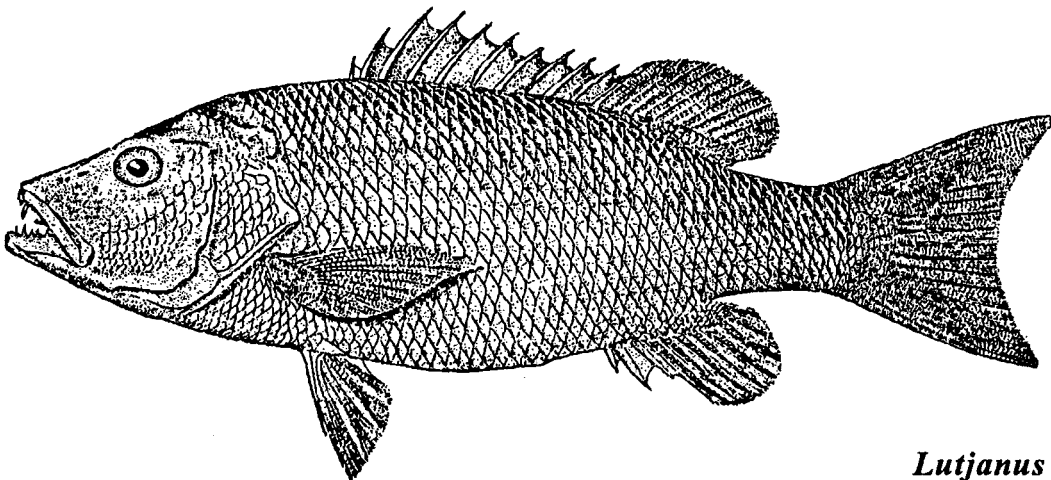
Lutjanidae

Figure 51

Lutjanus apodus
[*Lutjanus caxis*]
schoolmaster

LUT_GRIS.TIF

Jordan and Fesler, 1893, Plate 28



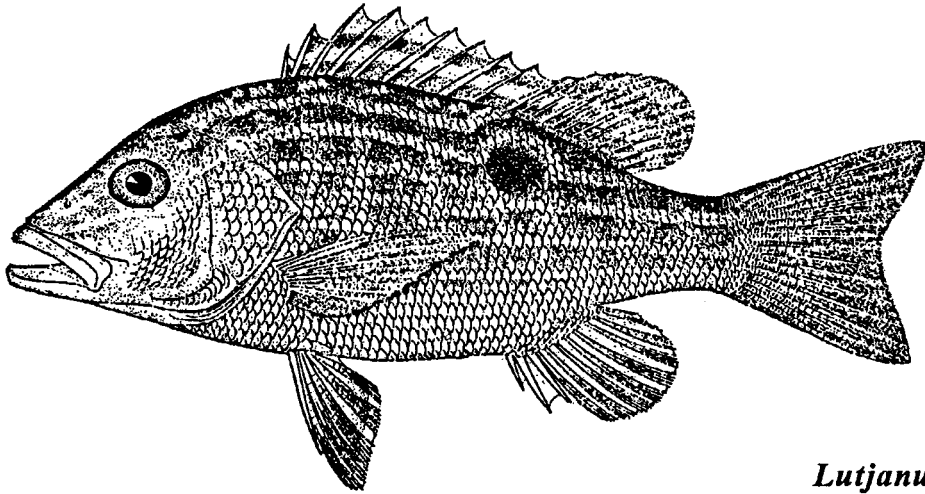
Lutjanidae

Figure 52

Lutjanus griseus
gray snapper

LUT_SYNA.TIF

Jordan and Fesler, 1893, Plate 32



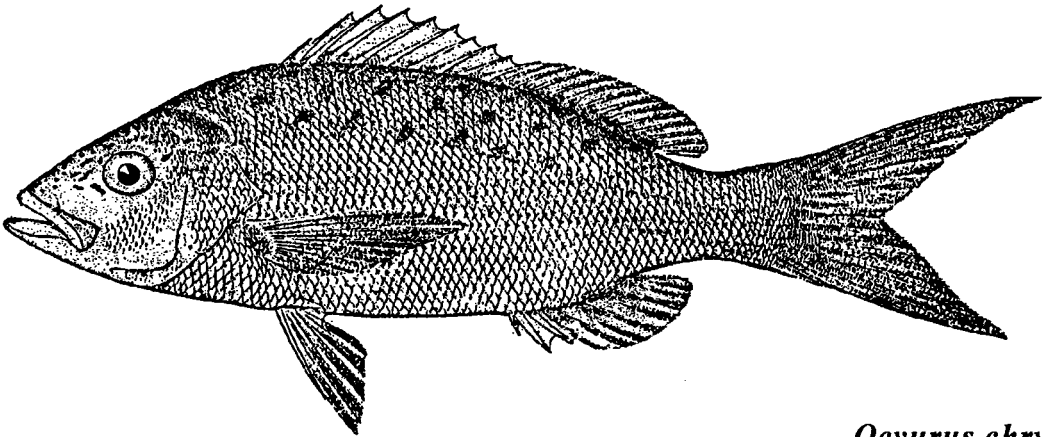
Lutjanidae

Figure 53

Lutjanus synagris
lane snapper

OCY_CHRY.TIF

Jordan and Fesler, 1893, Plate 33



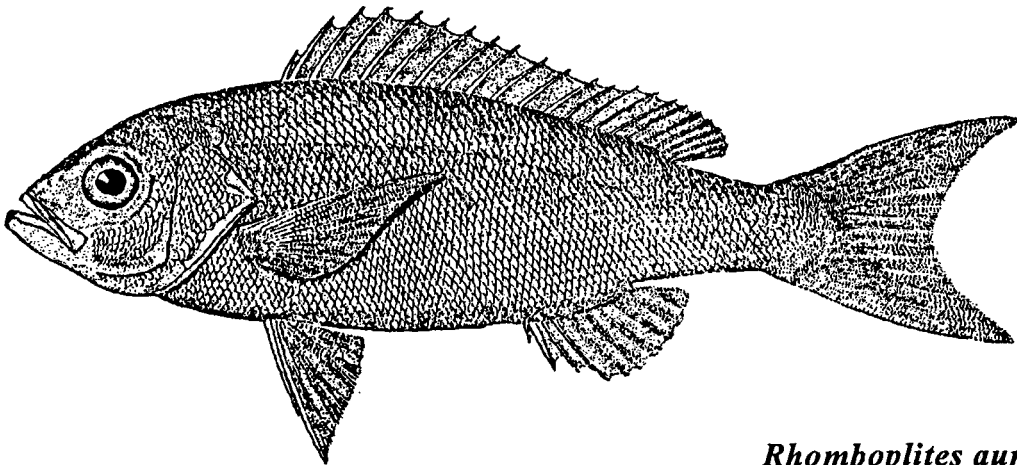
Lutjanidae

Figure 54

Ocyurus chrysurus
yellowtail snapper

RHO_AURO.TIF

Jordan and Fesler, 1893, Plate 34



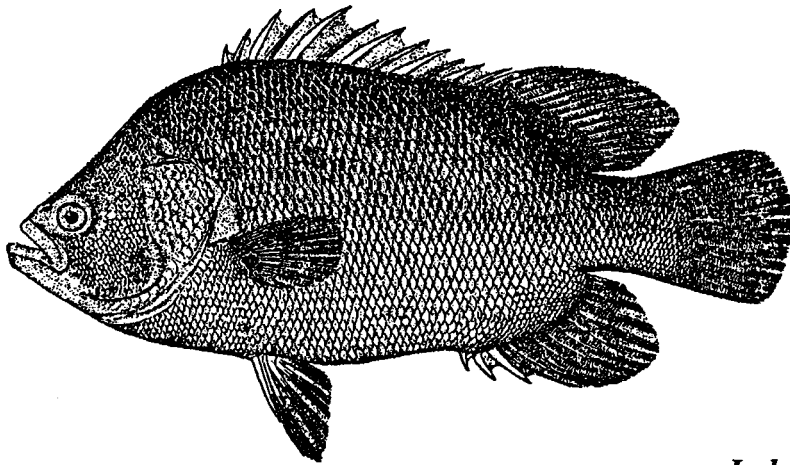
Lutjanidae

Figure 55

Rhomboplites aurorubens
vermillion snapper

LOB_SURI.TIF

Evermann and Bean, 1898, Plate 45



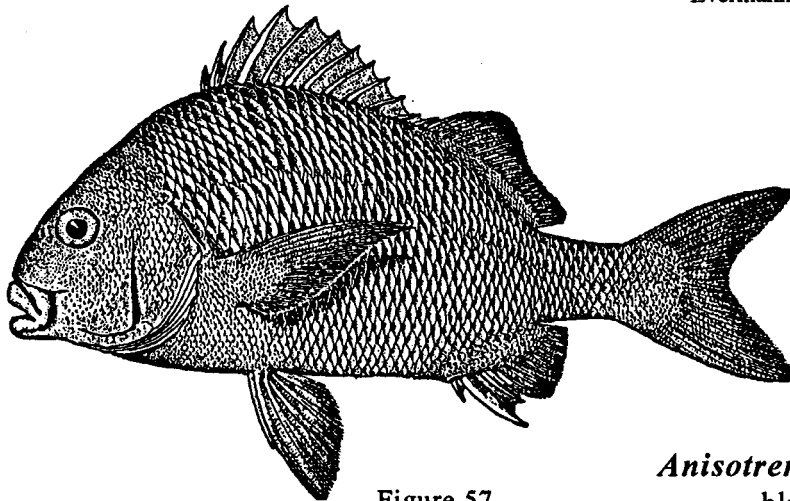
Lobotidae

Figure 56

Lobotes surinamensis
tripletail

ANI_SURI.TIF

Evermann and Marsh, 1902, Fig. 56



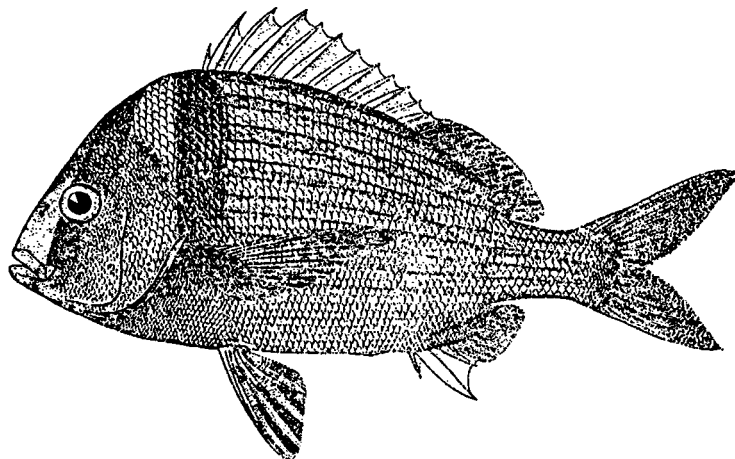
Haemulidae

Figure 57

Anisotremus surinamensis
black margate

ANI_VIRG.TIF

Jordan and Fesler, 1893, Plate 43



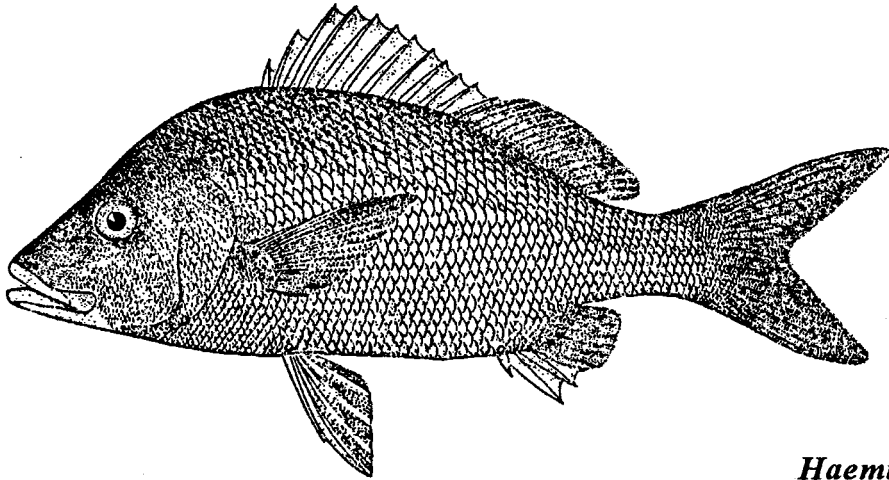
Haemulidae

Figure 58

Anisotremus virginicus
porkfish

HAE_ALBU.TIF

Jordan and Fesler, 1893, Plate 35



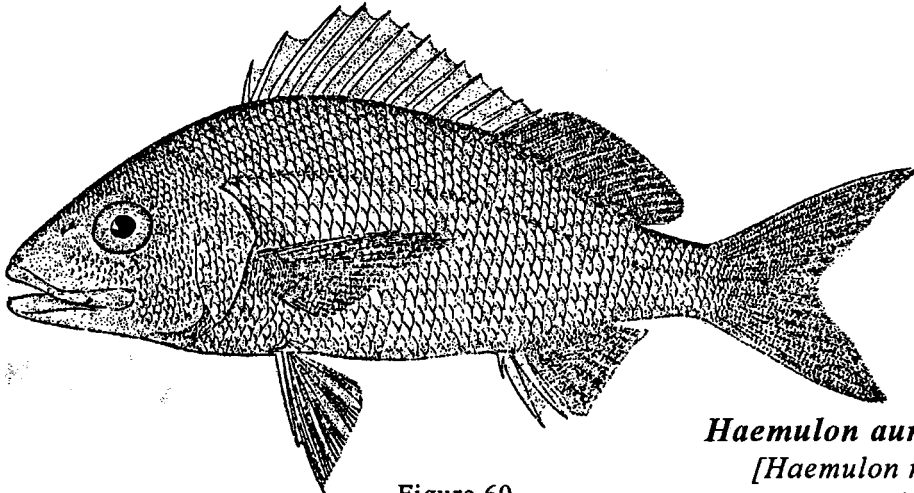
Haemulidae

Figure 59

Haemulon album
margate

HAE_AURO.TIF

Jordan and Fesler, 1893, Plate 42



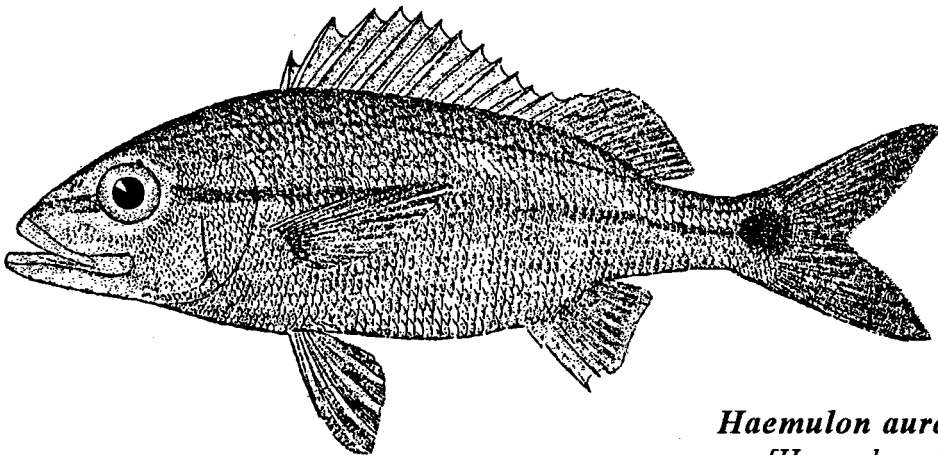
Haemulidae

Figure 60

Haemulon aurolineatum
[*Haemulon rimator*]
tomtate (adult)

