

## **CLEARWATER'S KEY TO COMMON HUDSON RIVER FISHES**

**NEW EDITION**

This Clearwater Key to Common Hudson River Fishes is currently between printings, and thus is being made available for use in Hudson River Snapshot Day and other education programs through this pdf copy. Please note pages 16 and 20 have been clarified from prior printings with comments by Steve Stanne, Interpretive Specialist, Hudson River Estuary Program.

## INTRODUCTION

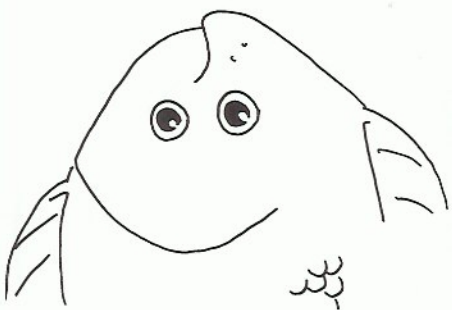
*Clearwater's Key to Common Hudson River Fishes* is both a simple introduction to use of a dichotomous key and a guide to the most common fishes of the Hudson.

To use this key, **you must start at the first page**. Decide whether your fish has the features described in line **a** or line **b**. Once you've decided, turn to the page indicated by your choice. Again compare your fish's features to those described on that page, select the best match, and turn to the page indicated. Continue this process until you eventually reach a description that matches and names your fish. Information about the fish is placed on the page facing the one where the fish is identified.

The choices depend on characters that can be seen on live fish, and do not require tedious chores such as counting the number of scales along the lateral line. However, **careful observation is a must**. Some features might be missed or misinterpreted in a quick look - a dorsal fin might be folded down and not readily visible, for example.

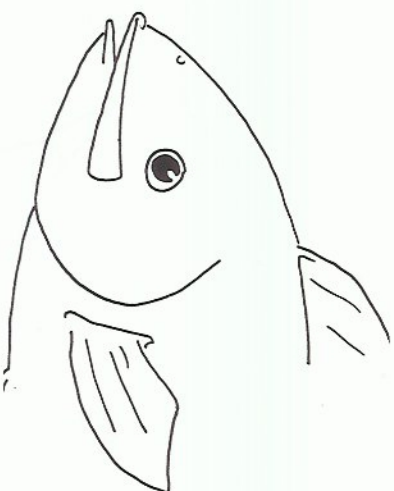
A list of the fish described in this key can be found inside the back cover. They are the ones we most commonly catch during Clearwater's programs on the tidal Hudson from New York Harbor to Albany. Both saltwater and freshwater varieties are included. But with over two hundred species recorded from the Hudson and its tributaries, you might not find your fish here. In that case, look up C. Lavett Smith's *The Inland Fishes of New York State* (New York State Department of Environmental Conservation, Albany, 1985). It covers all of the state's freshwater species as well as saltwater fish found in the Hudson estuary, and was the major resource used in preparation of this key.

- a. EYES ON SAME SIDE OF HEAD; BODY LIES FLAT ON BOTTOM**



→ **2**

- b. EYES ON OPPOSITE SIDES OF HEAD**

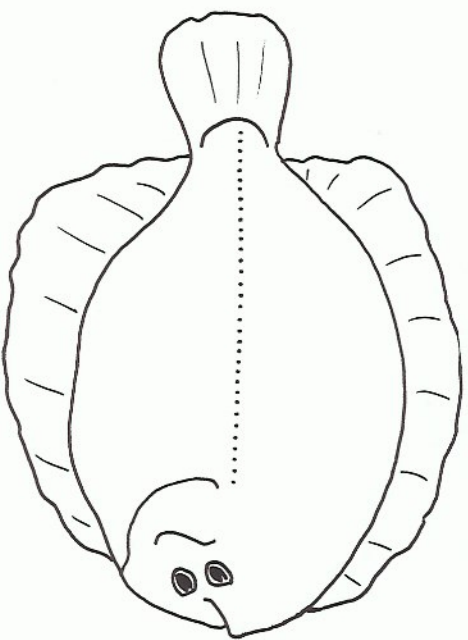


→ **5**

## HOGCHOKER

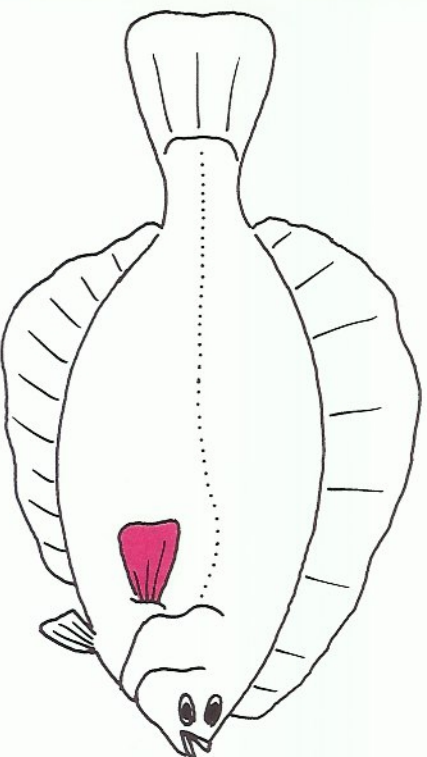
The hogchoker is a member of the sole family, closely related to flounders. It is usually brown or gray on top, with irregular wavy bars across the body. Its underside is light-colored, often with dark spots. Though we might catch them anywhere along the Hudson, hogchokers are most common in shallow, brackish water. They are abundant from Peekskill to Yonkers. A big hogchoker is all of six inches long.

### a. PECTORAL FINS ABSENT



—————→ Hogchoker

### b. PECTORAL FINS PRESENT



—————→ 3



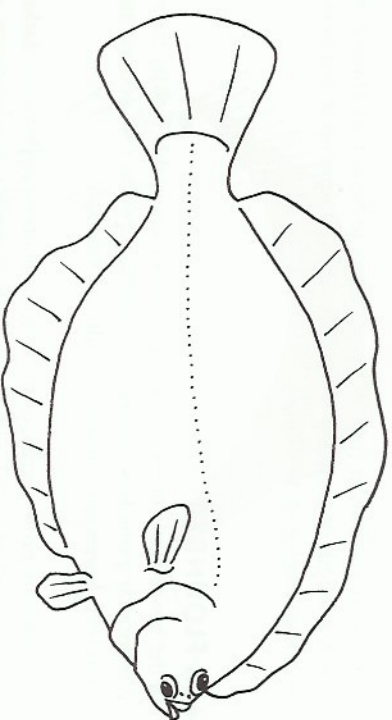
## WINTER FLOUNDER

As one might guess from its name, the winter flounder is most commonly caught in the colder months of the year. It moves into the lower Hudson in late winter and early spring to spawn. However, small flounder can be caught in New York Harbor even in the summer. The winter flounder is an important sport fish, also known to anglers as the blackback flounder or simply as flounder.

Winter flounder are generally brownish on top, but may be dark gray or olive green. Most of those we net are less than twelve inches long, but they may reach twenty inches and a weight of two pounds.

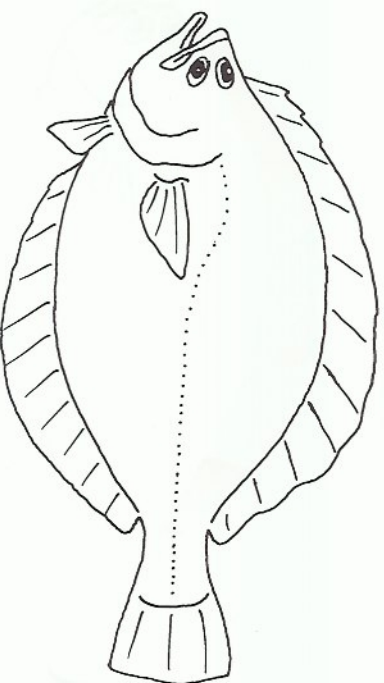
### a. EYES ON RIGHT SIDE OF BODY

—————→ Winter Flounder



### b. EYES ON LEFT SIDE OF BODY

—————→ 4





## WINDOWPANE

This flatfish is very thin and not meaty or big enough to be popular with anglers. On top it is brown in color and heavily spotted with white and darker brown. Its underside is white and nearly transparent; on smaller individuals the internal organs can be seen.

The windowpane is a saltwater fish. We catch many in New York Harbor. While they can reach a length of eighteen inches, those that come up in our nets are seldom more than twelve inches long.

## SUMMER FLOUNDER

Anglers in the lower Hudson and New York Harbor know this fish by the name fluke. It is a popular game fish, reaching a weight of two to five pounds and a length of two feet. Large individuals are called doormats.

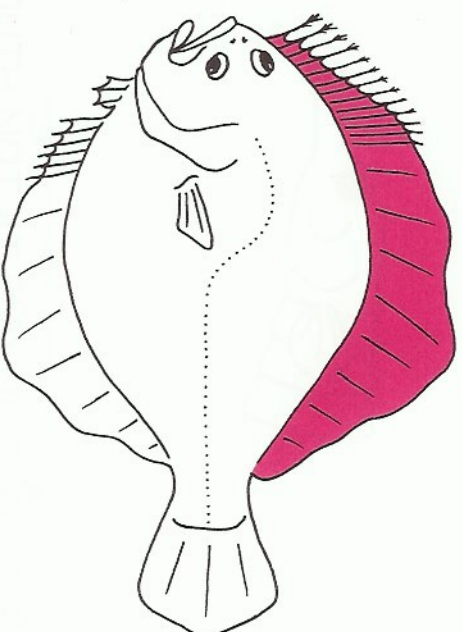
Summer flounder are brown, gray, or olive-colored above, often with darker spots. They have a large mouth filled with sharp teeth, and are active predators, often swimming well above the bottom while chasing small fish.

As one might guess from the name, summer flounder are most common here in the warmer months.

a.

RAYS AT FRONT OF DORSAL FIN  
BRANCHED AND FREE AT TIPS

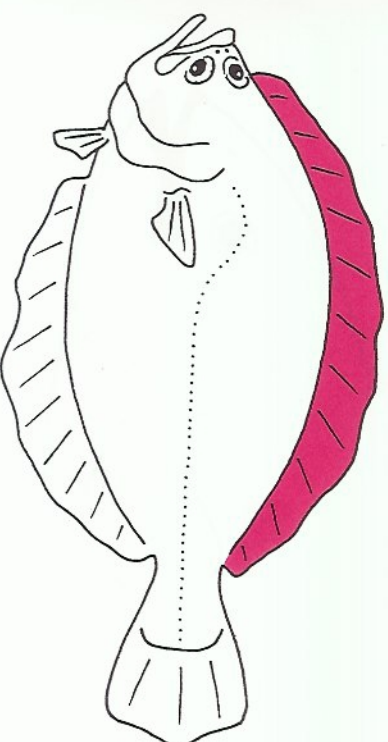
→ Windowpane



b.

RAYS AT FRONT OF DORSAL FIN NOT  
BRANCHED OR FREE

→ Summer Flounder

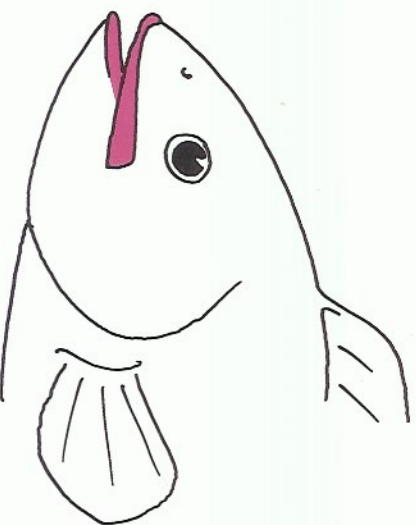


- a. TINY MOUTH AT TIP OF TUBE-LIKE  
SNOUT; BONY RINGS AROUND BODY



→ 6

- b. MOUTH NOT AT END OF TUBE-LIKE  
SNOUT; NO BONY RINGS AROUND BODY



→ 7

## NORTHERN PIPEFISH

The northern pipefish is a saltwater species common in the lower Hudson estuary. Related to the seahorse, our pipefish usually isn't more than eight inches long. Its long, skinny shape keeps it well hidden in weeds. Often a pipefish uses only its dorsal fin to move around, while keeping its body very still. This gives the fish the appearance of a drifting stem of grass. However, it can swim quickly in short bursts.

Much like you use a straw, a pipefish uses its tube-like snout and tiny mouth to suck up tiny crustaceans. Male pipefish do much of the work of child-raising, incubating eggs that a female places in folds of skin on a male's belly.

## LINED SEAHORSE

You probably didn't have to use the key to figure out what this fish was. Seahorses are unmistakable. We catch one species - the lined seahorse - in the saltiest parts of the estuary around New York City. While it is usually a dull gray or brown in color, this fish makes up for its drab color with other interesting features.

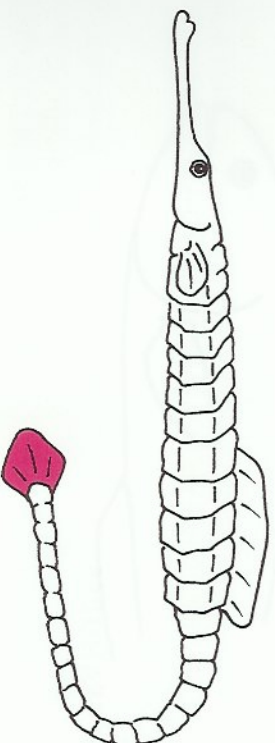
Like its relative the pipefish, a seahorse uses its long snout and tiny mouth to suck up its meals of small crustaceans. Male seahorses have a pouch on their bellies in which they incubate eggs laid by the females.

