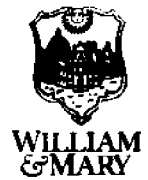




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# Marine Resource Advisory

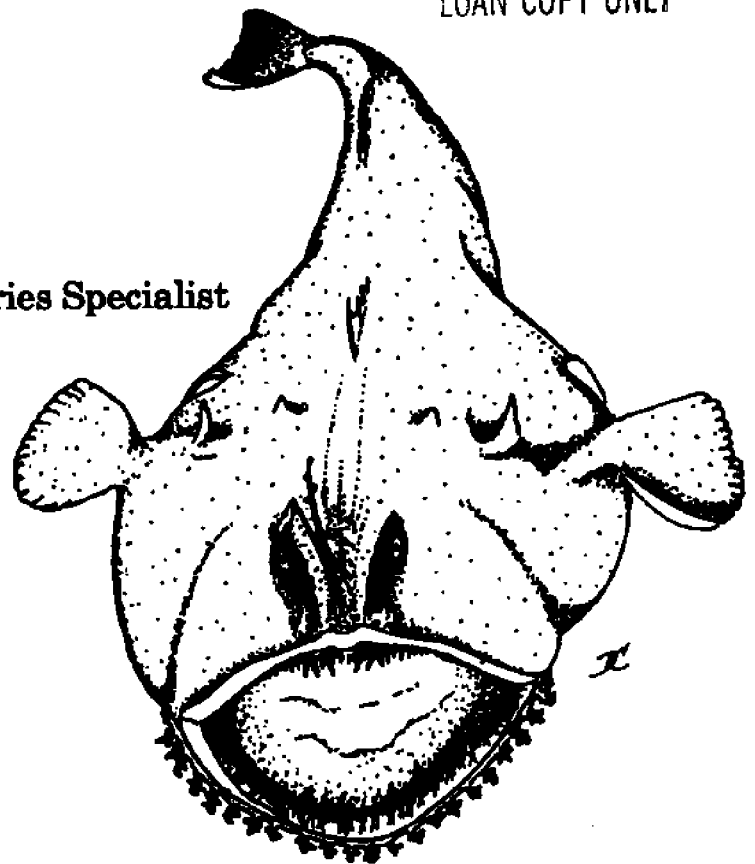
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## A Fisherman's Guide: Getting the Most Out of Monkfish

LOAN COPY ONLY

by Robert Fisher, Commercial Fisheries Specialist  
and Bill DuPaul

**M**onkfish, commonly called "poor man's lobster," were once exclusively exported. Even though the export demand still very much exists, most of the monkfish harvested today are consumed domestically. Not only are monkfish tails in demand, but also the cheeks and livers, the latter being considered a delicacy in Japan. With a minimum of effort a crew can make extra income from the incidental harvesting and proper handling of this species.



*Lophius americanus*

### Natural History

In North America, monkfish inhabit the benthic zones of coastal waters to a depth of 1,500 feet—from the northern Gulf of St. Lawrence in Canada, to North Carolina. They can be found in water temperatures ranging from 32° to about 70°F.

Spawning time varies with latitude and can take place as early as March off North Carolina, and as late as September off the

New England coast. The female lays its eggs in a purplish-brown mucous sheet. This floating gelatinous sheet can be over 30 feet long and two to three feet wide.

The monkfish's body is quite flat, its skin smooth and scaleless, and its large mouth filled with irregular, large teeth. This voracious feeder will devour almost anything in its path, including flounder, skate, sea raven, striped bass, sculpin, menhaden, herring, sand lance, alewife, smelt, haddock, mackerel, and even an occasional sea bird! It also

consumes invertebrates such as molluscs, starfish, and sea worms. Monkfish derive the name "anglerfish" from the way they use their first dorsal spine to lure unsuspecting fish.

The dorsal spine has a flap of skin at the end which is used as bait. When a fish nears, the monkfish dangles this flap and waits until the fish is close enough to swallow whole.