HAE_AUR2.TIF

Jordan and Fesler, 1893, Plate 41



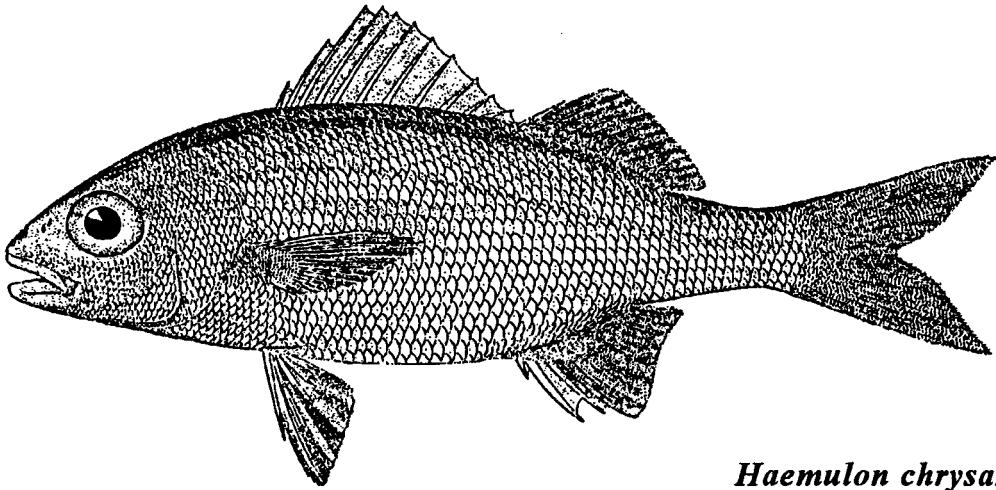
Haemulidae

Figure 61

Haemulon aurolineatum
[*Haemulon rimator*]
tomtate (young)

HAE_CHRY.TIF

Jordan and Fesler, 1893, Plate 40



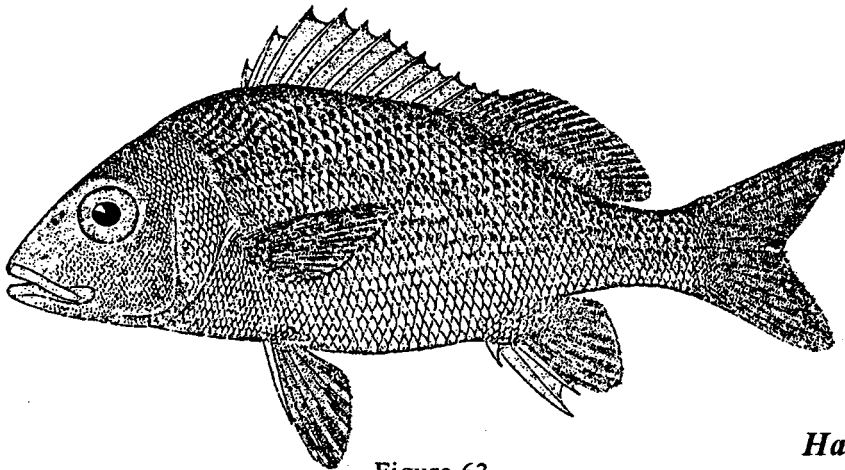
Haemulidae

Figure 62

Haemulon chrysargyreum
smallmouth grunt

HAE_PARR.TIF

Jordan and Fesler, 1893, Plate 37



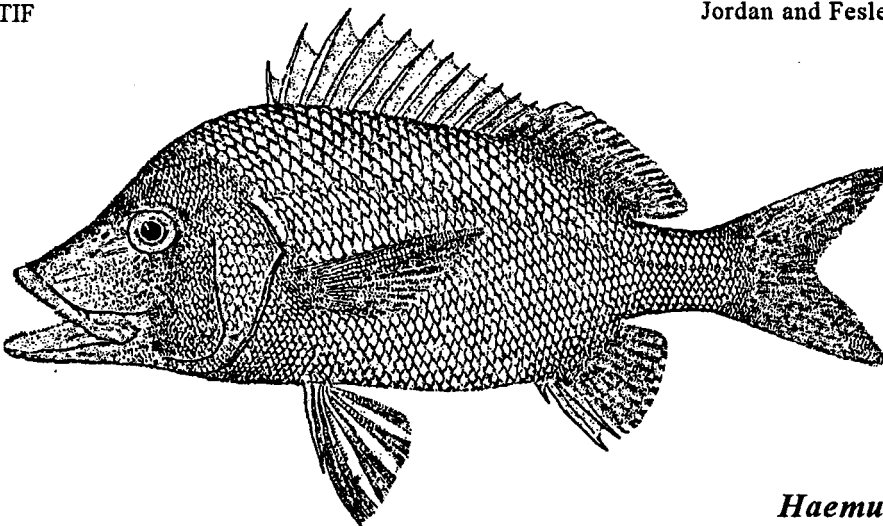
Haemulidae

Figure 63

Haemulon parra
sailors choice

HAE_PLUM.TIF

Jordan and Fesler, 1893, Plate 39



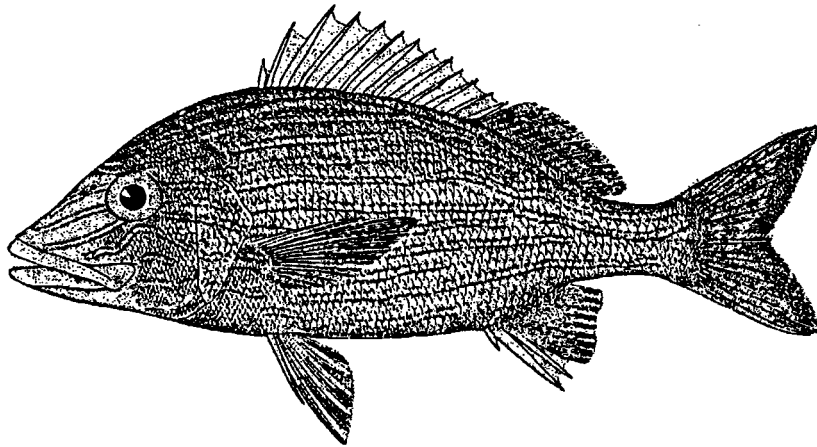
Haemulidae

Figure 64

Haemulon plumieri
white grunt

HAE_SCIU.TIF

Jordan and Fesler, 1893, Plate 38



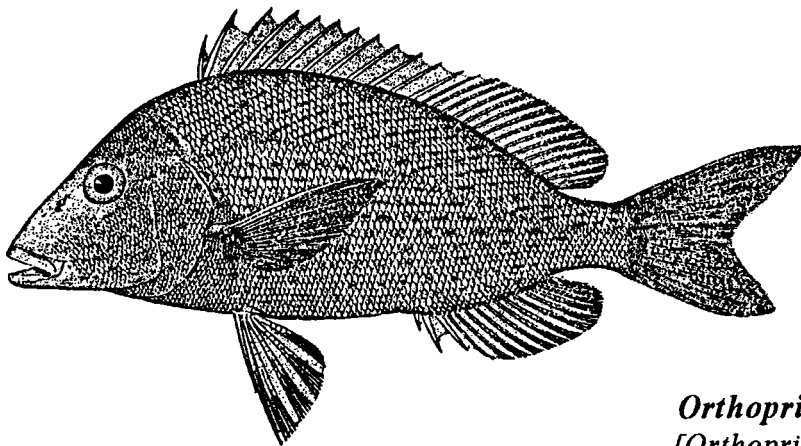
Haemulidae

Figure 65

Haemulon sciurus
bluestriped grunt

ORT_CHRY.TIF

Evermann and Bean, 1898, Plate 47



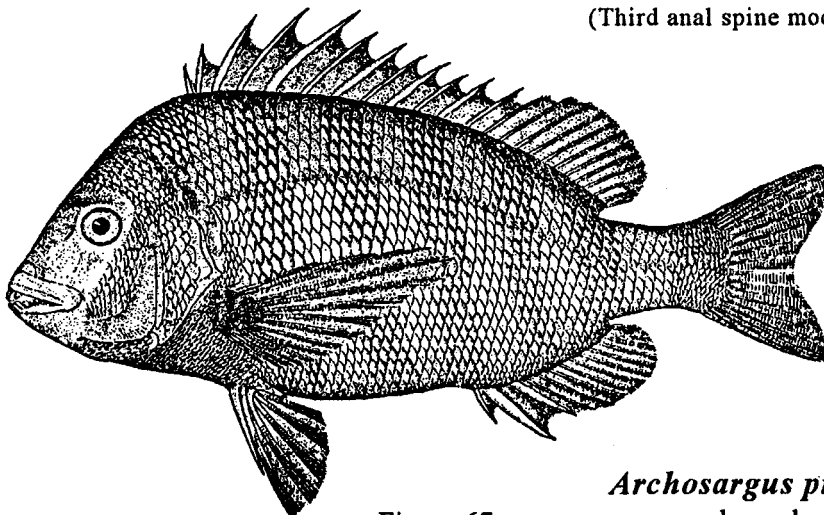
Haemulidae

Figure 66

Orthopristis chryoptera
[*Orthopristis chryopterus*]
pigfish

ARC_PROB.TIF

Evermann and Bean, 1898, Plate 49
(Third anal spine modified from original)



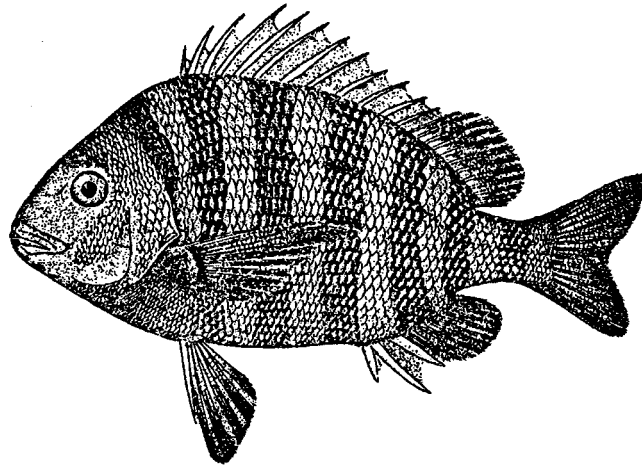
Sparidae

Figure 67

Archosargus probatocephalus
sheephead (adult)

ARC_PRO2.TIF

Jordan and Fesler, 1893, Plate 57



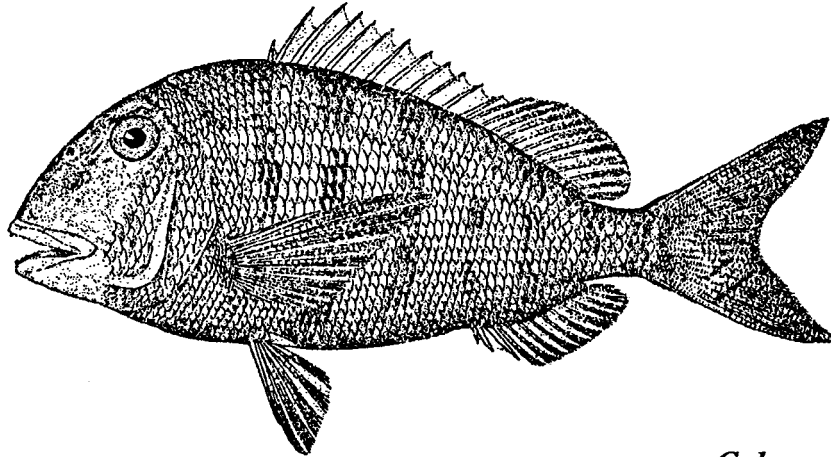
Sparidae

Figure 68

Archosargus probatocephalus
sheepshead (young)