Unlike the pipefish, the seahorse has no tail fin. It swims with rippling movements of its dorsal fin. Its tail is prehensile; the seahorse uses it to hold on to plant stems and other objects at the bottom of the estuary. Lined seahorses are seldom more than five inches long.

a.

BODY LONG AND THIN; CAUDAL FIN  
PRESENT

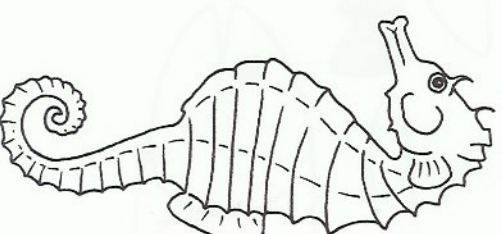
—————> Northern Pipefish



b.

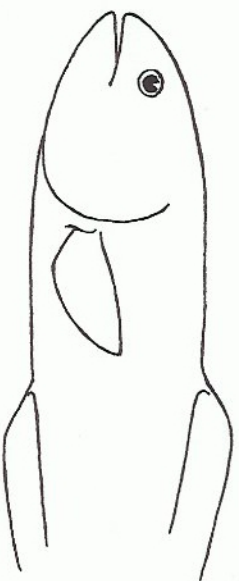
BODY CURVED; HEAD AT RIGHT ANGLE  
TO BODY; CAUDAL FIN ABSENT

—————> Lined Seahorse



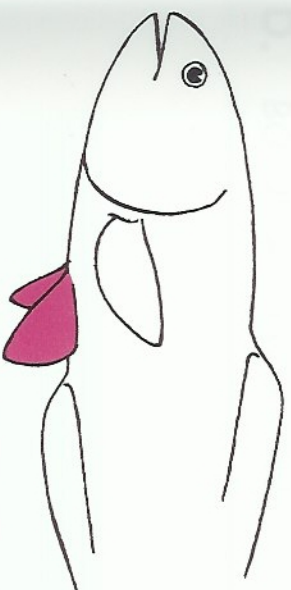


a. PELVIC FINS ABSENT

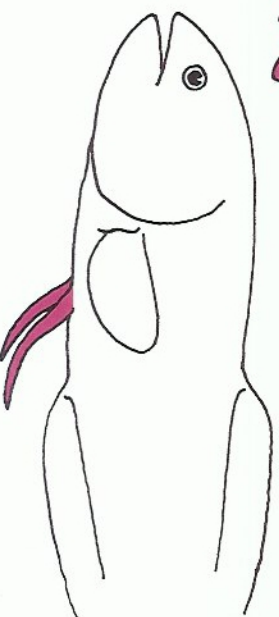


→ 8

b. PELVIC FINS PRESENT



→ 10



.7.

## AMERICAN EEL

American eels are catadromous fish, meaning they are born in salt water, migrate to fresh water to live, and return to salt water to spawn. These fish start life in the Sargasso Sea, part of the Atlantic Ocean southeast of Bermuda, and travel on ocean currents to rivers along the East Coast. Young eels enter the Hudson as "glass eels" only a few inches long - they are transparent except for their dark eyes and red gills. Small eels that have just taken on the olive or yellowish-brown color of adults are called elvers.

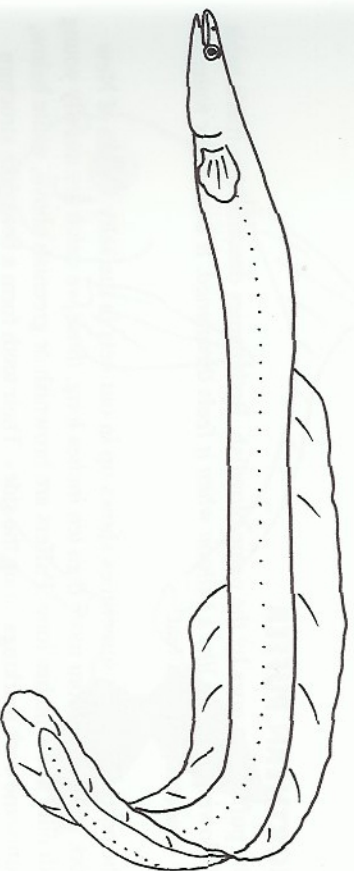
American eels can live over twenty years, and reach a length of three feet. Shortly before they leave the Hudson to return to the Sargasso Sea, their color becomes silvery and black.

Adult eels can be found all along the Hudson in both salt and fresh water. They are very hardy fish, tolerant of pollution and able to live out of water longer than most fish. In damp conditions they can travel overland, slithering like a snake.

Eels were once a valuable commercial catch on the Hudson. However, the Hudson's eels tend to accumulate high concentrations of toxic PCBs - polychlorinated biphenyls. As a result, New York State has closed the fishery because of the dangers these chemicals pose to those who eat eels.

## a. BODY LONG AND SNAKE-LIKE

—————→ American Eel



## b. BODY NOT LONG AND SNAKE-LIKE

—————→ 9

## **BUTTERFISH**

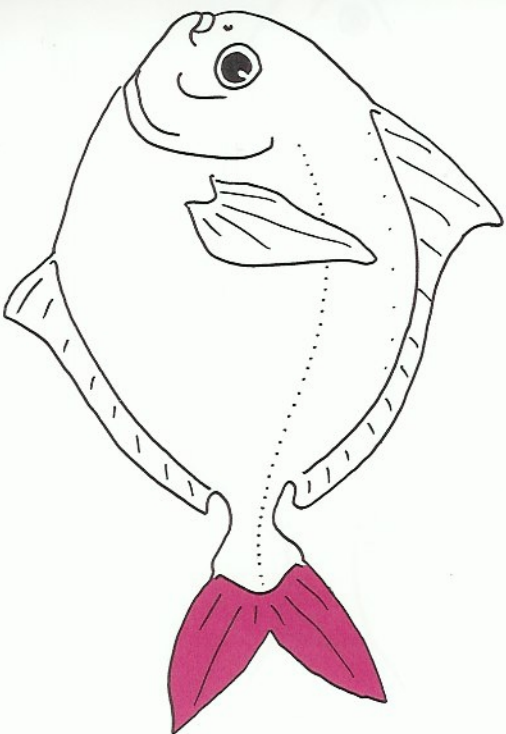
Butterfish are small silvery saltwater fish, usually no more than nine inches in length. They are widely distributed along the East Coast, and are fished commercially, often appearing in the fresh fish section of local supermarkets. Very small ones often take shelter under drifting jellyfish, apparently not bothered by their stinging tentacles.

## **NORTHERN PUFFER**

The puffer also goes by the name blowfish. Both names describe this fish's habit of blowing itself up like a balloon when it feels threatened. It uses either water or air to accomplish this feat.

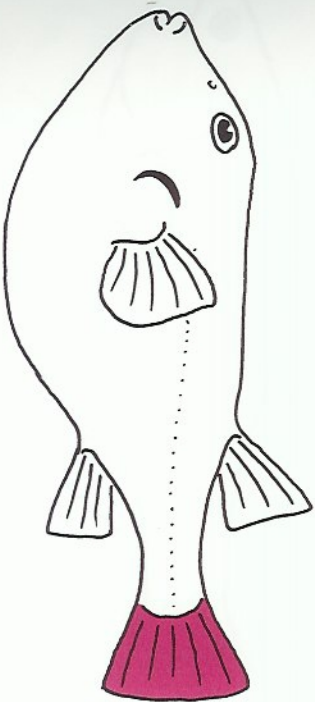
The northern puffer sometimes shows up in our nets in the salty waters of New York Harbor. Seldom more than ten inches long, those we catch are usually young fish only a few inches long. Puffers are brownish or greenish above, white below, with some dark markings along the sides. Their teeth form a beak-like structure used to nip at clams and other bottom life in their diet. The meat along the backbone is quite delicious, and has been sold in markets as sea squab.

- a.** BODY SILVERY AND FLATTENED SIDE  
TO SIDE; TAIL FORKED



→ **Butterfish**

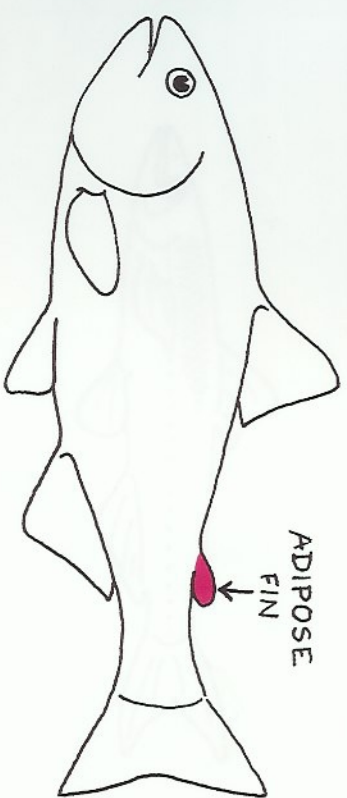
- b.** BODY ROUND OR BOXY; TAIL SQUARED  
OFF



→ **Northern Puffer**

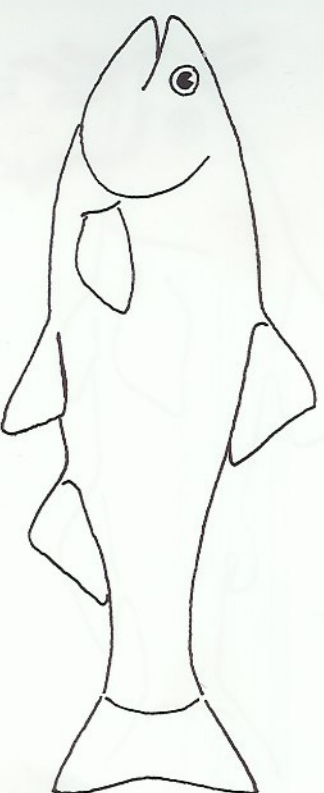


a. ADIPOSE FIN PRESENT



→ 11

b. ADIPOSE FIN ABSENT



→ 13

.10.

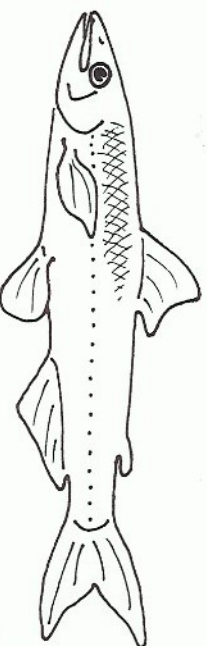
## RAINBOW SMELT

Smelt are small, slender, silvery fish growing up to nine inches long. Those found in the Hudson are anadromous, dwelling in the ocean but swimming into fresh water to spawn. During their early spring spawning runs into the river's tributaries, smelt are caught by folks who prize their delicious taste.

a.

WHISKER-LIKE BARBELS ABSENT;  
SCALES PRESENT

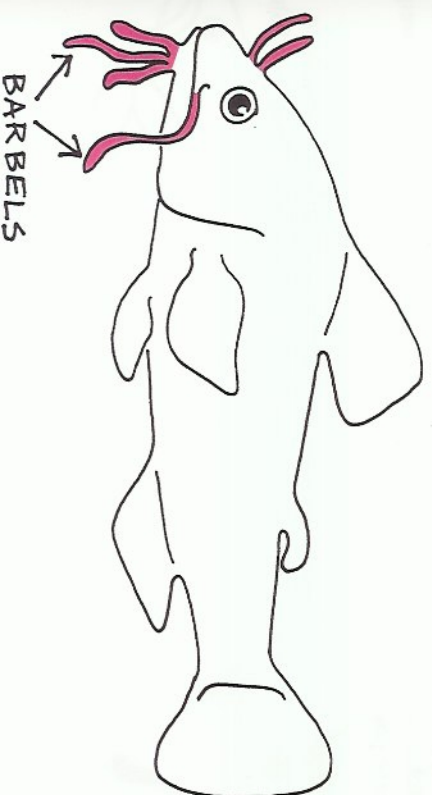
—————→ Rainbow Smelt



b.

BARBELS PRESENT NEAR MOUTH; NO  
SCALES

—————→ 12



# CATFISH

Two of the catfish we find in the Hudson have forked tails. Both are gray or grayish brown above, fading to white below. If small black spots are scattered over the body, then the fish is a channel catfish. The white catfish lacks these spots and is much more common, ranging from fresh water into slightly salty parts of the Hudson. Most that we catch are less than fifteen inches long.

Catfish and bullhead have the reputation of being able to sting. Sharp spines - one each in the dorsal fin and the two pectoral fins - can jab one's hand if the fish aren't handled carefully. The barbels are harmless sensory organs, covered with taste buds that allow these fish to find food at the river's bottom, where it is dark and eyes aren't of much use.

White catfish are tasty and a popular catch among the anglers who line the river's shores and docks. However, health officials advise against eating those taken from the Hudson, as they tend to have high levels of toxic PCB contamination.