Monkfish are also called goosefish, all mouth, and bellyfish. They can grow up to four feet in length and weigh over 50 pounds.

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## Fishery and Available Markets

Monkfish are incidentally caught while harvesting bottom-dwelling species such as flounder and sea scallops. At sea, fishermen routinely cut off and discard the head of the monkfish, retaining only the tail. Virginia's reported landings of monkfish tails have remained consistent in recent years, averaging 363,964 pounds during 1986-89. The value of landed tails will vary with size; large tails bring a higher value than smaller ones.

The tail has been the only product traditionally handled in the U.S. However, with the existing market for monkfish livers now being realized by U.S. fishermen, and the market possibilities of monkfish cheeks, commercial fishermen can better utilize the monkfish resource, thereby increasing their profits.

The tail of a monkfish comprises approximately 33 percent of the whole fish, except during pre-spawning period (spring and summer) when it is reduced to 25 percent because of the weight of the large egg mass (see Table 1).

Monkfish tails are landed with their skin covering and central bone intact. Monkfish tail flesh is white and firm, and is most widely marketed in fillet form, fresh or frozen. A fillet represents one side of the tail section.

There is an existing Japanese market for monkfish livers. To meet the requirements of that market, the liver must be at least eight ounces in weight, with twelve ounces and over considered most desirable. Table 1 provides

approximate liver weight for a given size of monkfish. As indicated in that table, medium to large monkfish would be needed to meet the demands of the Japanese market, which is open during the winter months and closes in March.

The cheeks, or jaw muscles of the monkfish are well developed, and can be the best eating part of the fish. Presently, there is a limited market for cheeks, but it has the potential of growing. Because of the relatively small size of the cheeks, it may only be practical to remove cheeks from monkfish larger than 30 inches in length. See Table 1 for the approximate size of monkfish cheeks relative to their size.

Figure 1. Monkfish tail (top), cheeks and liver (bottom).



Whole fish		Tails		Livers		Cheeks	
Ave. Length (in.)	Ave. Weight (lbs.)	Ave. weight (lbs)	Ave. length (inches)	Ave. weight (lbs (oz))	Ave. length (inches)	Ave. weight (oz)	Ave. diameter (inches)
21.9	6.8 n=20	2.0	15.5	.36 (5.76)	8.8	2.2	2.6
27.1	14.3 n=10	3.6	19.2	1.10 (17.6)	12.7	2.4	3.1
32.9	23.3 n=14	6.1	23.4	1.65 (26.5)	14.7	5.6	3.7

Table 1. Average lengths and weights of monkfish tails, livers, and cheeks obtained from whole fish.

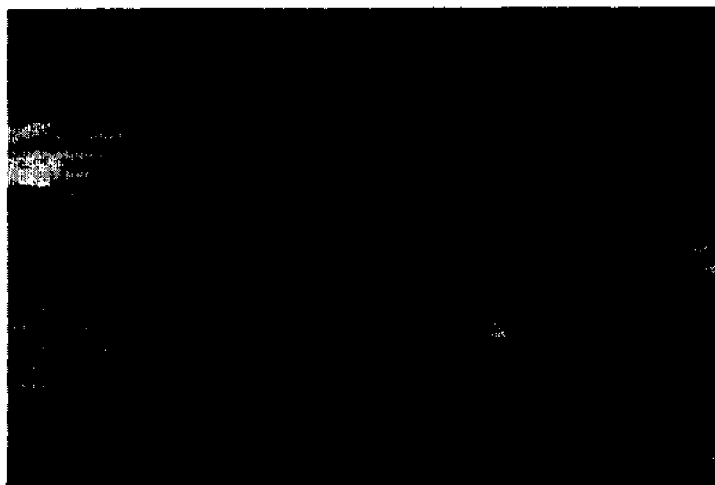
## Handling Techniques for Monkfish Livers

Monkfish livers are very fragile and highly perishable. If they are accidentally bruised, punctured or torn, the product will be considered a lower grade and will bring a lower price. The existing market will only accommodate a small percentage of low grade livers. Because the livers are highly perishable, they should only be taken during the final four days of any extended fishing trip.