CAL_ARCT.TIF

Jordan and Fesler, 1893, Plate 52



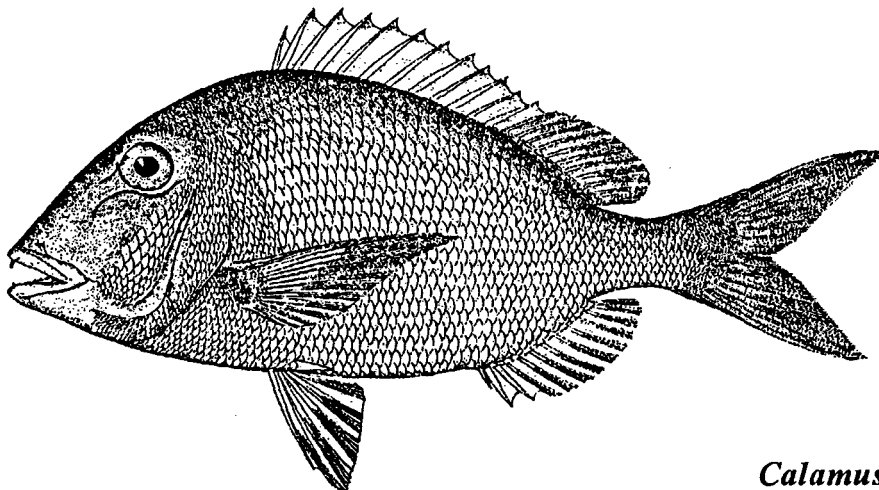
Sparidae

Figure 69

Calamus arctifrons
grass porgy

CAL_BAJO.TIF

Jordan and Fesler, 1893, Plate 50



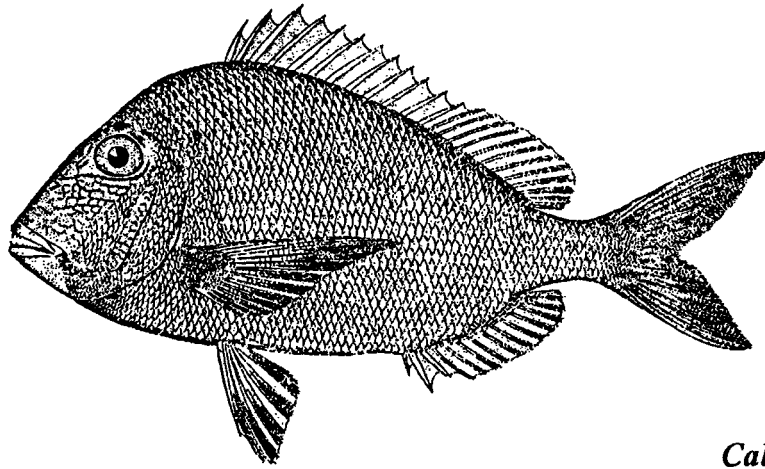
Sparidae

Figure 70

Calamus bajonado
jolthead porgy

CAL_CALA.TIF

Jordan and Fesler, 1893, Plate 48



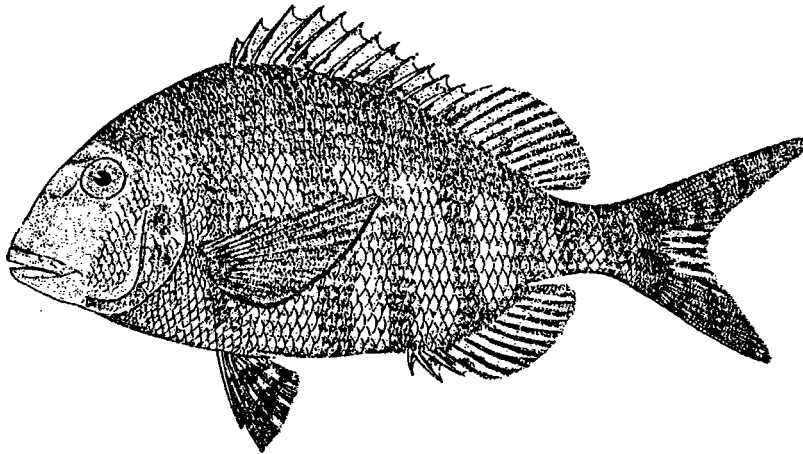
Sparidae

Figure 71

Calamus calamus
saucereye porgy

CAL_PENN.TIF

Jordan and Fesler, 1893, Plate 51



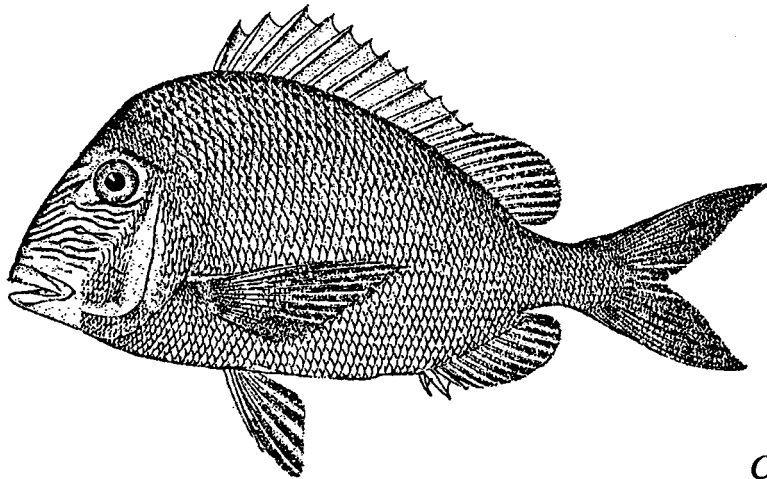
Sparidae

Figure 72

Calamus penna
sheephead porgy

CAL_PROR.TIF

Jordan and Fesler, 1893, Plate 49



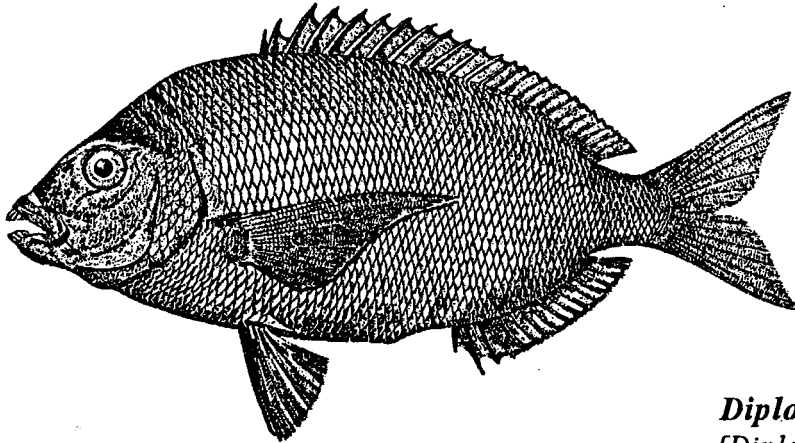
Sparidae

Figure 73

Calamus proridens
littlehead porgy

DIP_HOLB_TIF

Evermann and Bean, 1898, Plate 50



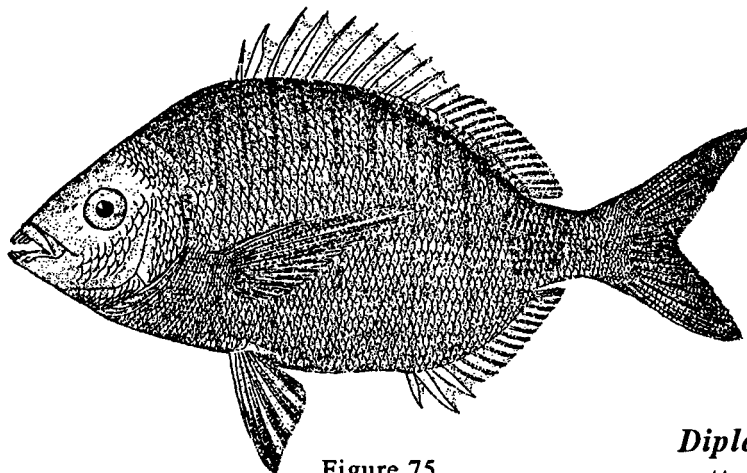
Sparidae

Figure 74

Diplodus holbrooki
[*Diplodus holbrookii*]
spottail pinfish (adult)

DIP_HOL2.TIF

Jordan and Fesler, 1893, Plate 58



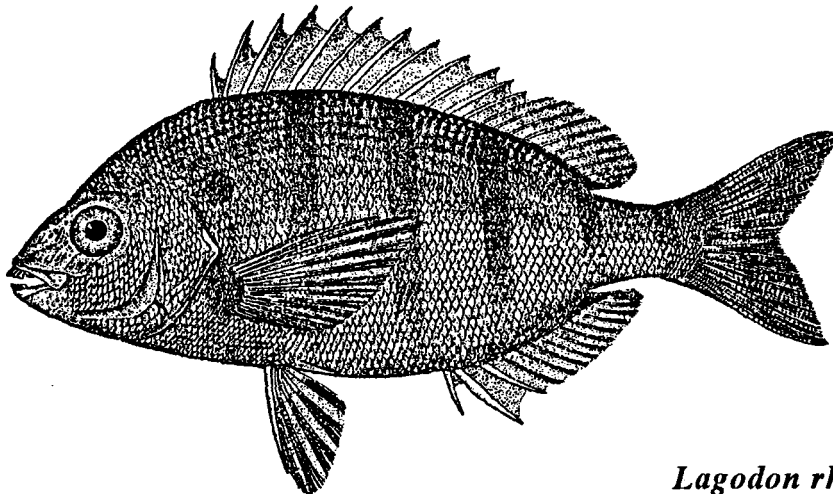
Sparidae

Figure 75

Diplodus holbrooki
spottail pinfish (young)

LAG_RHOM.TIF

Evermann, 1899, Plate 30



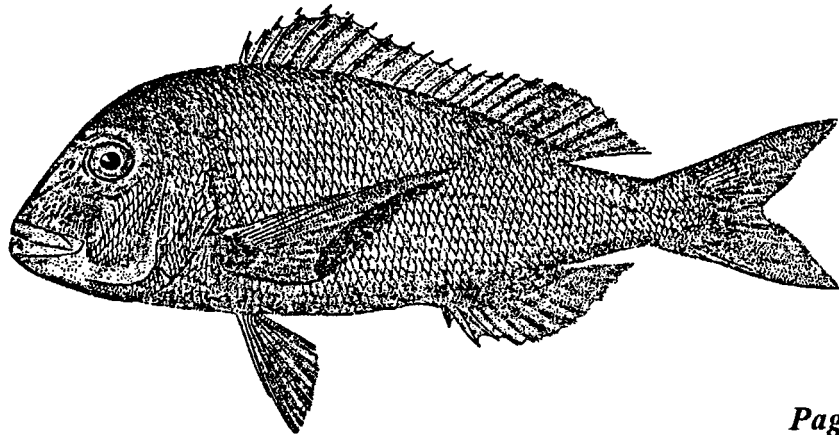
Sparidae

Figure 76

Lagodon rhomboides
pinfish

PAG_PAGR.TIF

Jordan and Fesler, 1893, Plate 53



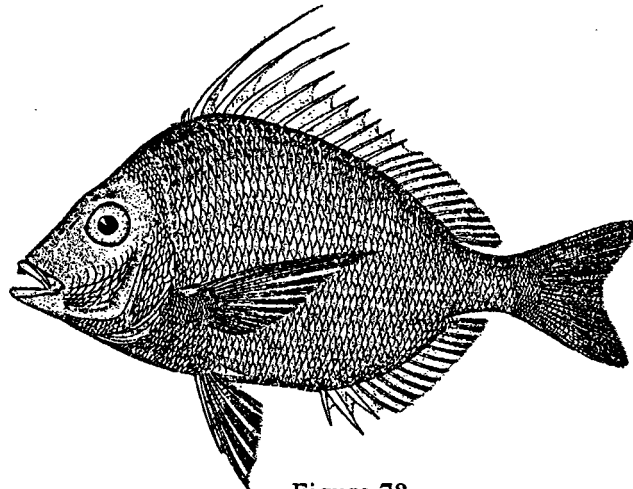
Pagrus pagrus
[*Sparus pagrus*]
red porgy