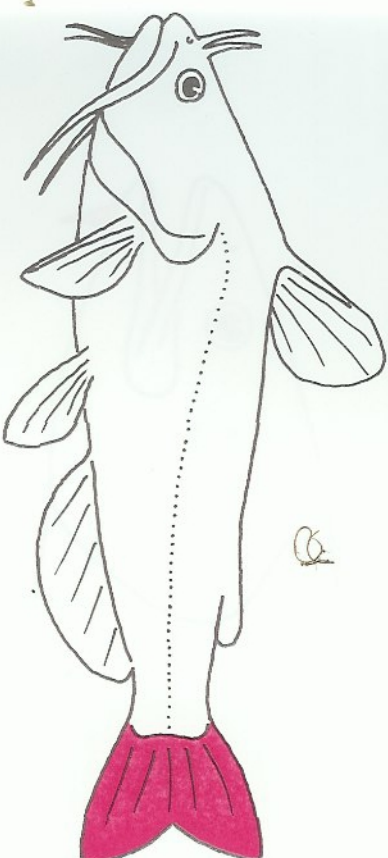
# BULLHEAD

Bullheads have a squared-off tail rather than the forked tail of the catfish described above, but they are very closely related. Both lack scales on their skin.

While other bullhead species have been found in the Hudson's watershed, the only one common in the river is the brown bullhead. It is brownish above, often with lots of yellow lower on the sides and belly. Occasionally the fish is mottled or splotted with darker colors. It may reach a length of sixteen inches and a weight of three pounds, but most are smaller.

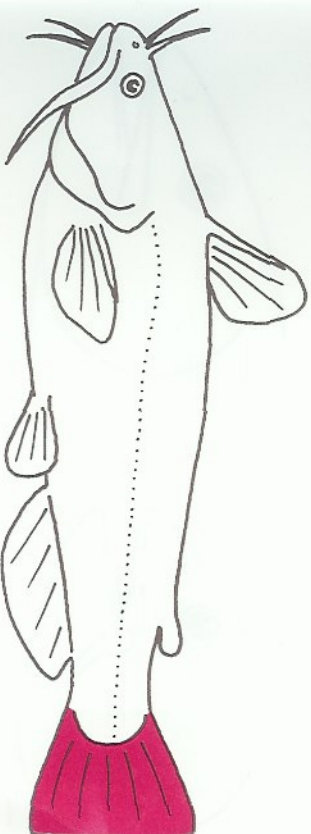
Bullheads guard their eggs and young from predators. While they are able to survive low oxygen levels and some pollution, they - like other Hudson catfish - tend to accumulate high levels of PCBs.

## a. TAIL FORKED



Catfish

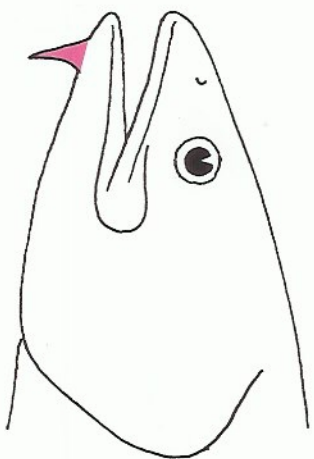
## b. TAIL ROUNDED OR SQUARE



Bullhead

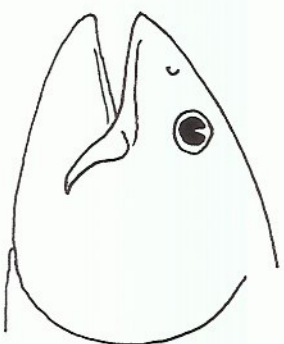
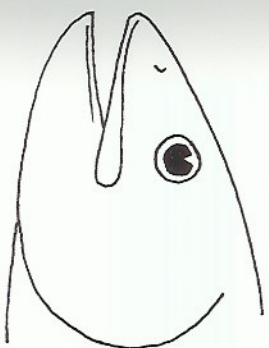


a. ONE BARBEL ON CHIN



→ 14

b. BARBELS LACKING OR LOCATED IN PLACES OTHER THAN ON CHIN



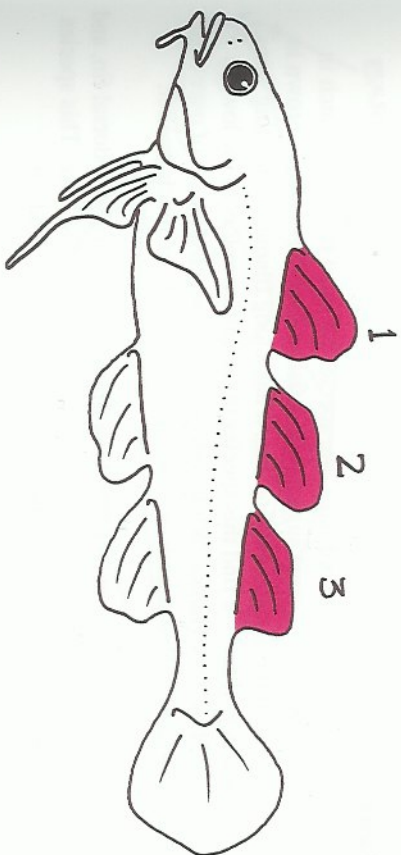
→ 16

## ATLANTIC TOMCOD

The Atlantic tomcod is olive-green or brown, with dark blotches or spots scattered over the body. They may grow up to fifteen inches long, but most don't exceed one foot. Tomcod live close to the bottom, using the barbel under the mouth to detect food. Adults are usually found in brackish or salty water, but in winter they swim up into fresh water to lay their eggs, often while the Hudson is covered with ice. In years past, people would cut long openings in the ice and lower nets through the openings to catch "tommycod."

### a. THREE DORSAL FINS

—————▶ Atlantic Tomcod



### b. ONE OR TWO DORSAL FINS

—————▶ 15

## FOURBEARD ROCKLING

With its whisker-like barbels, the rockling might remind you of a catfish, but it is actually a member of the cod family. Seldom more than ten inches long, it has a long, slender body, usually of a reddish brown color. The rockling lives in salt water.

## HAKE

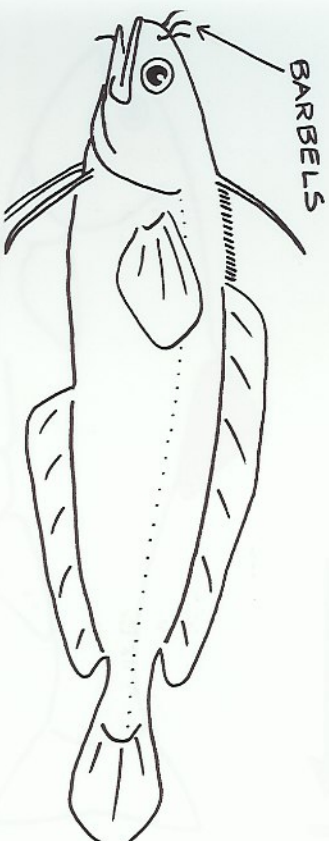
The hake shown here is the red hake, the species we most frequently catch in Clearwater's nets. As its name suggests, this fish is generally reddish brown in color. Also called the squirrel hake or ling, it has a long filament extending from the forward dorsal fin. We find this species in the saltier waters of the lower estuary and New York Harbor. While individuals can reach a length of over two feet and a weight of five pounds or more, those we catch are much smaller.

If the hake you're looking at lacks the long filament on the forward dorsal fin, and has a black lateral line broken by white spots, it is the spotted hake. This species also occurs in the salty waters of the harbor and the lower Hudson.

Hake are not common in the estuary and not pursued by the fishing industry or anglers here. However, like many other members of the cod family, they are important commercial fishes where found in large numbers elsewhere.

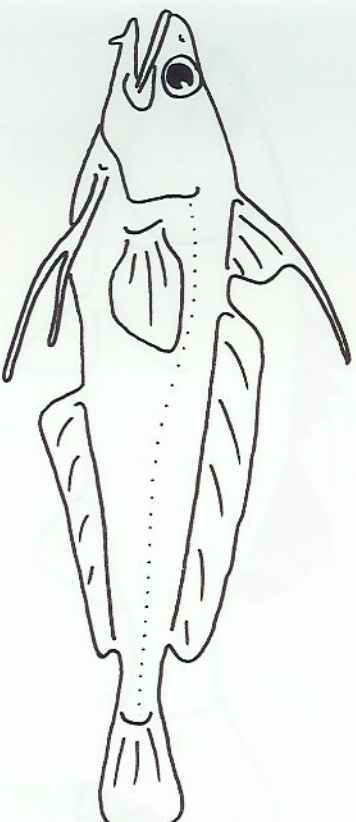
## a. THREE BARBELS ON NOSE

—————> Fourbeard Rockling



## b. NO BARBELS ON NOSE

—————> Hake





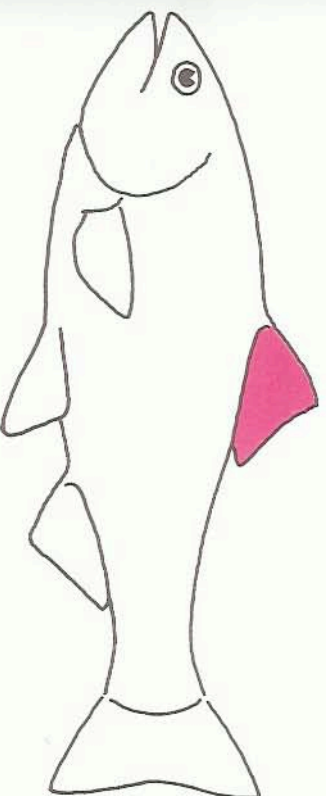
### SPINY-RAYED DORSAL FINS

This is one of the most important pages in the key, used to separate out two major groupings of fish – those that have a spiny-rayed dorsal fin, and those that don't. The potential problem is that spiny-rayed fishes often keep their spiny dorsal folded down unless they are disturbed. This can make it hard to see. Smallmouth and largemouth bass, silversides, and bluefish are among the species that do this.

Examine the fish especially closely if the soft dorsal fin on your fish is set well back towards the tail; there may be a spiny dorsal in front of it. It may require a bit of gentle poking and handling to get the fish to display its spiny dorsal, and may just erect for a second or two. Be patient and careful in your examination.

a.

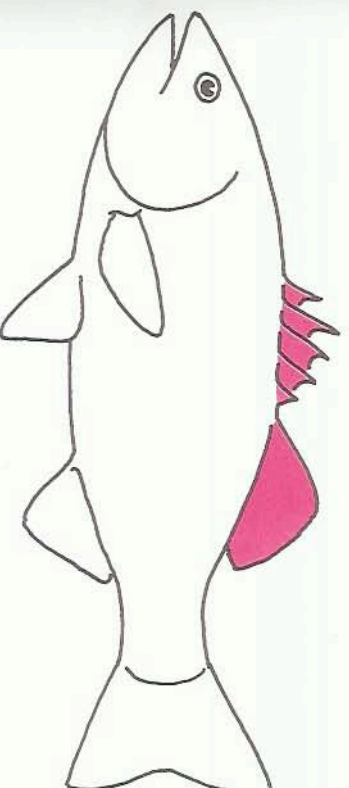
SINGLE DORSAL FIN WITH SOFT RAYS  
AND NO MORE THAN ONE STIFF SPINE  
(IF ANY)



→ 17

b.

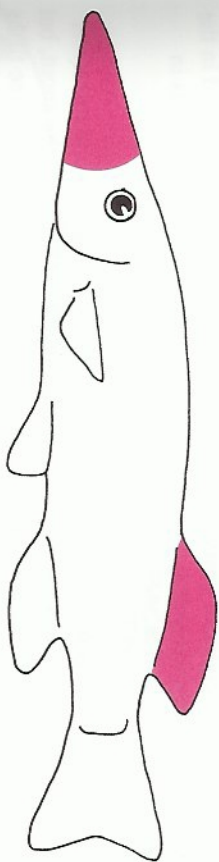
SPINES ON BACK, SEPARATE OR AS  
SPINY RAYS IN DORSAL FIN



→ 26

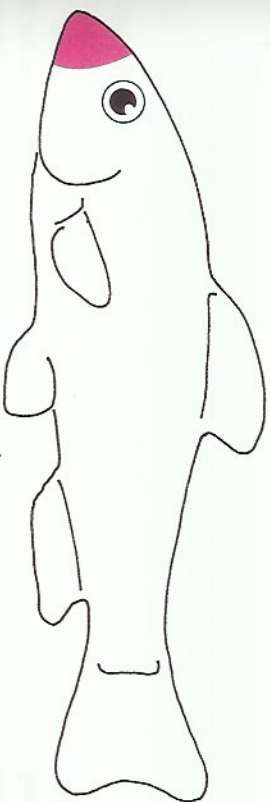
- a. SNOUT LONG OR SHAPED LIKE DUCK'S  
BILL; DORSAL FIN FAR BACK ON BODY

—————→ **18**



- b. SNOUT NOT LONG OR LIKE DUCK'S BILL

—————→ **20**

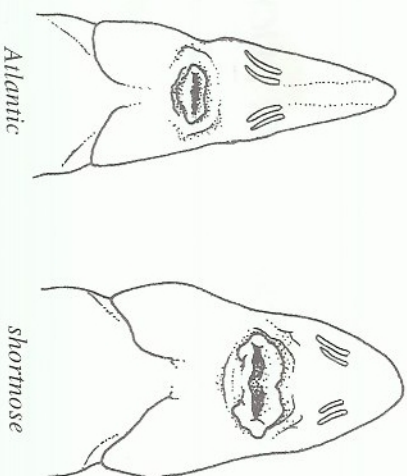


## STURGEON

Two species of sturgeon are found in the Hudson: the Atlantic or sea sturgeon and the shortnose sturgeon.