Sparidae

Figure 77

STE_CAPR.TIF

Jordan and Fesler, 1893, Plate 47



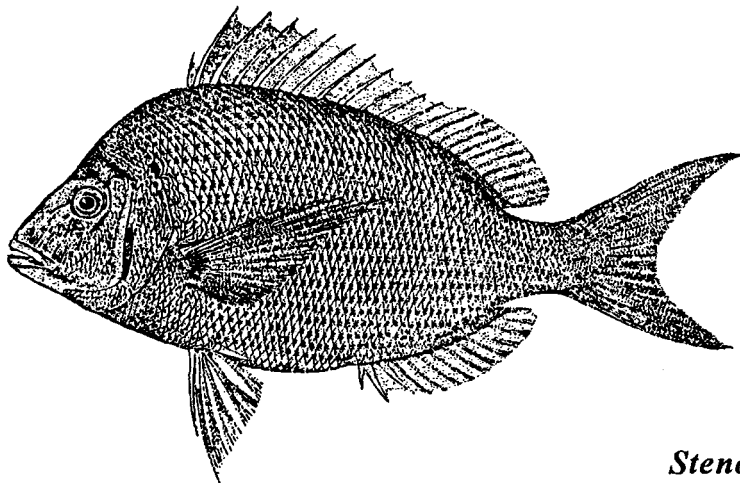
Stenotomus caprinus
longspine porgy

Sparidae

Figure 78

STE_CHRY.TIF

Jordan and Fesler, 1893, Plate 46



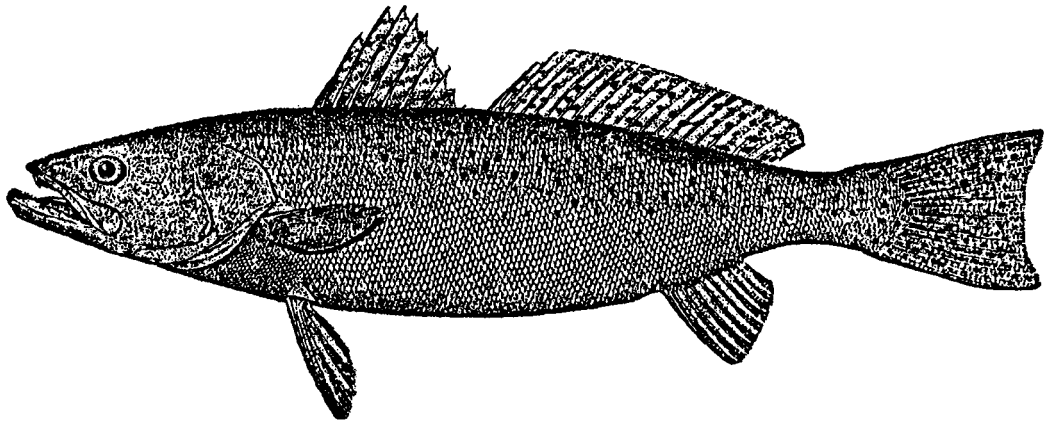
Stenotomus chrysops
scup

Sparidae

Figure 79

CYN_NEBU.,TIF

Evermann, 1899, Plate 32



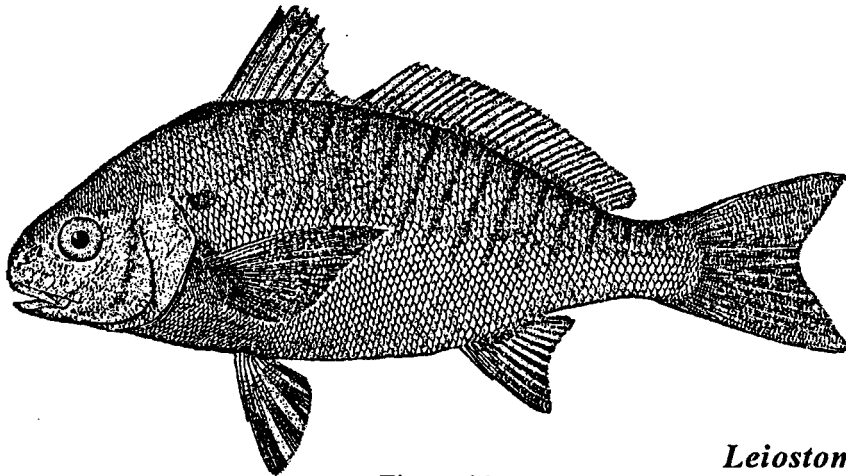
Sciaenidae

Figure 80

Cynoscion nebulosus
spotted seatrout

LEI_XANT.TIF

Evermann and Bean, 1898, Plate 53



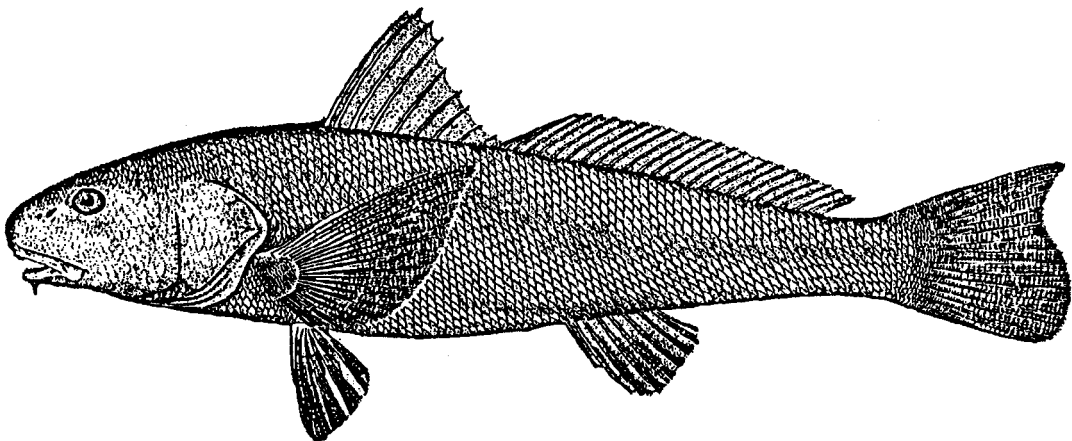
Sciaenidae

Figure 81

Leiostomus xanthurus
spot

MEN_AMER.TIF

Evermann and Bean, 1898, Plate 55



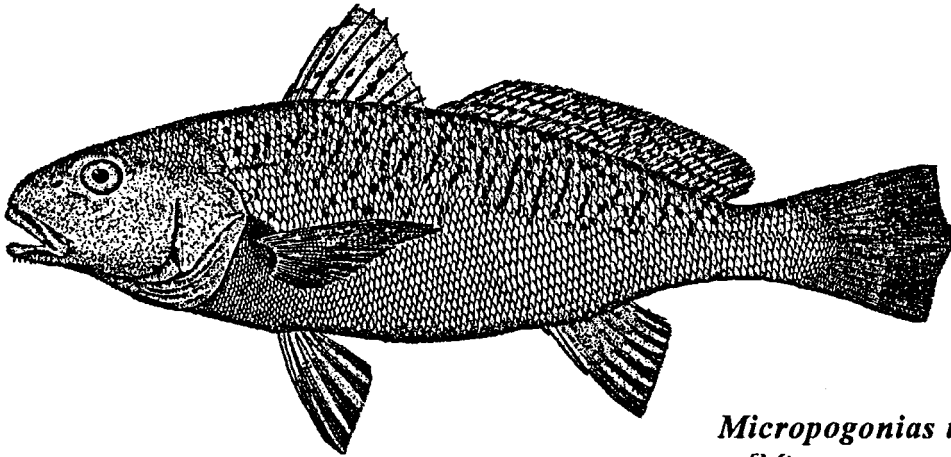
Sciaenidae

Figure 82

Menticirrhus americanus
whiting

MIC_UNDU.TIF

Evermann, 1899, Plate 35



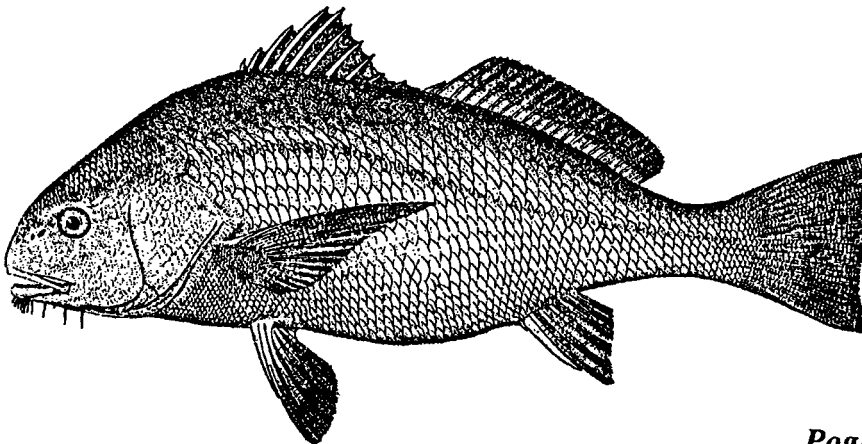
Sciaenidae

Figure 83

Micropogonias undulatus
[*Micropogon undulatus*]
croaker

POG_CROM.TIF

Evermann and Bean, 1898, Plate 56



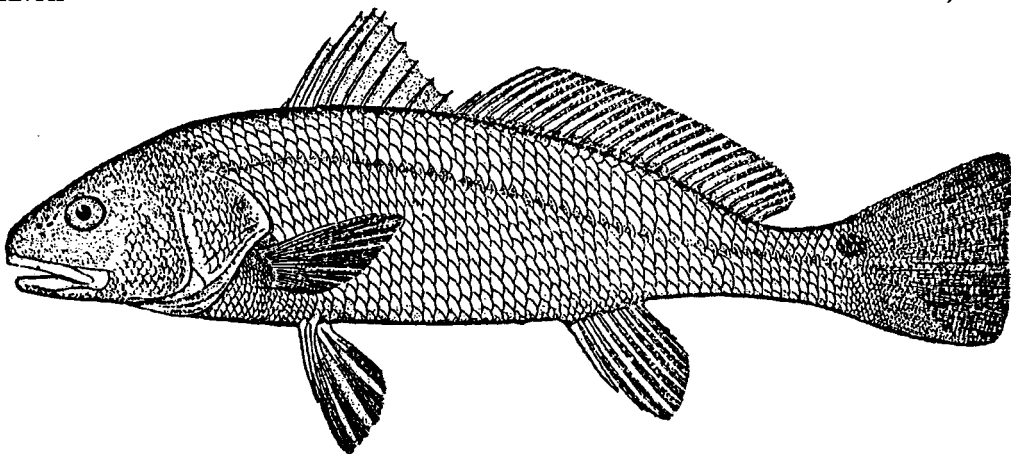
Sciaenidae

Figure 84

Pogonias cromis
black drum

SCI_OCEL.TIF

Evermann, 1899, Plate 33



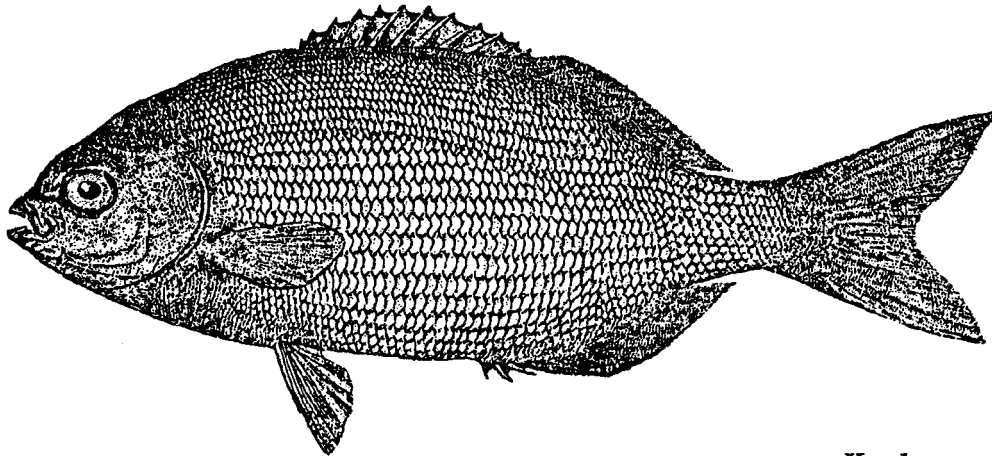
Sciaenidae

Figure 85

Sciaenops ocellatus
red drum

KYP_SECT.TIF

Jordan and Fesler, 1893, Plate 61



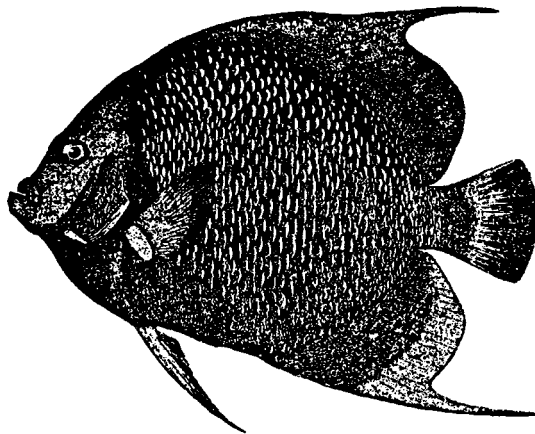
Kyphosidae

Figure 86

Kyphosus sectatrix
Bermuda chub

POM_ARCU.TIF

Evermann and Marsh, 1902, Fig. 69



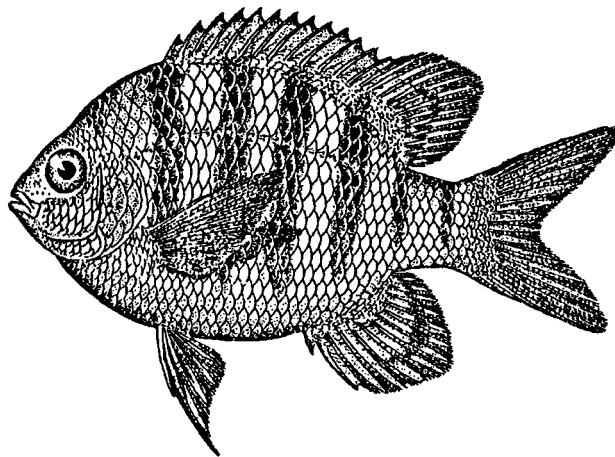
Pomacanthidae

Figure 87

Pomacanthus paru
[*Pomacanthus arcuatus*]
French angelfish

ABU_SAXA.TIF

Evermann and Marsh, 1902, Fig. 64



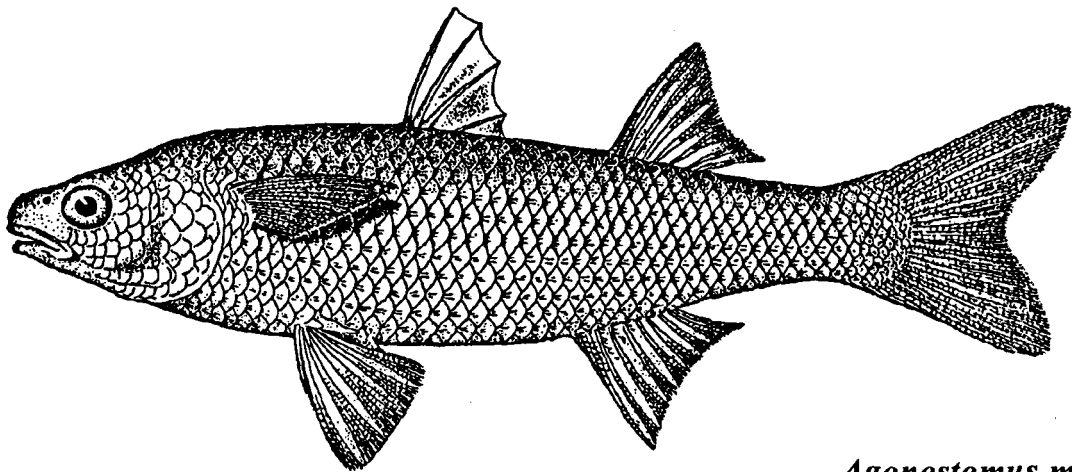
Pomacentridae

Figure 88

Abudefduf saxatilis
sergeant major

AGO_MONT.TIF

Evermann and Marsh, 1902, Fig. 25



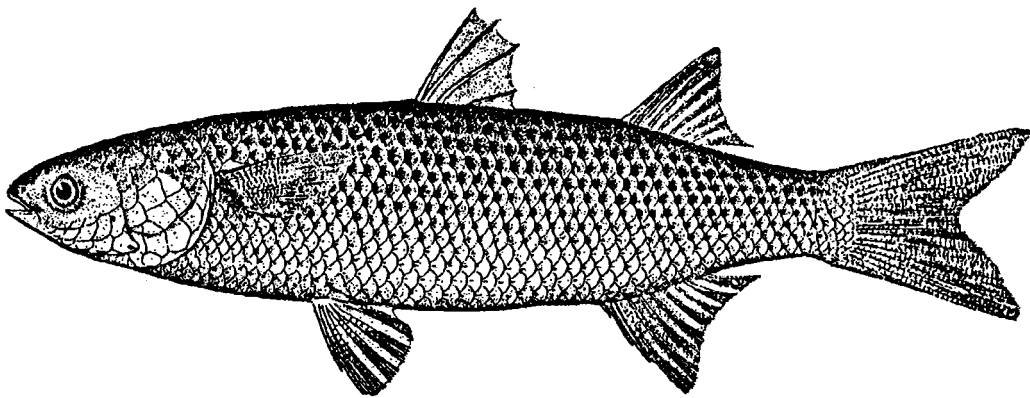
Mugilidae

Figure 89

Agonostomus monticola
mountain mullet

MUG_CEPH.TIF

Evermann, 1899, Plate 24



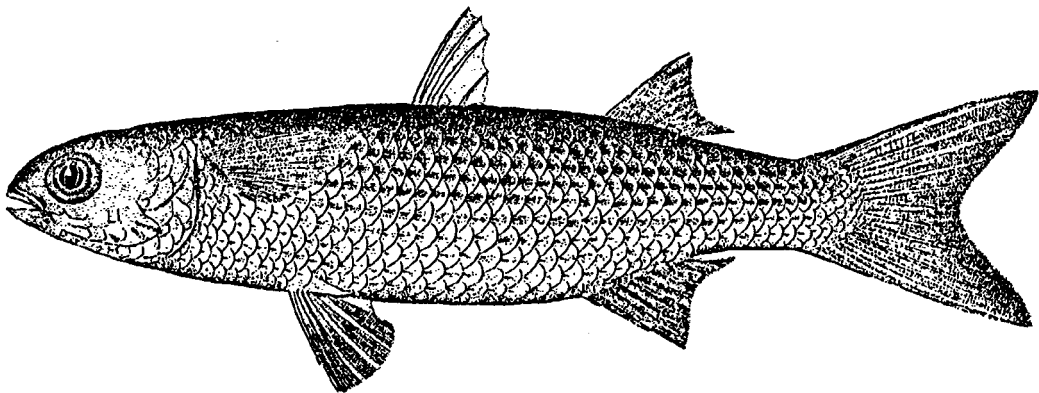
Mugilidae

Figure 90

Mugil cephalus
striped mullet

MUG_CURE.TIF

Evermann and Bean, 1898, Plate 31



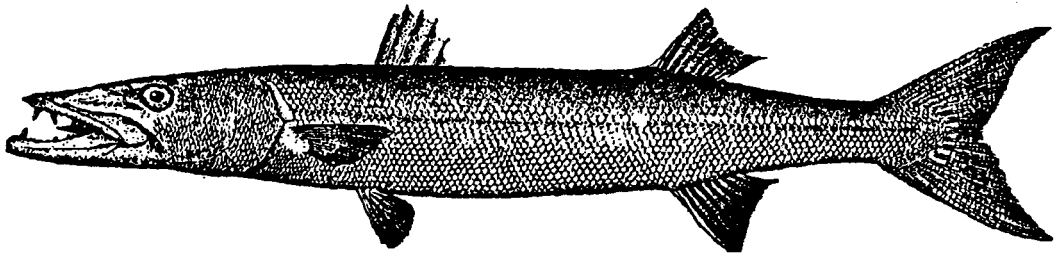
Mugilidae

Figure 91

Mugil curema
white mullet

SPH_BARR.TIF

Evermann and Marsh, 1902, Fig. 26



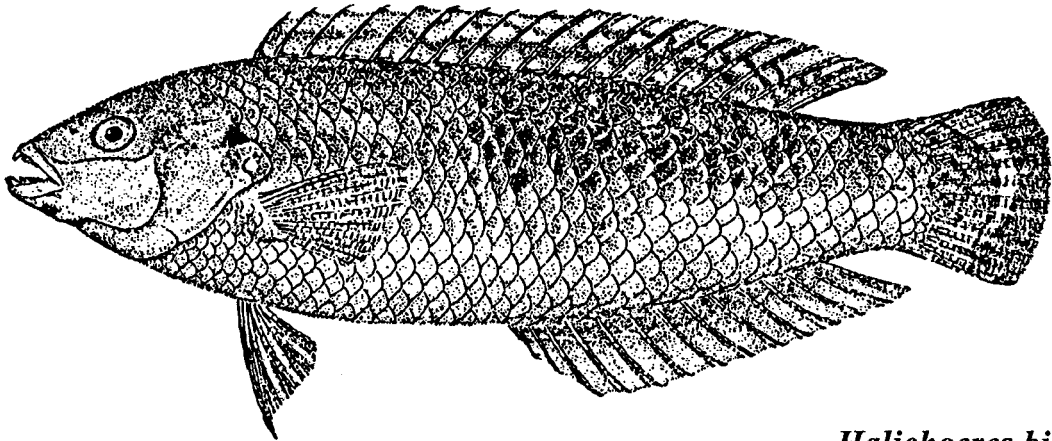
Sphyaenidae

Figure 92

Sphyraena barracuda
great barracuda

HAL_BIVI.TIF

Jordan, 1891, Plate 6



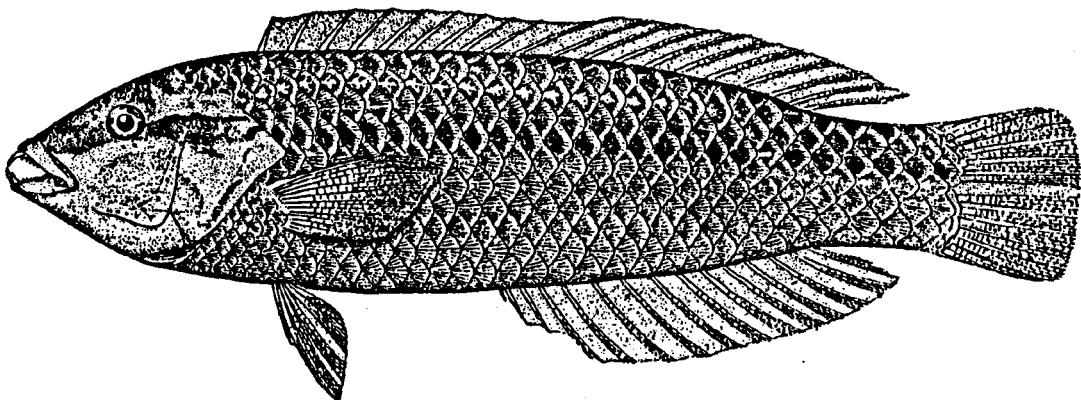
Labridae

Figure 93

Halichoeres bivittatus
slippery dick (adult)

HAL_BIV2.TIF

Jordan, 1891, Plate 5



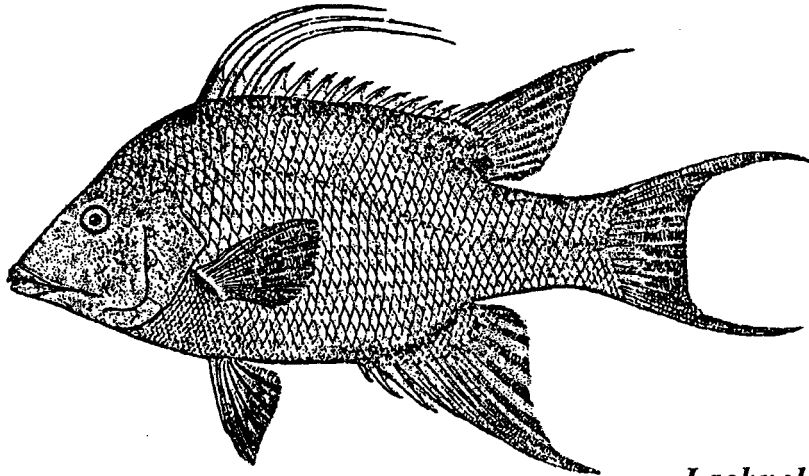
Labridae

Figure 94

Halichoeres bivittatus
slippery dick (young)