**Atlantic sturgeon** are anadromous; they spawn in fresh water but spend most of their adult lives feeding and growing in the ocean. Young sturgeon may spend four years in the Hudson before they migrate out to sea. When they return to spawn, the males will be at least four feet long and twelve years old, the females six feet long and eighteen years old. This sturgeon is the largest fish found in the Hudson, sometime exceeding eight feet in length and two hundred pounds in weight.

The **shortnose sturgeon** doesn't go to sea. Adults are typically two to three feet long. The best way to tell the two species apart is not the length of the snout, but rather the width of the mouth. The mouth (inside the lips) is more than three fifths as wide as the distance between the eyes on a shortnose, less than three fifths on an Atlantic.

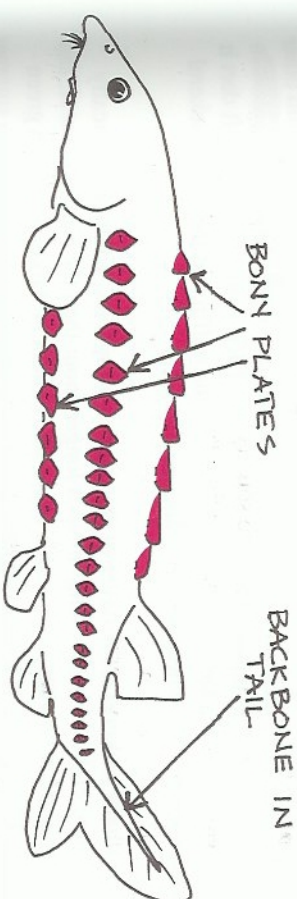


Historically the Hudson's sturgeon supported an extensive commercial fishery. Atlantic sturgeon were sold as "Albany beef" during the 1800s. However, over-fishing and pollution reduced sturgeon populations. The shortnose is on the endangered species list at this writing (that may change in the near future for the Hudson's population, which appears to be healthy). The river's modern fishery for Atlantic sturgeon was closed in 1997 as scientists became worried about the scarcity of young of this species here.

a.

HEAD AND BODY WITH HARD BONY PLATES; BACKBONE EXTENDS INTO CAUDAL FIN

→ Sturgeon



b.

HEAD AND BODY WITH SCALES; BACK BONE DOES NOT EXTEND INTO CAUDAL FIN

→ 19





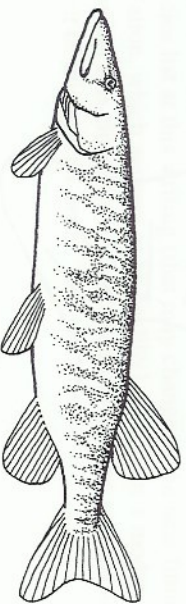
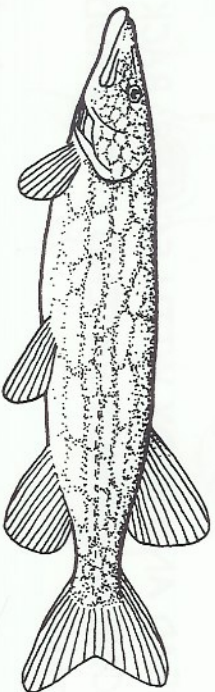
## ATLANTIC NEEDLEFISH

Needlefish are saltwater fish that sometimes swim up the Hudson estuary into fresh water. Their long, thin, fragile beaks have lots of teeth. These fish live near the surface, where their blue-green backs and silvery sides make it hard for predators to see them. Needlefish caught in the Hudson are generally young, only a few inches long. Adults can reach a length of three feet.

## PICKEREL

The Hudson's two pickerel are solitary predators that catch fish, frogs, and other small animals by ambush. An individual holds still, looking like a floating stick in the weeds, until an unsuspecting fish swims by. Then with a sudden swift dart it seizes its prey in a sharp-toothed mouth. Both the redfin and the chain pickerel live in fresh water where aquatic plants grow thickly.

The **chain pickerel** is the larger of the river's two species; adults are typically fifteen to eighteen inches long. It has a longer snout than the redfin pickerel, and its sides are yellowish green with a chain-like pattern of darker brownish green lines. This species is a fairly popular game fish, caught on rod and reel in summer and with ice fishing gear in the winter.

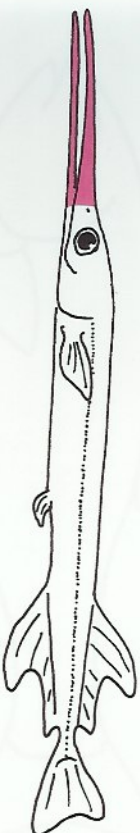


The **redfin pickerel** seldom gets any longer than twelve inches. It usually has vertical bars of dark color on its sides.

a. SNOUT LONG AND NEEDLE-LIKE; BODY

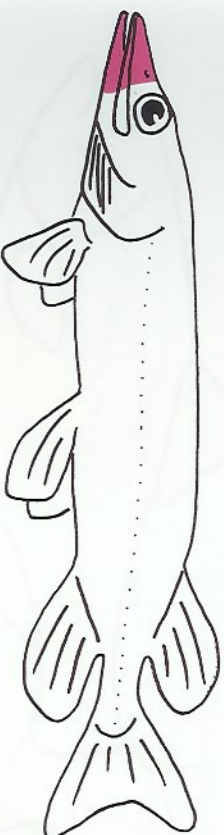
LONG AND VERY THIN

→ Atlantic Needlefish



b. SNOUT SHAPED LIKE DUCK'S BILL

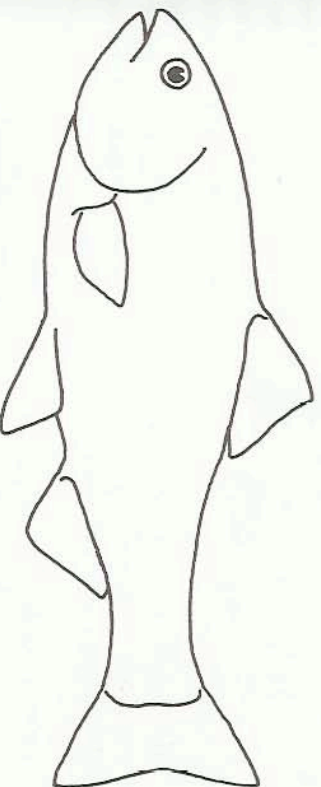
→ Pickerel



## LATERAL LINE

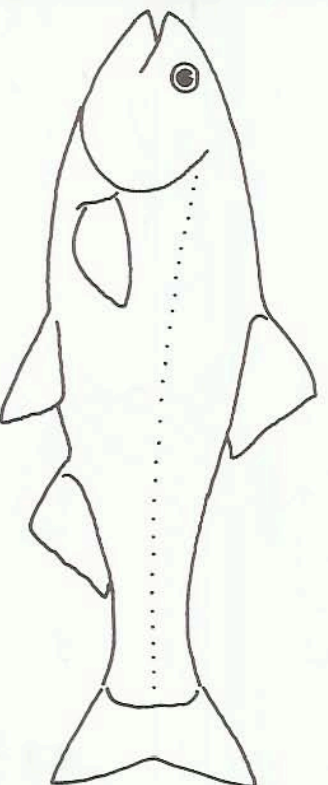
Two common varieties of Hudson River Fishes – killifish and river herring – lack a lateral line (although they have similar sense organs clustered on their heads). It's pretty clear that the herring lack a lateral line; however, the musculature and pigmentation of killifish can make it appear that it does have one. The lateral line usually consists of a series of tiny bumps or channels, visible as light shines on the side of the fish from different angles. Careful examination of killifish and herring will not reveal any such feature.

### a. LATERAL LINE ABSENT



→ **21**

### b. LATERAL LINE PRESENT

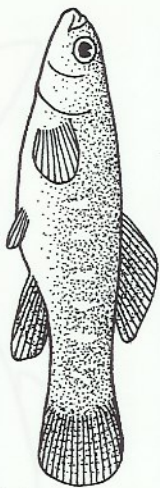


→ **23**



## KILLIFISH

"Killies" are abundant in the estuary's shallows and marshes. Seldom more than five inches long, our three common species are an important food source for large fish and other animals, and are often used as bait by anglers.



The name **mummichog** reportedly comes from an Indian word meaning "going in crowds" - it aptly describes this stocky killifish's habits. Females are olive brown in color,

sometimes with ten to eighteen vertical stripes. Spawning males are colorful, with light spots and stripes on a dark background and yellow underparts. Mummichogs are very hardy fish, able to endure wide ranges of salinity, oxygen level, and temperature.

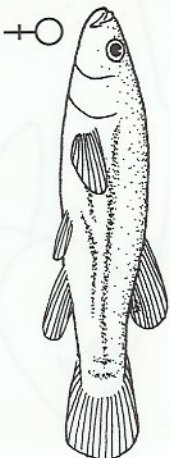
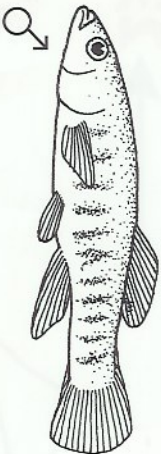
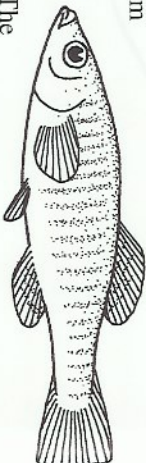
The **banded killifish**'s color ranges from green to brown, with fourteen to

twenty vertical stripes along its side.

Most common in fresh water, it

sometimes occurs with mummichogs. The

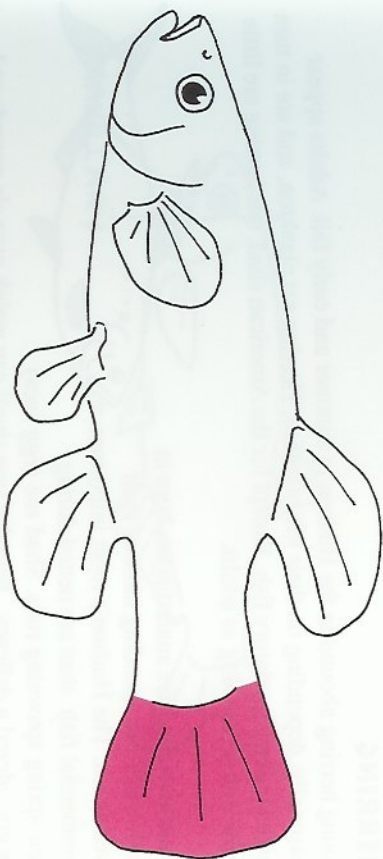
banded killifish is the more slender of the two, and the corners of its tail are more squared off than rounded.



The **striped killifish**, also fairly slender, grows larger than the other two species and has a longer snout. Males have dark vertical stripes on their sides; females' stripes are mostly horizontal, more so as they grow older, though there are usually a few vertical stripes near the tail. This species prefers salty water.

## a. TAIL ROUNDED OR SQUARED OFF

→ Killifish



## b. TAIL DISTINCTLY FORKED

→ 22





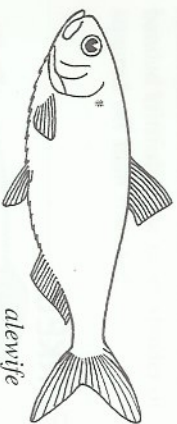
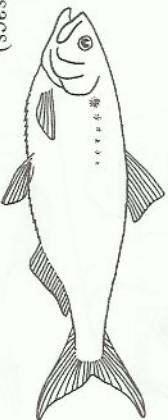
## BAY ANCHOVY

The bay anchovy, common in brackish and saltwater reaches of the Hudson, is not the kind we eat on pizza. However, these small (two to four inches long) silvery fish are an important food for striped bass, bluefish, and other river predators.

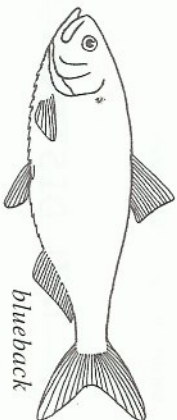
## HERRING

Young herring abound in the Hudson in summer and early fall. Adults appear seasonally, depending on their life histories. Herring eat plankton, and are in turn eaten by many predatory fish. Except for the American shad, our herring are little more than a foot long as adults.

**American shad** are anadromous, born in fresh water but spending most of their lives at sea. The Hudson's most important commercial fish, shad are netted during their spring spawning runs. Shad roe (egg sacs) are considered a delicacy. Females (roe shad) can weigh over six pounds and grow over two feet long; males (bucks) are smaller.



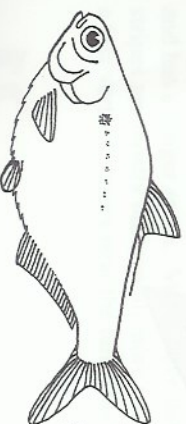
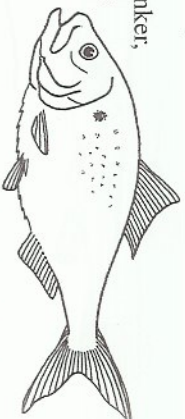
*alewife*



*blueback*

The **alewife** and **blueback herring** are also anadromous. Their spring spawning runs extend into tributaries, where they are often netted to be pickled for food or used as bait. The alewife has a larger eye and deeper body than the blueback herring.