LAC_MAXI.TIF

Jordan, 1891, Plate 3



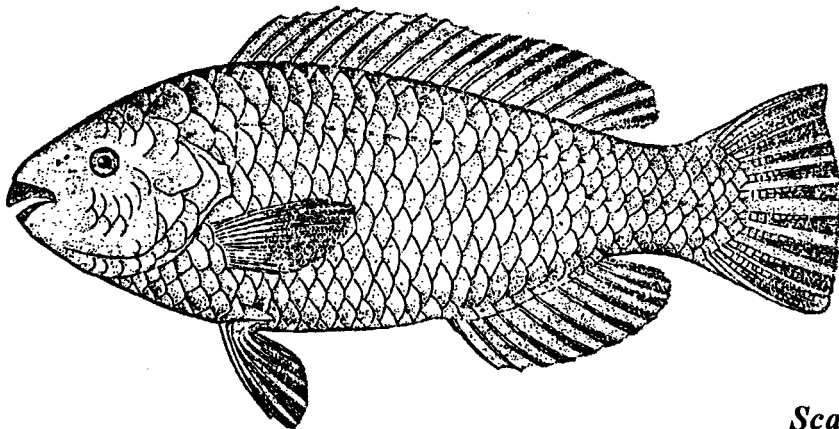
Labridae

Figure 95

Lachnolaimus maximus
hogfish

SCA_GUAC.TIF

Jordan, 1891, Plate 11



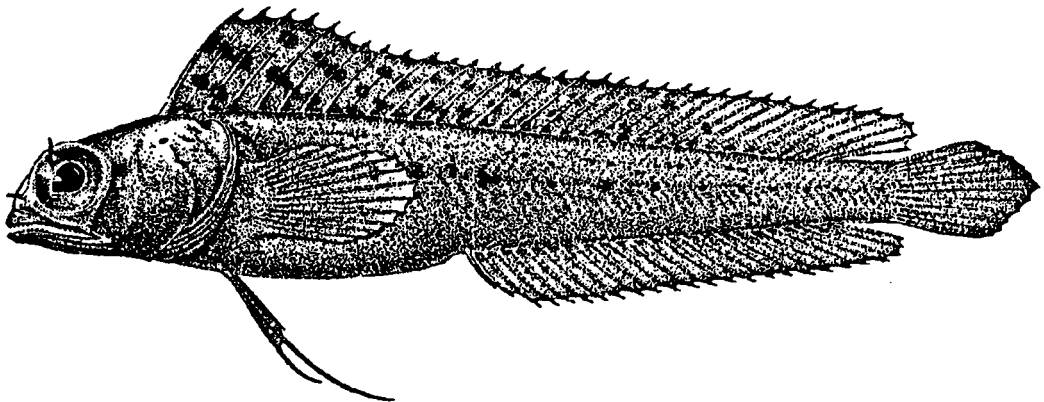
Scaridae

Figure 96

Scarus guacamaia
rainbow parrotfish

EMB_PAND.TIF

Evermann and Marsh, 1902, Fig. 104



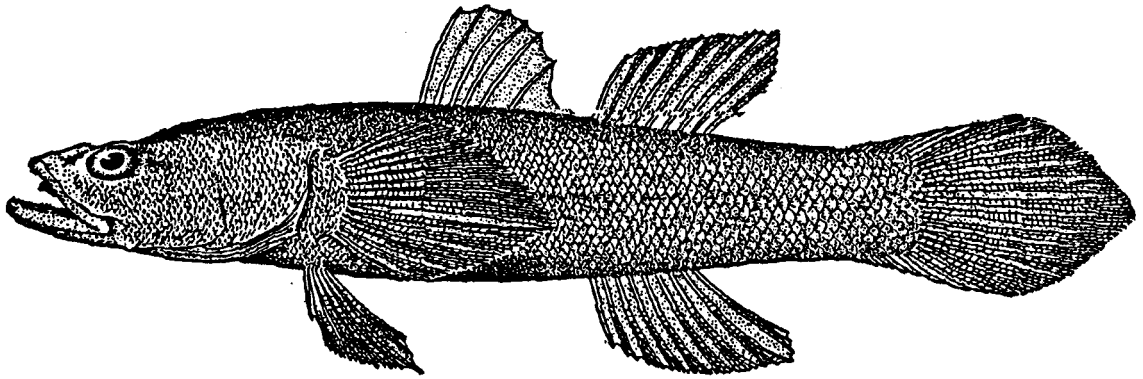
Clinidae

Figure 97

Emblemaria pandionis
sailfin blenny

ELE_PISO.TIF

Evermann and Marsh, 1902, Fig. 88



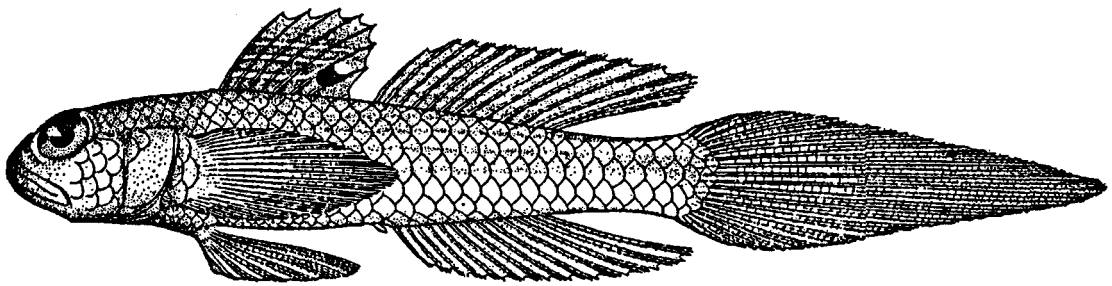
Eleotridae

Figure 98

Eleotris pisonis
spinycheek sleeper

BOL_BOQU.TIF

Evermann and Marsh, 1902, Fig. 92



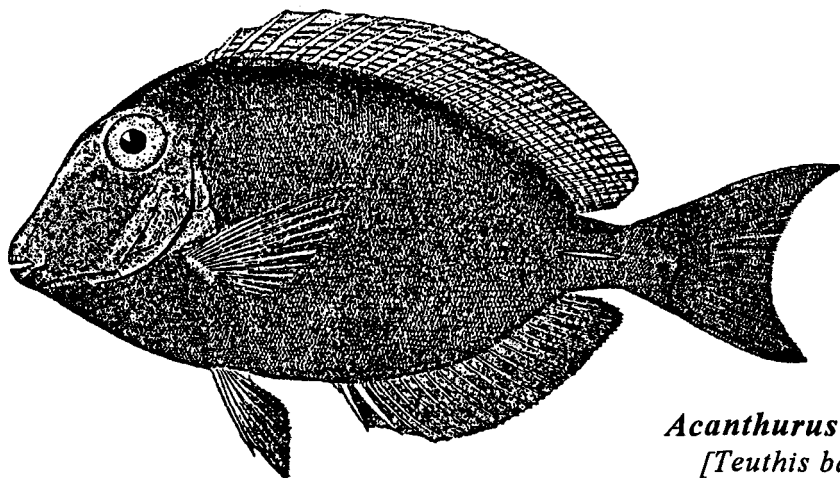
Gobiidae

Figure 99

Bollmannia boqueronensis
white-eye goby

ACA_COER.TIF

Evermann and Marsh, 1902, Fig. 70



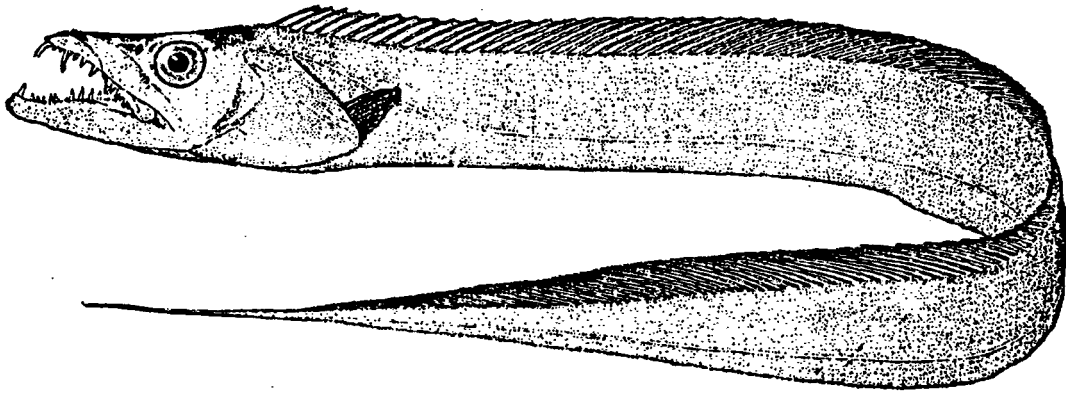
Acanthuridae

Figure 100

Acanthurus coeruleus
[*Teuthis bahianus*]
blue tang

TRI_LEPT.TIF

Evermann and Marsh, 1902, Fig. 29



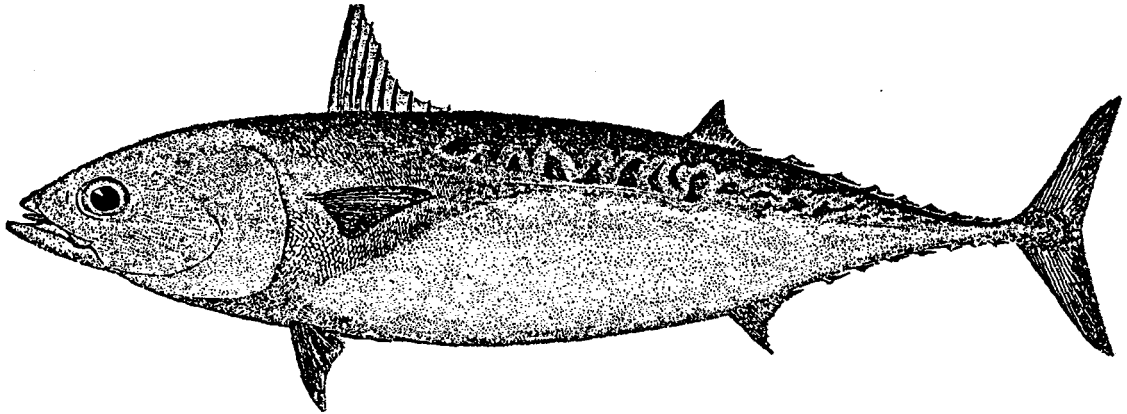
Trichiuridae

Figure 101

Trichiurus lepturus
Atlantic cutlassfish

AUX_THAZ.TIF

Dresslar and Fesler, 1889, Plate 3



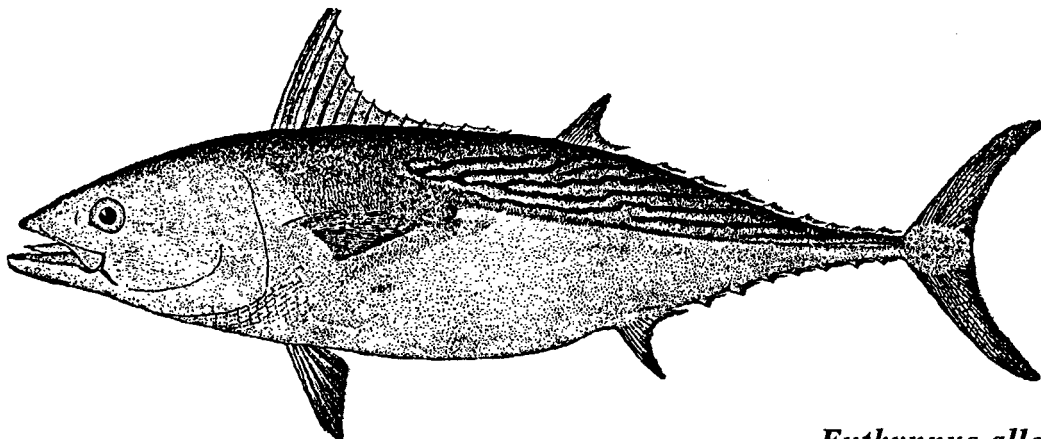
Scombridae

Figure 102

Auxis thazard
frigate mackerel

EUT_ALLE.TIF

Dresslar and Fesler, 1889, Plate 5



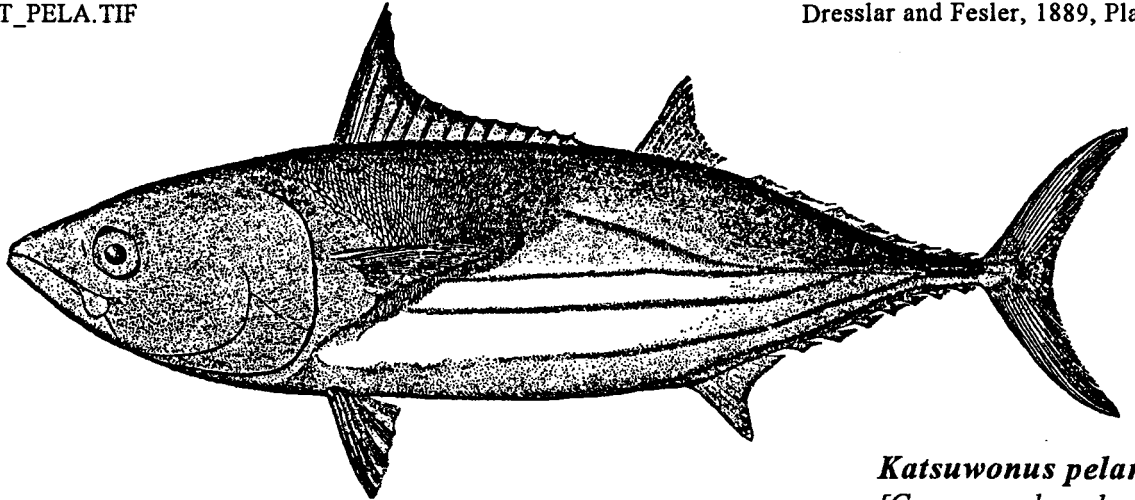
Scombridae

Figure 103

Euthynnus alletteratus
[*Gymnosarda alletterata*]
little tunny

KAT_PELA.TIF

Dresslar and Fesler, 1889, Plate 4



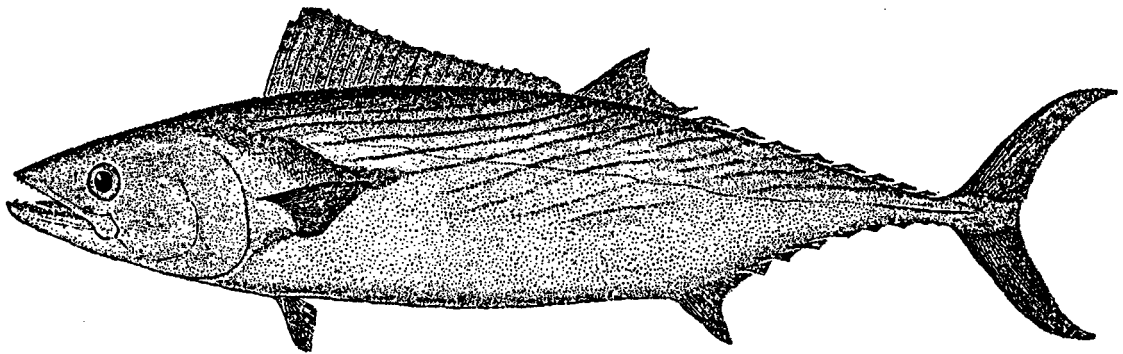
Scombridae

Figure 104

Katsuwonus pelamis
[*Gymnosarda pelamis*]
skipjack tuna

SAR_SARD.TIF

Dresslar and Fesler, 1889, Plate 8



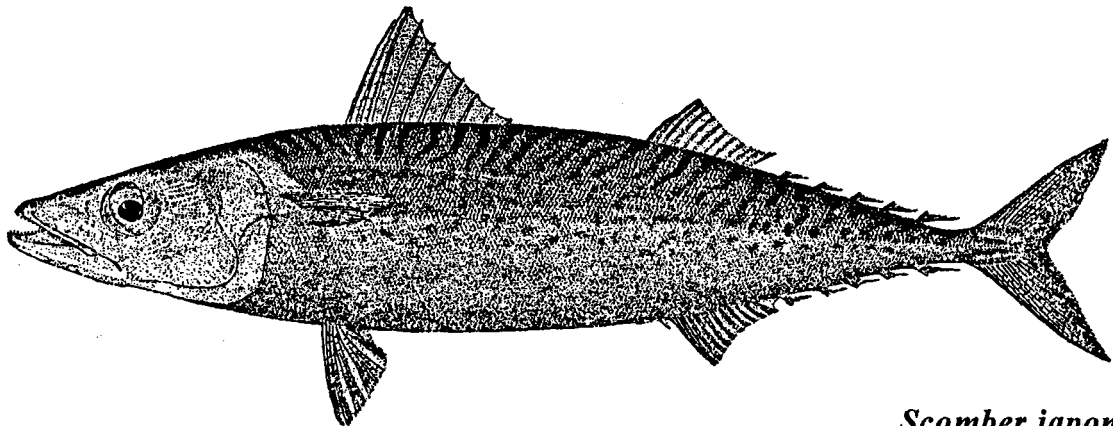