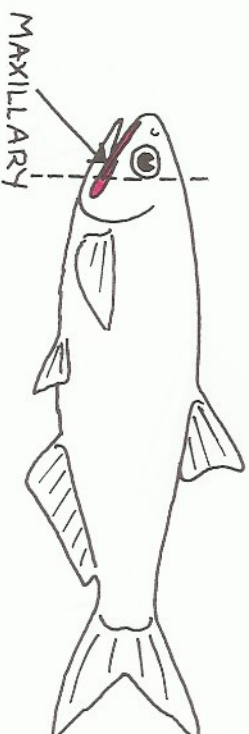
The **menhaden** - also called mossbunker, bunker, or pogey - is a marine herring that enters the lower Hudson in summer after spawning offshore. At sea it is netted and processed to make fish oil and protein meal for animal feeds. These herring have large heads and usually a spot behind the gill cover.



While sometimes caught in salt water, the **gizzard shad** is primarily a freshwater fish most common in the upper Hudson. The last ray of the dorsal fin is extended.

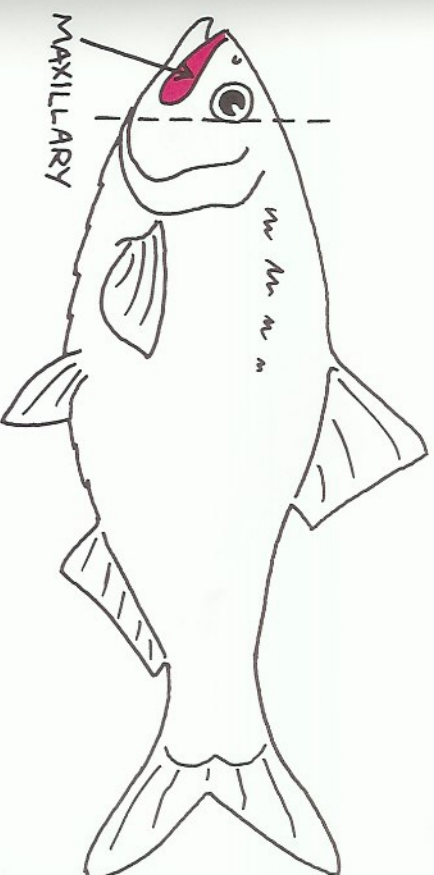
## a. MAXILLARY EXTENDS PAST EYE

—————→ Bay Anchovy

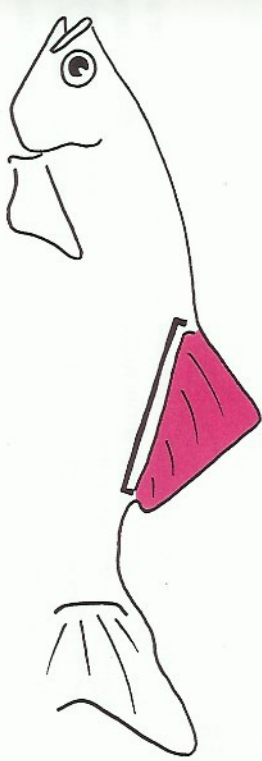


## b. MAXILLARY DOESN'T EXTEND PAST EYE

—————→ Herring

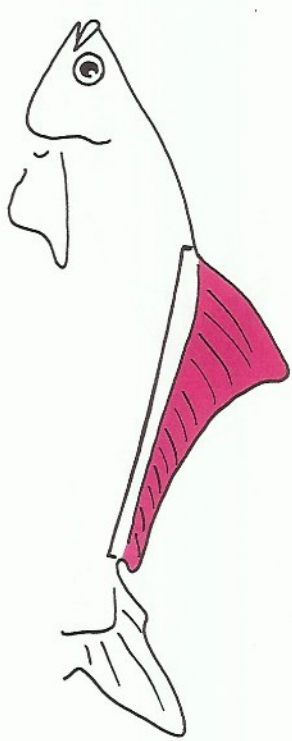


a. BASE OF DORSAL FIN NOT LONG FRONT  
TO BACK



→ 24

b. BASE OF DORSAL FIN LONG FRONT TO  
BACK: 12 OR MORE RAYS IN FIN



→ 25

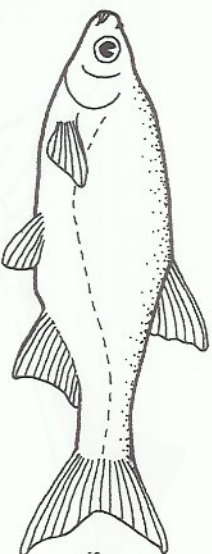
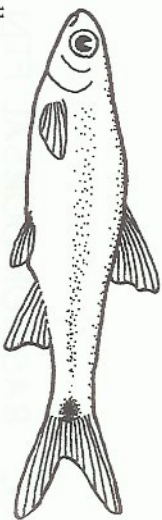
## SUCKER

There are several species of suckers in the Hudson's watershed, but the only one we commonly catch in the tidal river is the white sucker. It can grow to a length of over twenty inches. The white sucker is found in fresh water where it feeds on the bottom with a specially adapted, vacuum cleaner-like mouth. These fish make spawning runs up into the Hudson's tributaries during the spring.

## SHINER

While most people call any small fish a minnow, scientists save that term for a certain family of fish, some of which grow to quite a large size. Shiner is a name commonly applied to many fish in the minnow family. The family is a large one, including over thirty species found in the Hudson and its watershed. Of the shiners we might catch in the tidal river, two are especially common and distinctive.

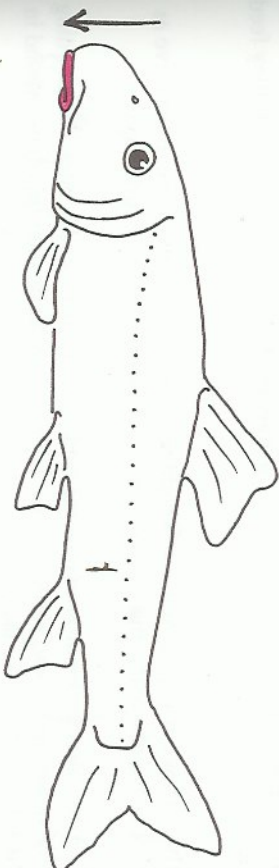
The **spottail shiner** is silvery and usually has a black spot at the base of its tail. This small fish (usually less than four inches long) schools over sandy or gravelly bottoms with little vegetation. In its scientific name, *Notropis hudsonius*, you'll find a reference to the river in which this fish was first found and described scientifically.



**Golden shiners** take on a bright yellow color, often with some orange in the lower fins, as they get older and bigger (up to about ten inches). The body is deep and the lateral line deeply curved. They are most commonly found in shallow water among weeds.

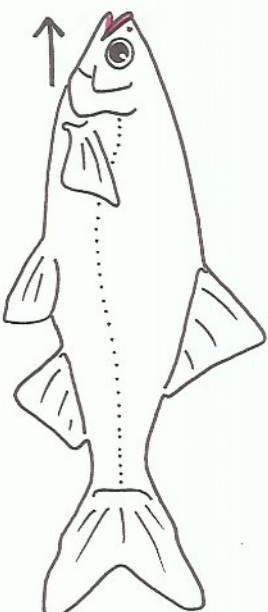
## a. MOUTH POINTS DOWNWARD

—————> **Sucker**



## b. MOUTH POINTS FORWARD

—————> **Shiner**





## COMMON CARP

The common carp is native to Eurasia. The first reported introduction to the United States was to a pond near Newburgh, New York, in 1832. The fish is now abundant in fresh water here in the Hudson and throughout the country. In Europe, carp are cultivated and stocked as a popular game fish. In the U.S. anglers generally consider them to be a nuisance because carp compete with valued native fish for food and make waters muddy by pulling up vegetation as they feed along the bottom.

The carp is our largest minnow, weighing twenty pounds and more. It may live as long as twenty years, and can survive in polluted waters with little oxygen.

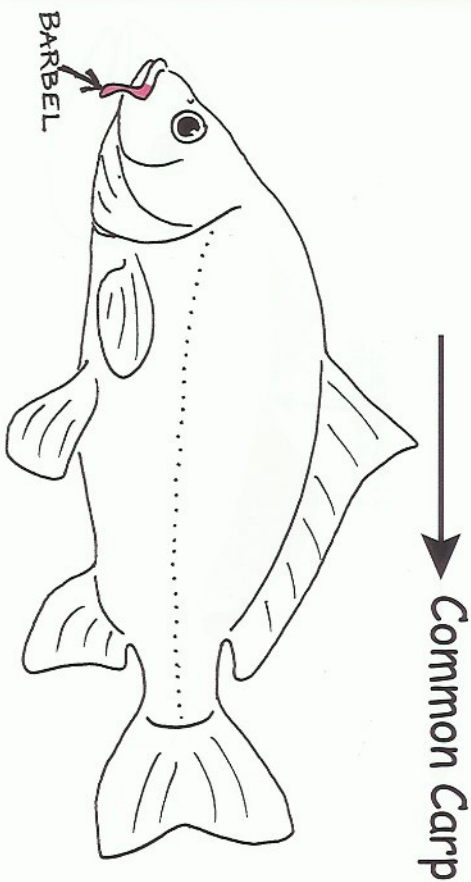
Carp are olive green or brown on the back, with golden yellow sides. At spawning time in late spring and early summer, large adults can be seen splashing around in shallow water as they lay their eggs in thick vegetation there.

## GOLDFISH

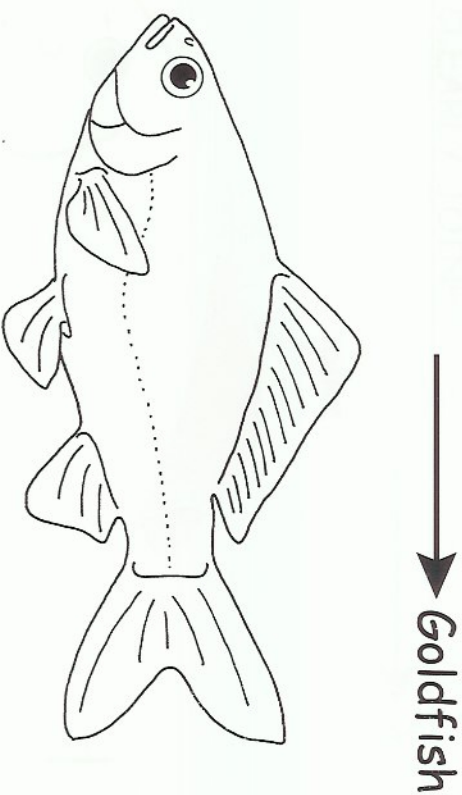
The goldfish is closely related to the carp, and like the carp was introduced to this country from overseas. While there are orange individuals in the Hudson, these tend to be easy pickings for predators; one study of the diet of ospreys along the Hudson found that goldfish were a common prey of this fish-eating hawk. Thus the goldfish we catch are more likely to be olive green or brown than orange or gold. Goldfish prefer fresh water, and may grow up to eighteen inches long.



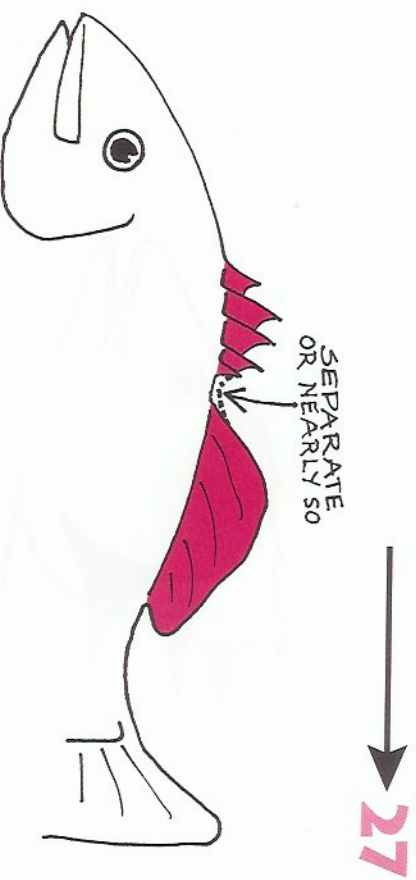
## a. WHISKER-LIKE BARBELS AT CORNERS OF MOUTH



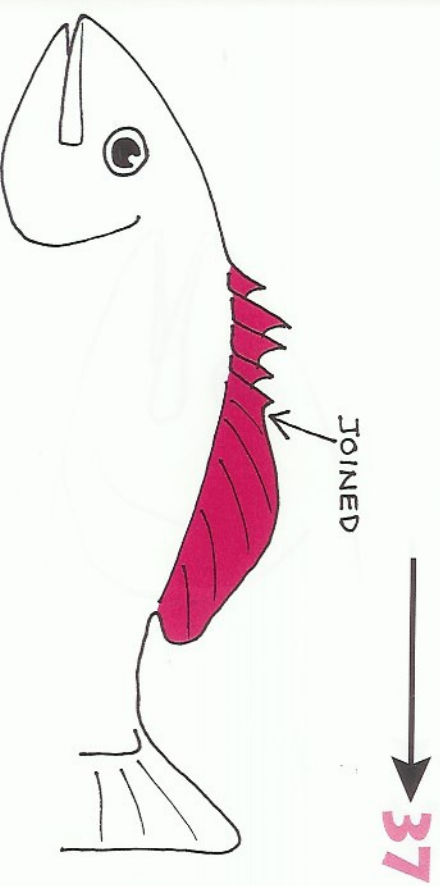
## b. BARBELS ABSENT



- a. SOFT AND SPINY PARTS OF DORSAL FIN  
SEPARATE OR NEARLY SO



- b. SOFT AND SPINY PARTS OF DORSAL FIN  
CLEARLY JOINED



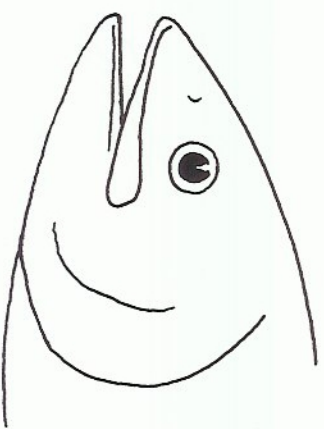
d. SPINES PRESENT ON GILL COVERS

—————→ **28**



b. GILL COVERS LACK SPINES

—————→ **29**





## SEAROBIN

Searobins live on the bottom in the saltiest portions of the estuary. Their finger-like pectoral rays are used for "walking" along the bottom and stirring up food. They eat fish, shrimp, clams, and worms.

Searobins may reach a length of sixteen inches, but most we catch are much smaller. People don't generally fish for them, though they are considered tasty.

Two species of searobin occur in the Hudson. The striped searobin has two narrow dark stripes running along its side from the head towards the tail. The northern searobin may be plain or mottled on the sides of its body, but lacks distinct stripes. Its wing-like pectoral fins are not as long as those of the striped searobin, and its tail is slightly forked - the striped searobin has a squared-off tail.

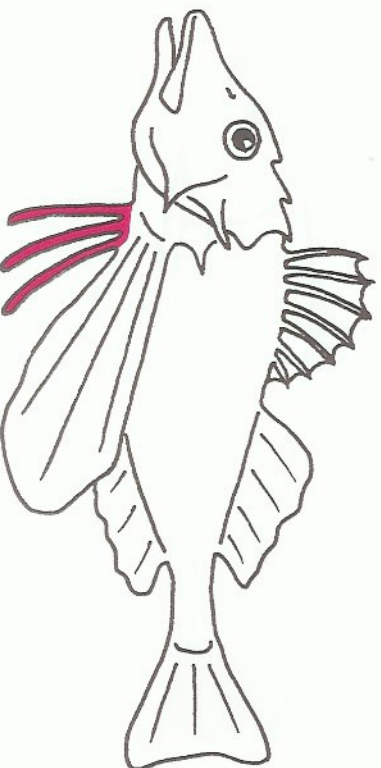
## SCULPIN

While some exclusively freshwater sculpins occur in the Hudson's tributaries, we catch only saltwater species. They show up in our nets in New York Harbor and the lower Hudson. The most common one is the grubby, a small (less than six inches) bottom-dwelling fish. It is mottled with patches of brown, gray, and black that help it blend in with the bottom and thus hide from predators.

### a. PECTORAL FINS VERY LARGE, WITH

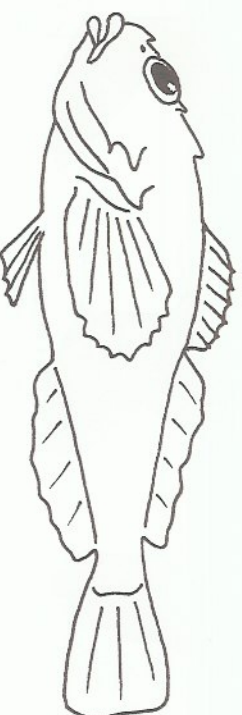
SEVERAL SEPARATE, FINGER-LIKE RAYS

—————→ Searobin



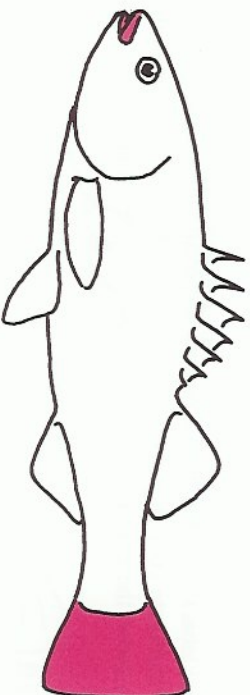
### b. PECTORAL FINS LACK SEPARATE RAYS

—————→ Sculpin



- a. CAUDAL FIN ROUNDED OR SQUARE;  
VERY SMALL MOUTH

→ 30



- b. TAIL NOT ROUNDED; SLIGHTLY TO  
DEEPLY FORKED, OR POINTED

→ 31



**STICKLEBACK**

We catch four-spine and, more rarely, three-spine sticklebacks in both fresh and salt water. The four-spine stickleback has four dorsal spines - three separate and one at the front of the dorsal fin - and a rounded tail; males have red pelvic fins. Three-spine sticklebacks usually have three spines - two separate and one at the front of the dorsal fin - and a square or slightly forked tail. Both fish are brown or olive green in color, with variable markings on their sides. Neither gets much longer than two inches.

Male sticklebacks build elaborate nests with aquatic weeds and grasses, go through elaborate courtship displays to entice females to lay eggs in the nests, and then guard the eggs and newly hatched young from predators.

**DARTER**

Darters are small freshwater fish of the perch family. Their name comes from their swimming behavior, moving from place to place on the bottom in sudden, quick spurts.

There are many species of darters, some very brightly colored. However, only one - the tessellated darter - is found in the tidal Hudson. It is a slender fish, sandy brown in color, with dark X- or W- shaped markings along its sides. Three to four inches is the maximum length of this darter.

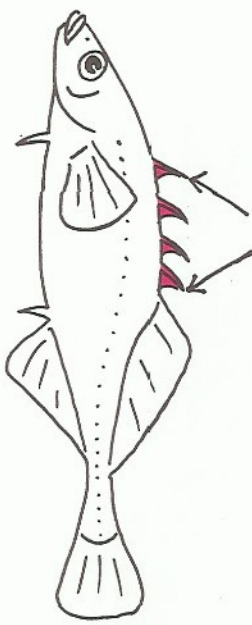
The tessellated darter lays its eggs on the undersides of stones, shells, and other objects. The male then guards the nest until the eggs hatch.

**a. SPINES ON BACK SEPARATE FROM**

**DORSAL FIN**

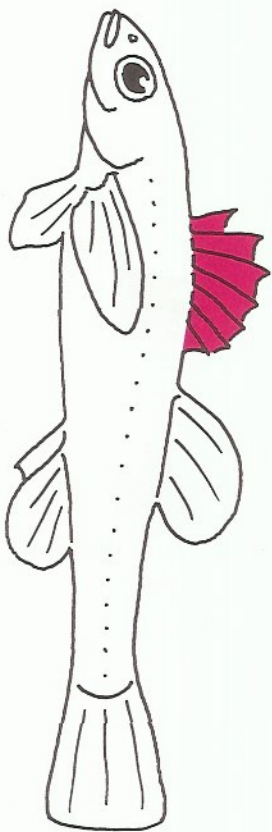
—————→ **Stickleback**

SEPARATE SPINES



**b. SPINY RAYS PART OF DORSAL FIN**

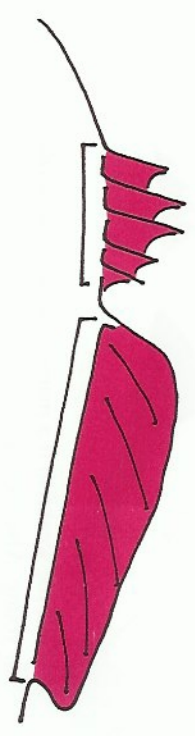
—————→ **Darter**





a. BASE OF SOFT DORSAL FIN LONGER FROM FRONT TO BACK THAN BASE OF SPINY DORSAL FIN

→ 32



b. BASE OF SOFT DORSAL FIN ABOUT THE SAME LENGTH FROM FRONT TO BACK AS BASE OF SPINY DORSAL FIN

→ 33



## BLUEFISH

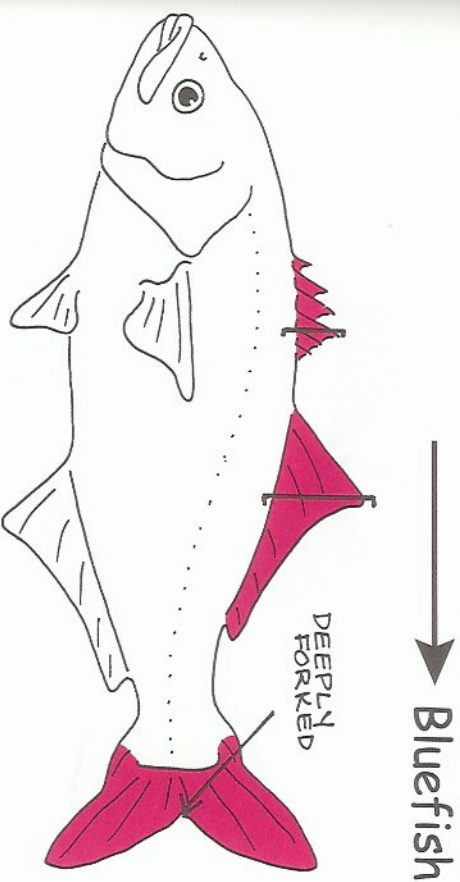
Bluefish are very popular saltwater game fish. They are fierce predators with lots of sharp teeth. Large adult bluefish may weigh over 30 pounds, but sizable adults are less common in the Hudson than young fish. Bluefish spawn in the ocean; their young then enter estuaries in summer to feed on young herring, silversides, anchovies, and other small fish. These "snapper blues," five to ten inches long, will even enter fresh water as they move upriver in search of prey. From late June to September, a sudden skittering of small fish across the surface of a quiet brackish cove or marsh pool often indicates a school of snappers hunting beneath.

## WEAKFISH

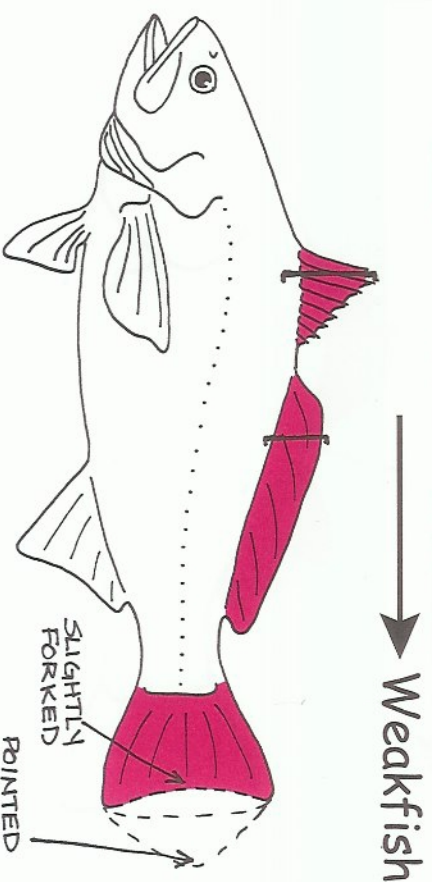
Like the bluefish, the weakfish is a marine species that swims into the Hudson estuary when young. Also like bluefish, weakfish are active predators and popular game fish, often called sea trout. The young ones we catch are usually about six to eight inches long. Adult weakfish get much larger (up to seventeen pounds) but we are less likely to find these older fish in the Hudson.

Weakfish are silvery in color, with fine spots scattered over the upper part of their bodies. Young weakfish have a tail that is outwardly pointed like an arrowhead. As the fish gets older the tail changes shape, eventually becoming inwardly curved. The tails of weakfish we catch may be anywhere between these extremes.

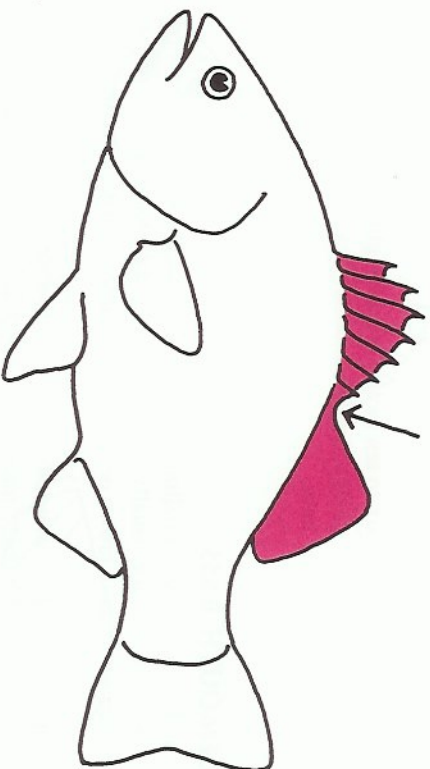
### a. TAIL FIN DEEPLY FORKED; SPINY DORSAL FIN NOT AS TALL AS SOFT DORSAL



### b. TAIL FIN SLIGHTLY FORKED TO OUTWARDLY POINTED; SPINY DORSAL FIN TALLER THAN SOFT DORSAL

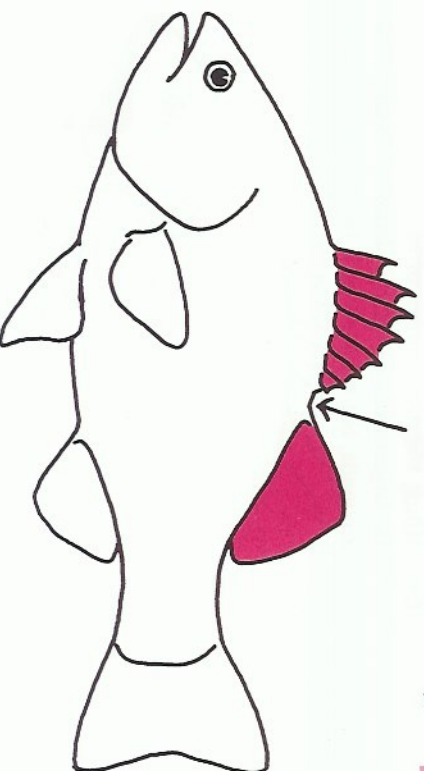


d. SPINY AND SOFT DORSAL FINS  
SLIGHTLY JOINED



→ 34

b. SPINY AND SOFT DORSAL FINS  
COMPLETELY SEPARATE



→ 35



## WHITE PERCH

White perch are abundant in the tidal Hudson from northern Manhattan all the way to Albany, with peak numbers in the mildly salty parts of the estuary. They are commonly caught by anglers fishing from shore. Like other Hudson fish, they are contaminated with PCBs and state agencies recommend that you avoid or limit meals of white perch.