Scombridae

Figure 105

Sarda sarda
Atlantic bonito

SCO_JAPO.TIF

Dresslar and Fesler, 1889, Plate 2



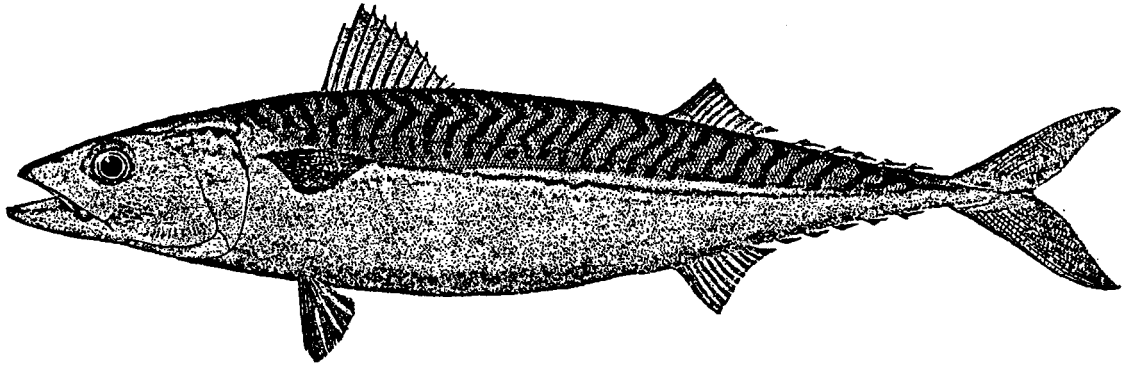
Scombridae

Figure 106

Scomber japonicus
[*Scomber colias*]
chub mackerel

SCO_SCOM.TIF

Dresslar and Fesler, 1889, Plate 1



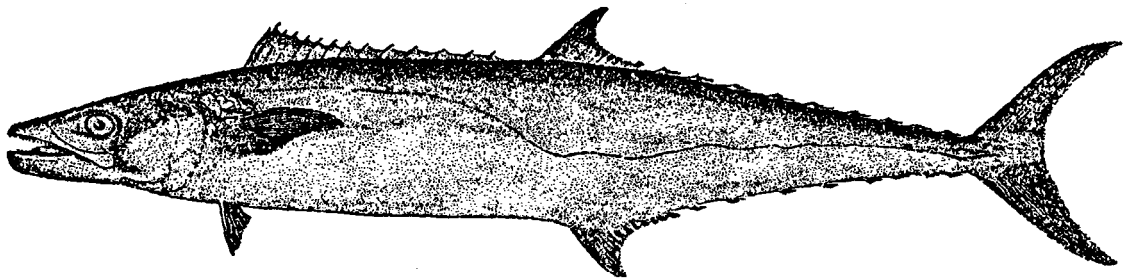
Scombridae

Figure 107

Scomber scombrus
Atlantic mackerel

SCO_CAVA.TIF

Dresslar and Fesler, 1889, Plate 11



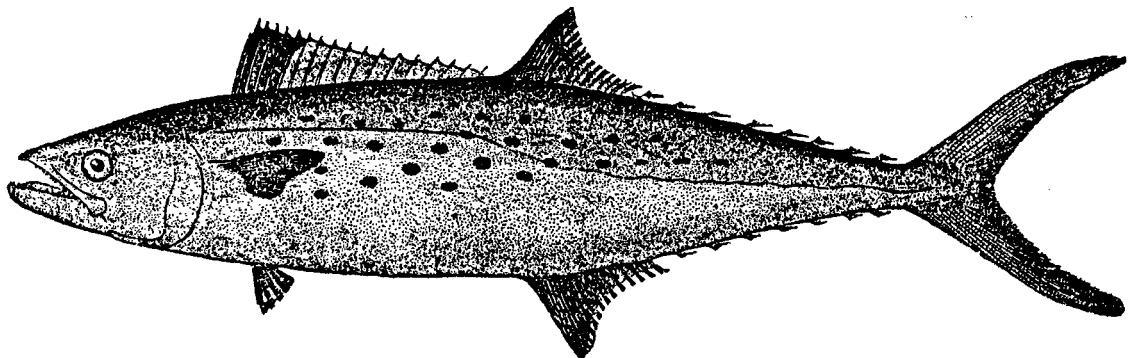
Scombridae

Figure 108

Scomberomorus cavalla
king mackerel

SCO_MACU.TIF

Dresslar and Fesler, 1889, Plate 9



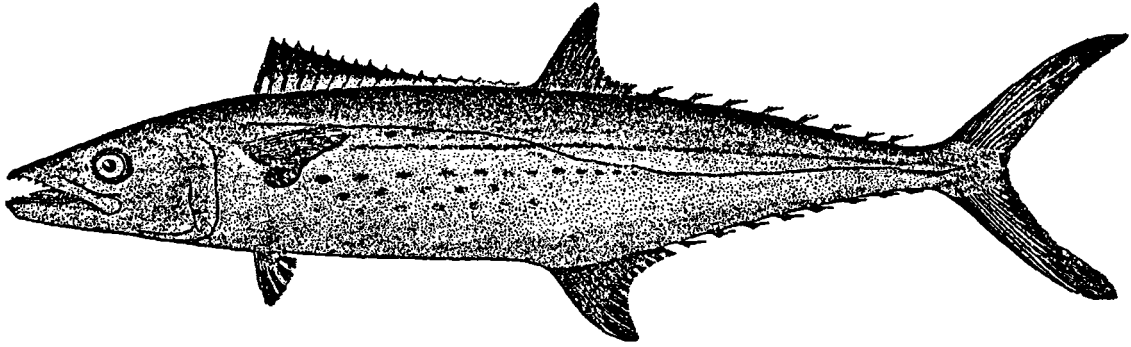
Scombridae

Figure 109

Scomberomorus maculatus
Spanish mackerel

SCO_REGA.TIF

Dresslar and Fesler, 1889, Plate 10



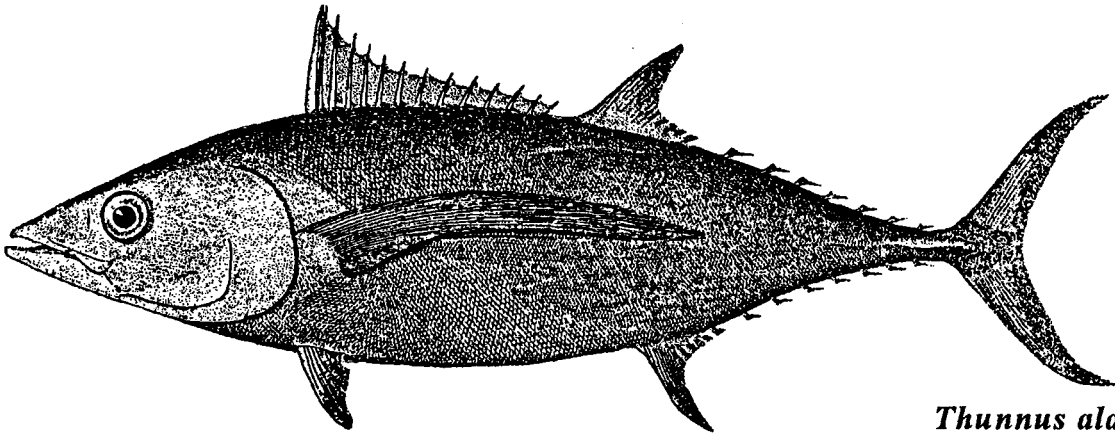
Scombridae

Figure 110

Scomberomorus regalis
cero

THU_ALAL.TIF

Dresslar and Fesler, 1889, Plate 6



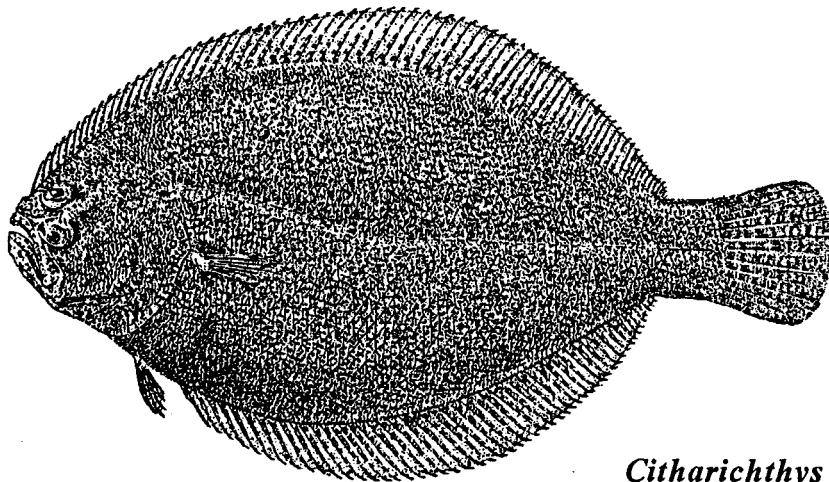
Scombridae

Figure 111

Thunnus alalunga
[*Albacora alalunga*]
albacore

CIT_AREN.TIF

Evermann and Marsh, 1902, Fig. 106



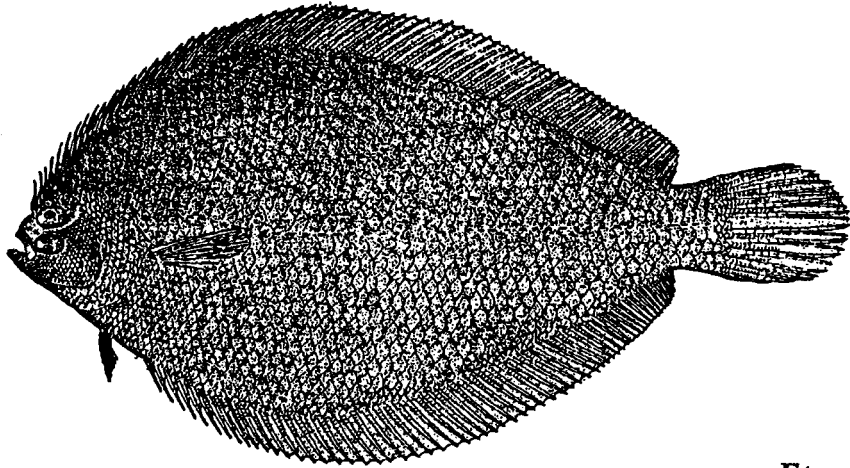
Paralichthyidae

Figure 112

Citharichthys arenaceus
sand whiff

ETR_CROS.TIF

Evermann and Marsh, 1902, Fig. 107



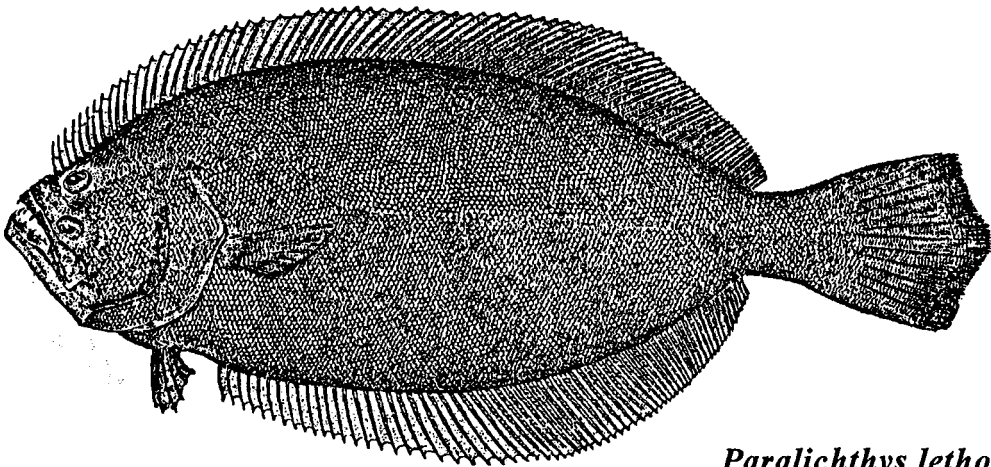
Paralichthyidae

Figure 113

Etropus crossotus
fringed flounder

PAR_LETH.TIF

Evermann and Bean, 1898, Plate 59



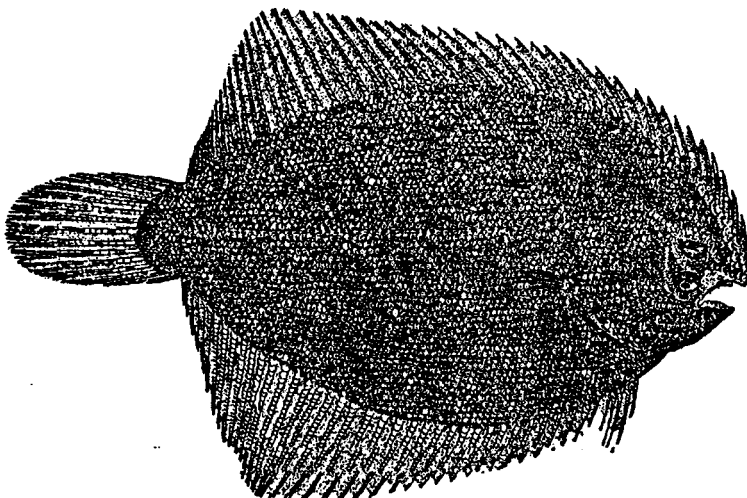
Paralichthyidae

Figure 114

Paralichthys lethostigma
southern flounder

ACH_LINE.TIF

Evermann and Marsh, 1902, Fig. 108



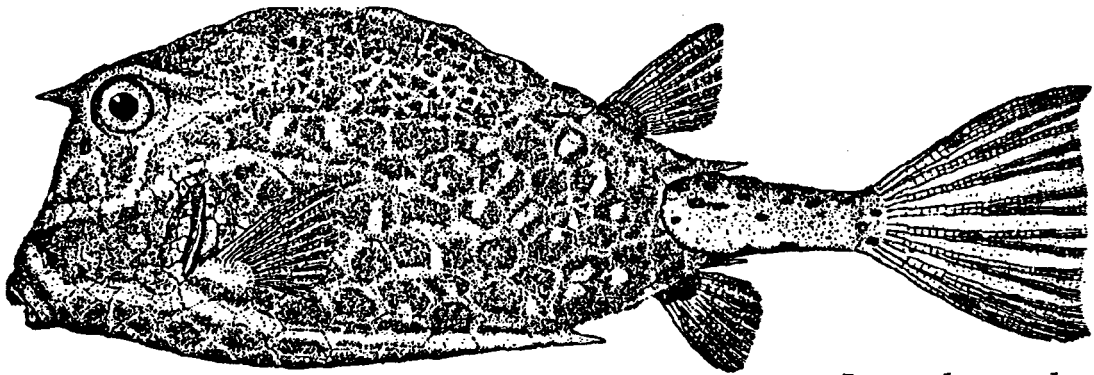
Achridae

Figure 115

Achirus lineatus
lined sole

LAC_TRIC.TIF