The average white perch is six to ten inches long, weighing less than one pound. Generally this fish is silver green or bronze in color, lacking the distinct stripes of its near relative, the striped bass.

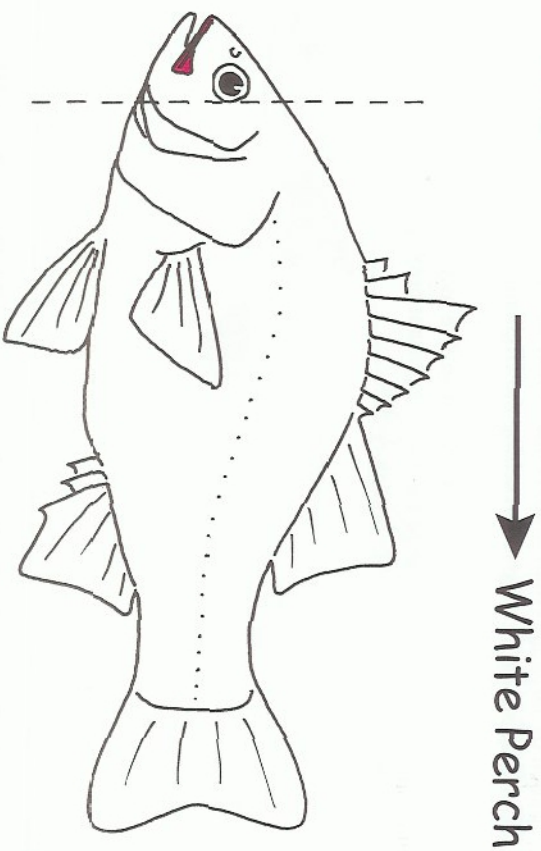
## LARGEMOUTH BASS

While the largemouth and smallmouth bass are called black basses, the former tends to be green in color, usually with an irregular dark band from head to tail. Smallmouths are usually brown or bronze, sometimes with dark vertical bars.

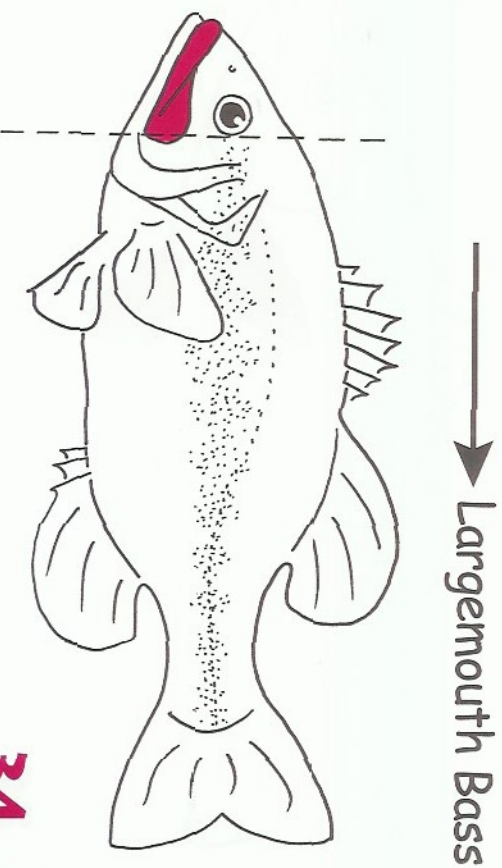
Largemouths prefer shallow, weedy, slow-moving areas of the Hudson. Like their relatives in the sunfish family, males make a nest in spring, clearing silt and debris away from a bed of fine gravel or sand. After the females lay eggs, the males guard the nest and later the newly hatched young. In fall, bass move into the mouths of major tributaries for the winter.

The largemouth bass is one of our most popular freshwater game fish. There are good numbers of them in the Hudson, as shown by the success of black bass tournaments held in Catskill and other river towns. Anglers win prizes for catching the biggest bass and for catching a certain number of bass with the highest average weight. In New York, largemouths can reach a length of twenty-four inches and a weight of nine pounds, but the average is two to three pounds.

- a. MAXILLARY DOES NOT EXTEND PAST EYE



- b. MAXILLARY EXTENDS PAST EYE; LARGE MOUTH



## SILVERSIDE

Silversides are easily recognized by the silver stripe running the length of their slender bodies. Of several species that might appear in our nets, the most common by far is the Atlantic silverside. Small schools range throughout the saltier portions of the Hudson, reaching the Highlands around West Point.

Silversides are small fish, not often more than five inches long. Along with herring and anchovies, they are one of the most important prey species for striped bass, bluefish, weakfish, and other predatory fish.

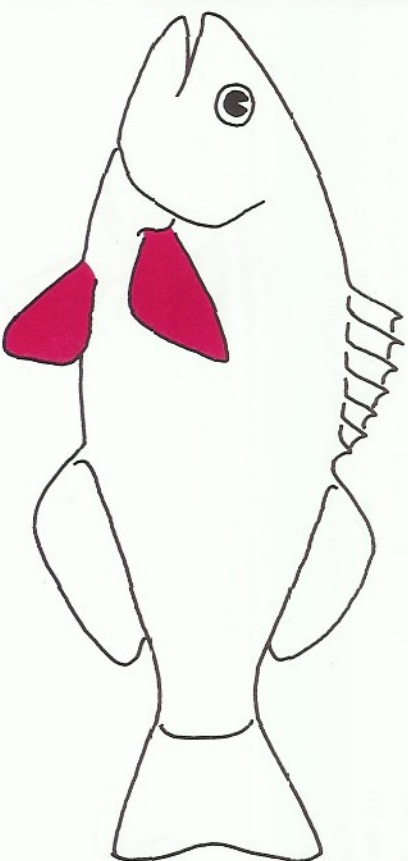
- a. PELVIC FINS SET BACK ON BELLY, NOT  
DIRECTLY UNDER PECTORAL FINS

→ Silverside



- b. PELVIC FINS SET FORWARD ON BELLY,  
DIRECTLY UNDER PECTORAL FINS

→ 36





## YELLOW PERCH

Yellow perch are most abundant in lakes, but we do catch them in freshwater portions of the Hudson. This fish usually has yellow sides marked with vertical olive green bars. Small yellow perch are important food for larger fish. Averaging one foot in length and about a pound in weight, mature fish offer good sport and good food to anglers. Perch are often caught by fishing through the ice in winter. As with all Hudson fish, however, the New York State Department of Health advises that anglers limit or avoid consumption of their catch.

## STRIPED BASS

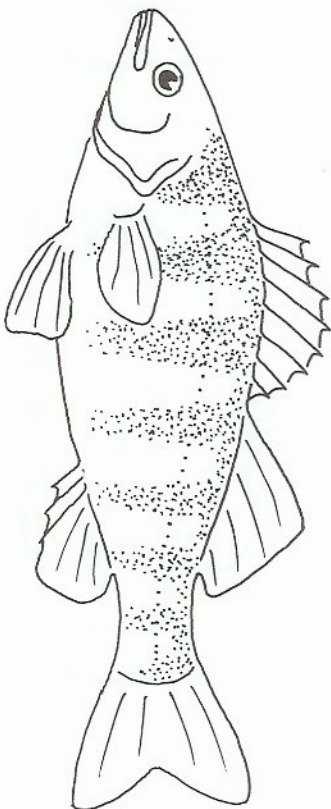
The striped bass is one of the most important game and food fishes along the East Coast. Most Hudson River stripers are anadromous, hatching in freshwater reaches of the river and spending two winters in the estuary before leaving to travel along the coast. They return to the Hudson to spawn when four to seven years old. Stripers may live as long as eighteen years, reaching weights up to seventy-five pounds and lengths up to fifty inches. The largest specimens are females.

Fishing for striped bass is restricted in the Hudson due to contamination by toxic poly-chlorinated biphenyls - PCBs. The commercial fishery has been closed since 1976. Sport anglers are allowed to keep only one fish per day, and the state health department recommends limiting or avoiding consumption of stripers.

Because the Hudson produces a large percentage of the East Coast's striped population, environmentalists and fishing groups have worked hard to protect habitats important to this species here. Plans for a huge power plant at Storm King Mountain and for a superhighway along Manhattan's West Side were called off in part because of the damage these projects might have caused to the fish and its habitat.

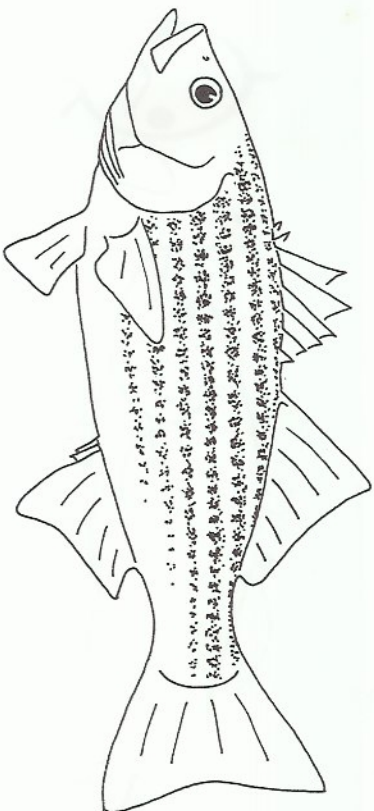
a.

YELLOWISH BODY COLOR WITH DARK  
VERTICAL BARS; REDDISH PELVIC FINS  
→ Yellow Perch



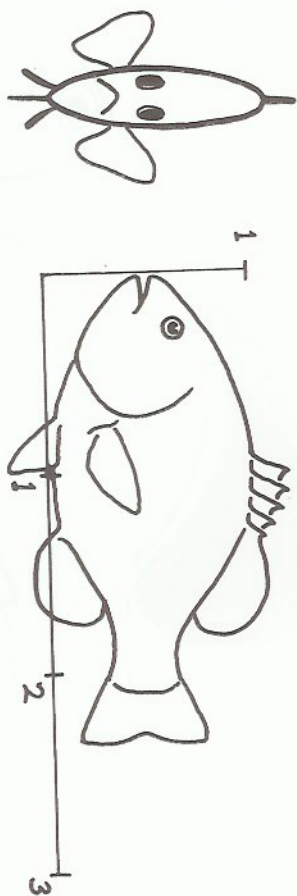
b.

SILVERY BODY COLOR; DARK STRIPES  
RUNNING FROM HEAD TO TAIL  
→ Striped Bass



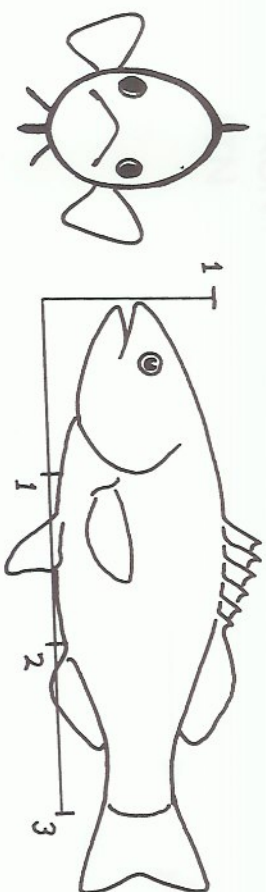


- a. BODY THIN FROM SIDE TO SIDE;  
LENGTH LESS THAN THREE TIMES ITS  
HEIGHT



38

- b. BODY THICK FROM SIDE TO SIDE;  
LENGTH MORE THAN THREE TIMES ITS  
HEIGHT



40

## BLACK CRAPPIE

The black crappie is a member of the sunfish family. It is a popular sport fish and good to eat. Crappie are found in fresh water, usually where the current is slow and there are lots of weeds. They grow up to fifteen inches long and weigh about one pound. The fish's back is green, olive, or gray, changing to silver and white towards the belly. There are many irregularly shaped dark spots on its sides. This fish is sometimes called the calico or strawberry bass.

a. BASE OF DORSAL FIN EQUAL IN

LENGTH, FRONT TO BACK, TO BASE OF  
ANAL FIN

—————→ Black Crappie



b.