Evermann and Marsh, 1902, Fig. 77



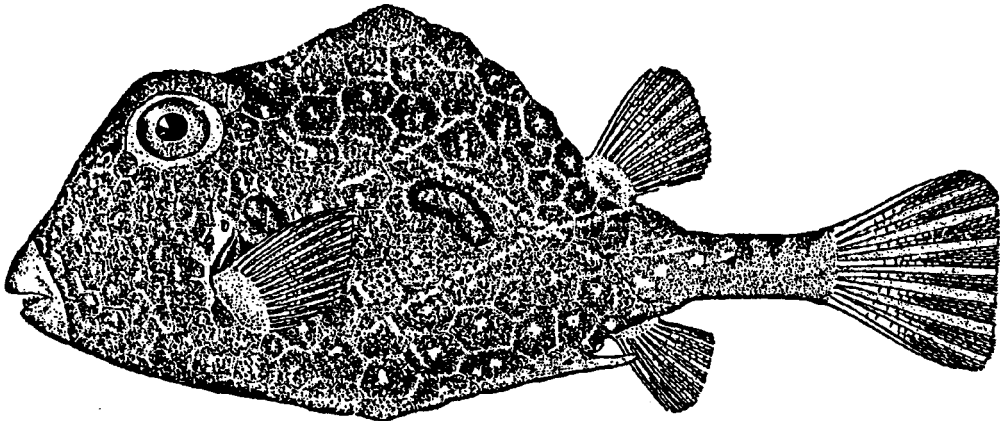
Ostraciidae

Figure 116

Lactophrys polygonia
[*Lactophrys tricornis*]
honeycomb cowfish

LAC_TRIG.TIF

Evermann and Marsh, 1902, Fig. 75



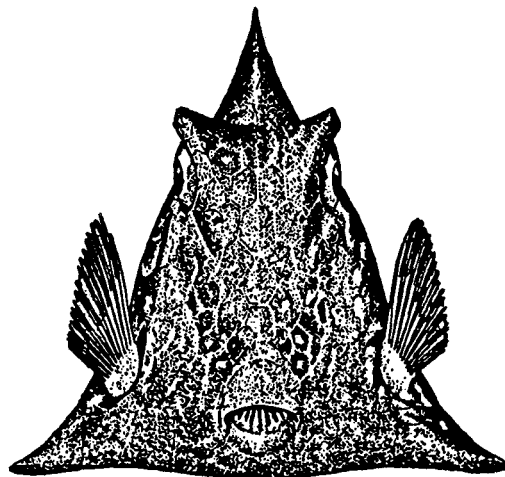
Ostraciidae

Figure 117

Lactophrys trigonus
trunkfish

LAG_TRI2.TIF

Evermann and Marsh, 1902, Fig. 75



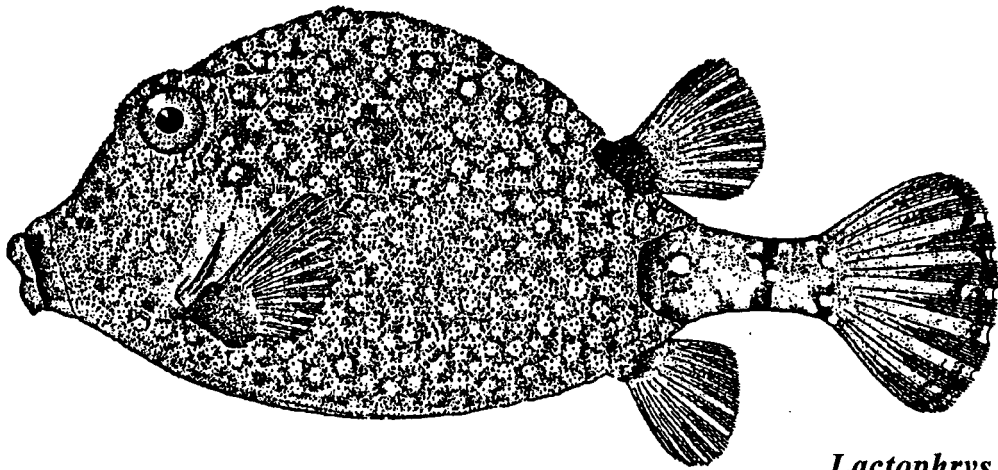
Ostraciidae

Figure 118

Lactophrys trigonus
trunkfish

LAC_TRIQ.TIF

Evermann and Marsh, 1902, Fig. 74



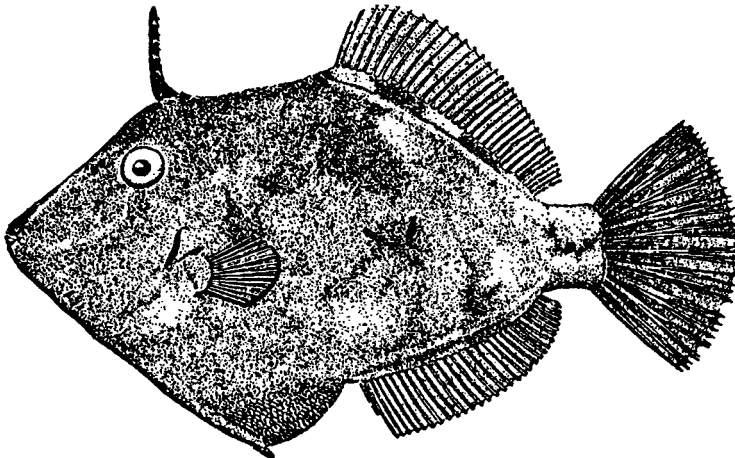
Ostraciidae

Figure 119

Lactophrys triqueter
smooth trunkfish

MON_CILI.TIF

Evermann and Marsh, 1902, Fig. 71



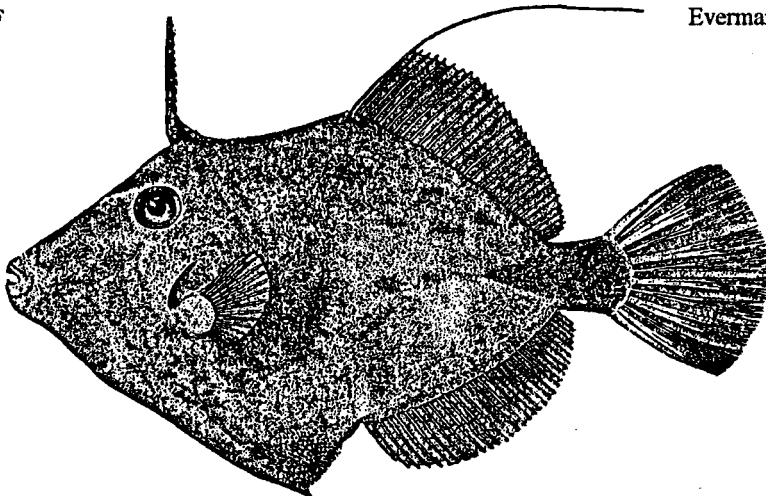
Monacanthidae

Figure 120

Monacanthus ciliatus
fringed filefish

MON_HISP.TIF

Evermann and Marsh, 1902, Fig. 72



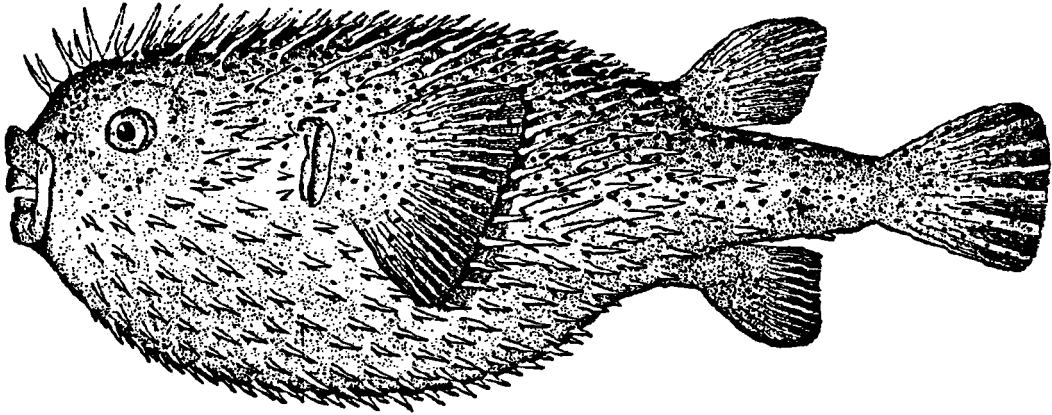
Monacanthidae

Figure 121

Monacanthus hispidus
planehead filefish

DIO_HYST.TIF

Evermann and Marsh, 1902, Fig. 80



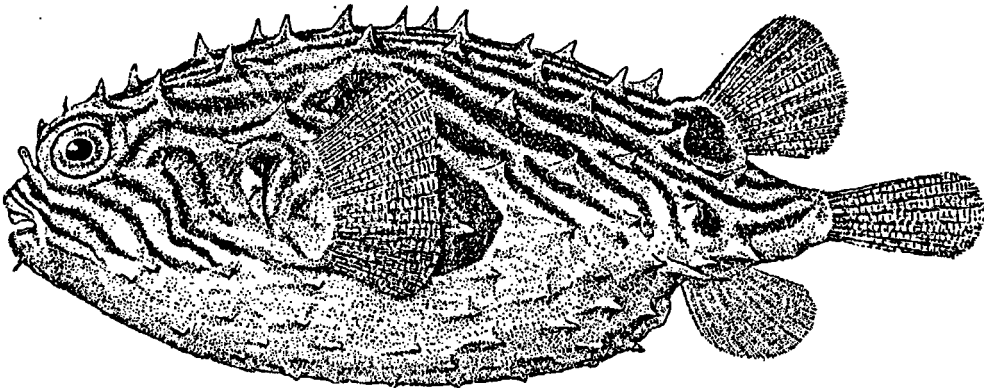
Diodontidae

Figure 122

Diodon hystrix
porcupinefish

CHI_SCHO.TIF

Evermann and Bean, 1898, Plate 58



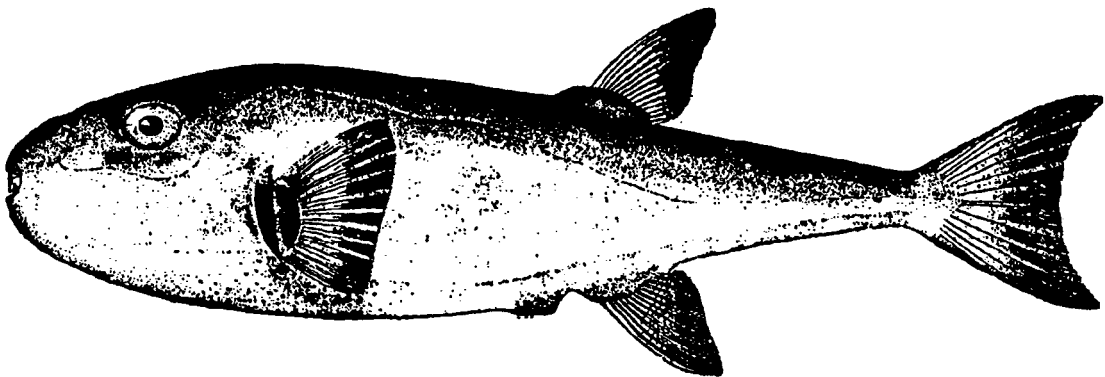
Diodontidae

Figure 123

Chilomycterus schoepfi
striped burrfish

LAC_LAEV.TIF

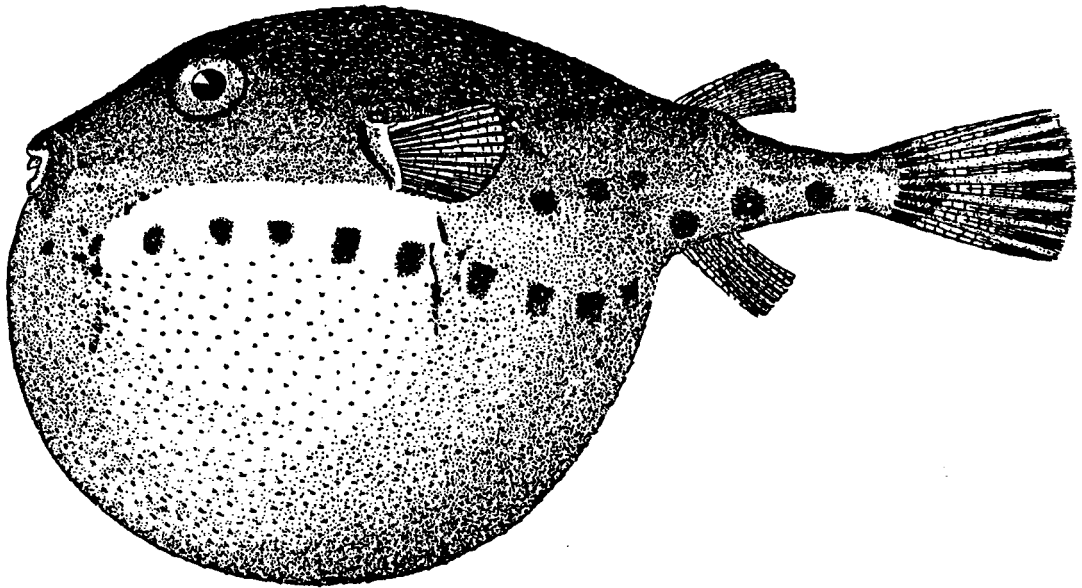
Evermann and Marsh, 1902, Fig. 78



Tetraodontidae

Figure 124

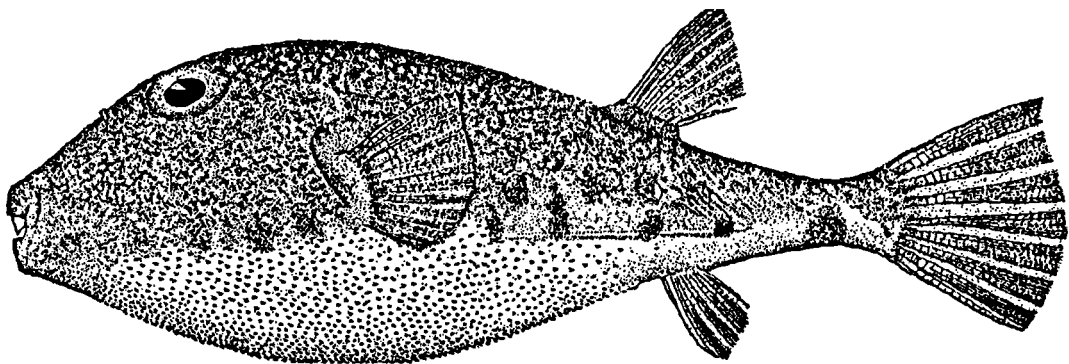
Lagocephalus laevigatus
smooth puffer



Tetraodontidae

Figure 125

Sphoeroides spengleri
[*Sphoeroides spengleri*]
bandtail puffer (inflated)



Tetraodontidae

Figure 126

Sphoeroides spengleri
[*Sphoeroides spengleri*]
bandtail puffer (deflated)