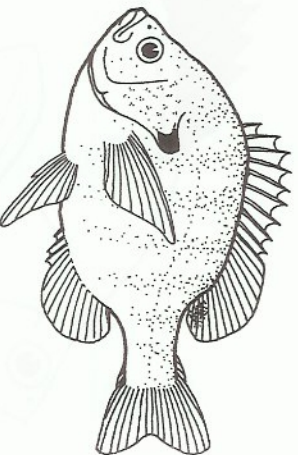
BASE OF DORSAL FIN MUCH LONGER,  
FRONT TO BACK, THAN BASE OF ANAL  
FIN

—————→ 39

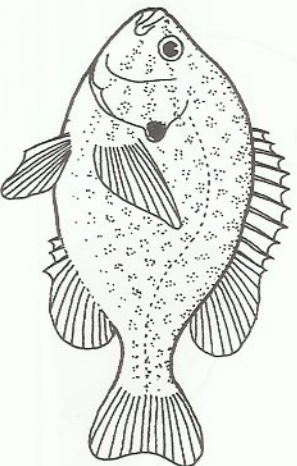
## SUNFISH

The sunfish we catch include the bluegill, pumpkinseed, and redbreast sunfish. Often very colorful, these fish are popular with young anglers, who find them in freshwater portions of the Hudson. A ten inch "sunny" is a very large one; those we catch are smaller. Starting in early summer, male sunfishes dig out saucer-like nests on the river bottom. After one or more females lay eggs in a nest, the male guards it and - when the eggs hatch - the newborn young.

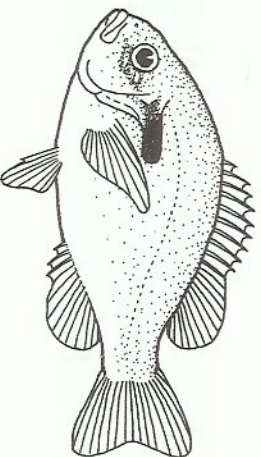
The **bluegill's** body color varies from yellow to dark blue, with six to eight vertical bars along each side and a yellowish breast. Adults have a broad black gill flap.



**Pumpkinseeds** have a gill flap with a bright orange or red tip. Lines of turquoise color cover the opercle (gill cover). The back is olive or brown, shading to orange or yellow on the belly. It is the commonest sunfish in our catches.



The **redbreast sunfish** is green to yellow on its body, with a reddish orange belly. It has a long, black opercular flap.

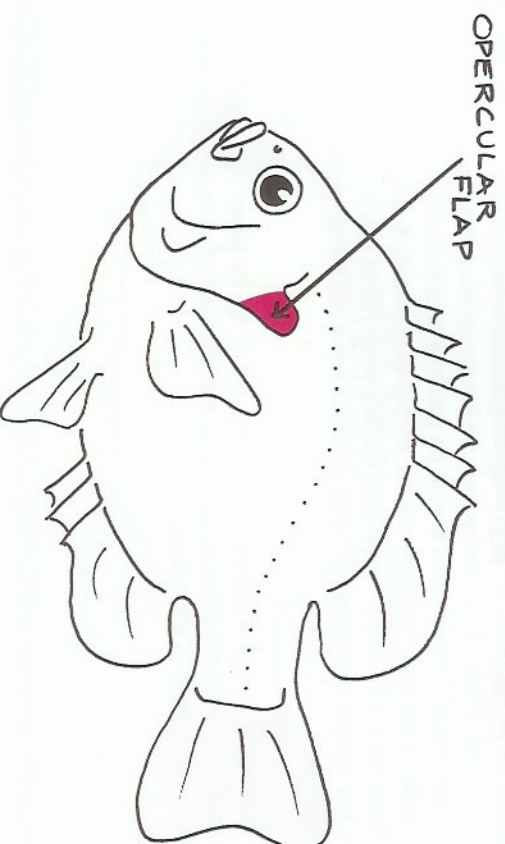


## PORGY

Also called scup, porgy are important commercial and sport fish found in salt water. They grow as long as eighteen inches and may weigh three to four pounds, but those found in our nets are seldom more than six inches long. They are silvery in color.

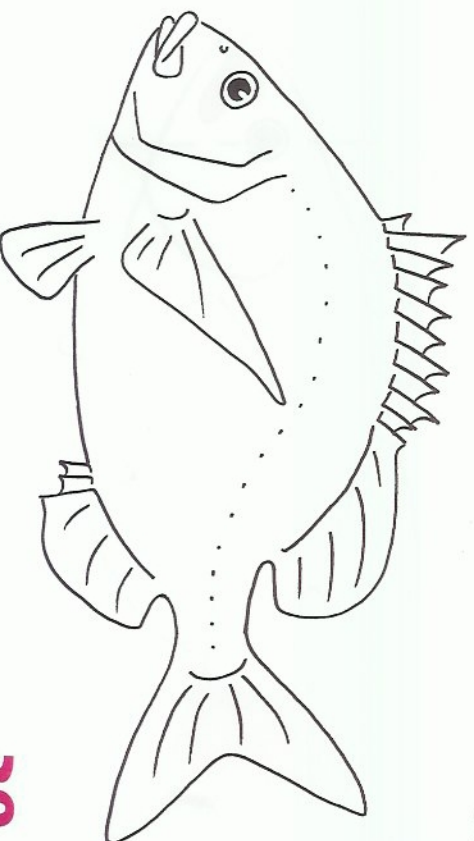
## A. EAR-LIKE OPERCULAR FLAP PRESENT

—————> **Sunfish**



## B. OPERCULAR FLAP ABSENT

—————> **Porgy**





## SMALLMOUTH BASS

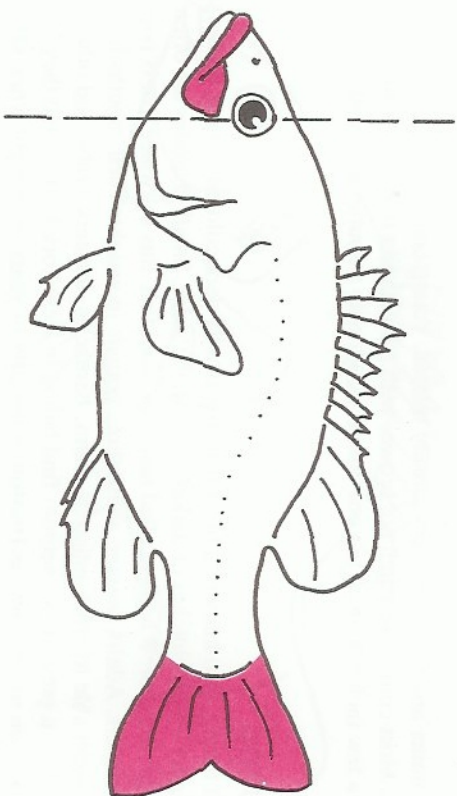
The smallmouth bass, like the largemouth, is a member of the sunfish family. It differs from the largemouth in appearance and often in where it lives. Both species have large mouths, but on the smallmouth the maxillary (upper jawbone) extends back only to the midpoint of the eye; the largemouth's reaches to the rear of the eye or beyond. While these two species are known as black bass, neither is particularly black. Largemouths tend to be greenish in color, with a dark band running down the side. Smallmouths are bronze or brownish in color and lack the dark band; they may have vertical bars on their sides. Both species live in fresh water, but smallmouths generally prefer rockier areas and cooler water than largemouths.

The smallmouth is a very popular sport fish, considered by some "the gamest fish that swims." It does not grow as large as its big-mouthed relative; an individual eighteen inches long is good-sized.

### a. TAIL SLIGHTLY FORKED; MAXILLARY

EXTENDS BACK TO MIDPOINT OF EYE

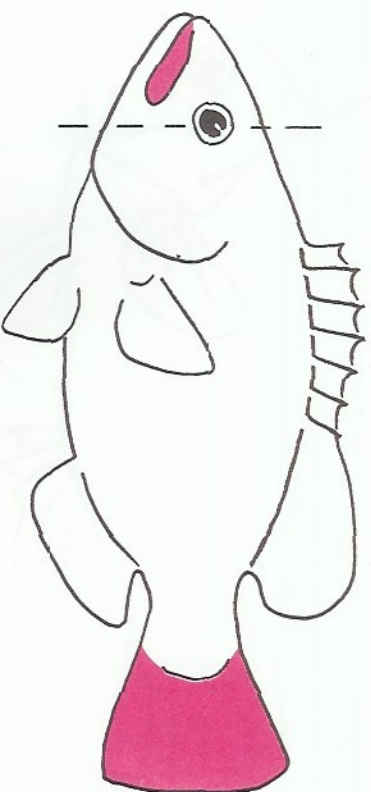
—————→ Smallmouth Bass



### b. TAIL SQUARE OR ROUNDED; MAXILLARY

DOESN'T EXTEND AS FAR BACK AS EYE

—————→ 41



## CUNNER

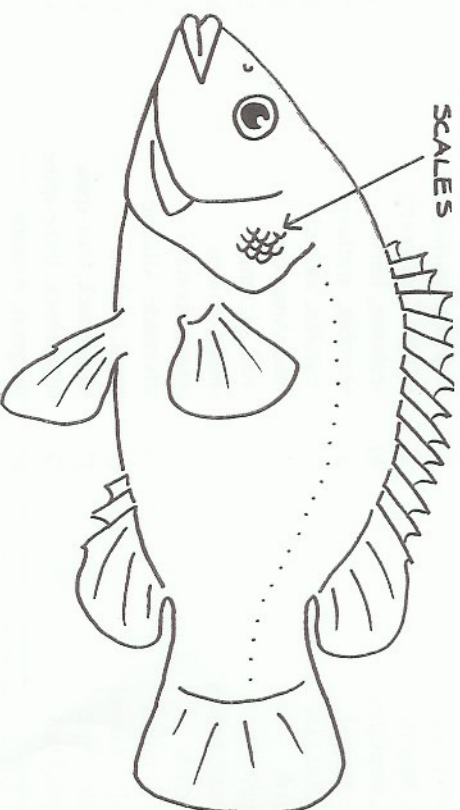
Also going by the name bergall, this small fish is expert at stealing bait off hooks without getting caught. A saltwater species that we occasionally catch in New York Harbor, it is most common around rocks, pilings, and similar structures that provide shelter.

The cunner and tautog are very closely related. Young ones can be difficult to tell apart. Most cunner we catch are brown, with a bluish tint in bright sunlight, and only a few inches long. A big one would weigh only a couple of pounds.

## TAUTOG

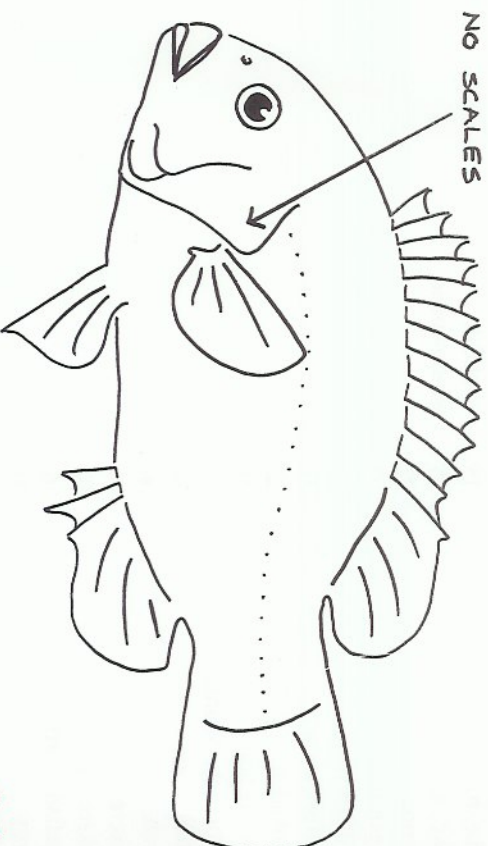
Adult tautog, also known as blackfish, are usually dark colored - black, brown, or dark gray - with blotches of darker color on the sides. Small juveniles are often greenish in color. Whether called tautog or blackfish, this saltwater fish is popular with anglers. Adults average about three pounds in weight. Their mouths have large teeth able to crush mussels, clams, barnacles, lobsters, crabs, and other hard-shelled prey. We sometimes find tautog in New York Harbor, and they have been known to stray up the Hudson, especially in years of drought when salt water moves far up the river.

### a. OPERCLE (GILL COVER) HAS SCALES



→ Cunner

### b. OPERCLE DOESN'T HAVE SCALES



→ Tautog

# LIST OF FISH INCLUDED IN THIS KEY

	<i>facing page</i>		
alewife	22	pumpkinseed	39
anchovy, bay	22	rockling, fourbeard	15
bass, largemouth	34	sculpin ( <i>see grubby</i> )	6
bass, smallmouth	40	seahorse, lined	28
bass, striped	36	searobin, northern	28
blackfish ( <i>see tautog</i> )		searobin, striped	22
bluefish	32	shad, American	22
bluegill	39	shad, <i>gizzard</i>	22
bullhead, brown	12	shiner, golden	24
butterfish	9	shiner, spottail	24
carp, common	25	silverside, Atlantic	35
catfish, channel	12	smelt, rainbow	11
catfish, white	12	stickleback, four-spine	30
crappie, black	38	stickleback, three-spine	30
cunner	41	sturgeon, Atlantic	18
darter, tessellated	30	sturgeon, shortnose	18
eel, American	8	sucker, white	24
flounder, winter	3	sunfish, redbreast	
flounder, summer	4	( <i>see also bluegill, pumpkinseed</i> )	39
goldfish	25	tautog	41
grubby	28	tomcod, Atlantic	14
hake, red	15	weakfish	32
hake, spotted	15	windowpane	4
herring, blueback	22		
hogchoker	2		
killifish, banded	21		
killifish, striped	21		
menhaden	22		
munsmichog	21		
needlefish, Atlantic	19		
perch, white	34		
perch, yellow	36		
pickereel, chain	19		
pickereel, redfin	19		
pipefish, northern	6		
porgy	39		
puffer, northern	9		