When butchering monkfish, take out the liver first—otherwise it will be damaged. To properly process monkfish livers at-sea, here are some guidelines:

- Handle the fish with care and move it on deck by grasping the eye sockets. Do not grasp or puncture the underside of the fish.
- Hold the two small paired fins on the fish's underside with one hand, and then cut the loose skin, leaving a large hole. The liver is the light pink organ. Another way to expose the liver is to cut, with a fillet or roe knife, from the vent forward and up between the small paired fins on the underside (Figure 2). While cutting, pull upward with the knife, careful not to cut the underlying liver. Spread the skin so the liver is exposed.

Figure 2.



- Gently grasp the liver with one hand and then lift the liver slightly. Cut the viscera and membranous attachment from the liver (see Figure 3 on right).
- Wash the liver gently in clean sea water and place it in a plastic bag. Four to six livers can be placed in the same bag, but do not pack them tightly.
- Stow the bags in fish boxes, or other large storage containers that will provide structural support. Completely surround the bags with ice. Do not expose the livers directly to ice, or allow them to freeze. Do not handle livers again until offloading.
- Keep livers in boxes during offloading.

Figure 3.



## Handling Techniques for Monkfish Cheeks

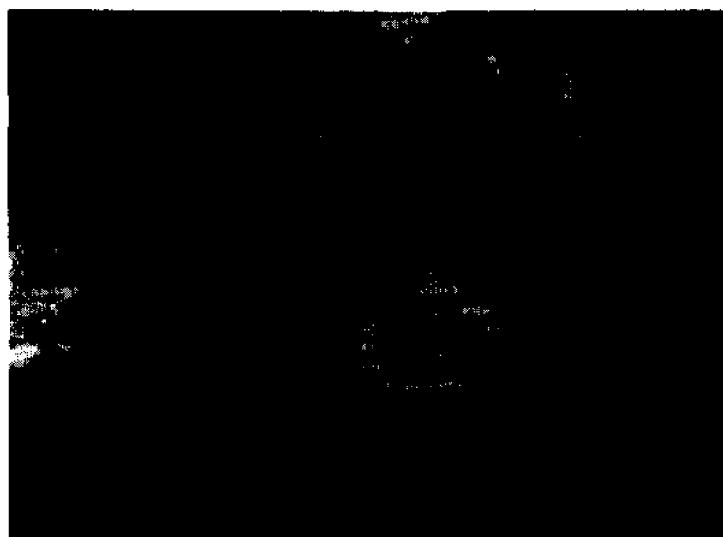
Cheeks should be washed thoroughly, and loosely packed in gallon containers. The containers will provide the protection from sharp ice particles, as well as from contaminants from the ice, or from other products which are being stowed. To ensure a quality product, do not store monkfish cheeks with other products. Also, the cheeks should only be taken during the final week of any extended fishing trip.

Here are steps for handling monkfish cheeks:

- Cheeks should be taken after the liver is cut out and before the tail is removed. Cheeks are most easily removed once the fish has relaxed its jaws.
- Place the fish on a flat surface with its top side up.
- Remove the skin covering the cheek area by pulling

the skin up and cutting it away with a knife. Be careful to only cut the skin, and not the underlying meat. If the skin is too tight to lift, insert the knife blade under the loose skin at the edge of the eye socket. When the skin is removed, the cheek muscle outline is well defined, and will allow for precise cutting (see Figure 4).

Figure 4.



- Make a downward cut from the eye to the top of the mouth and through the gelatinous flesh along the innermost cheek muscle edge. The spine of the upper jaw is a good ending point.
- Start cutting at the innermost edge of the cheek, using the fingers of the non-cutting hand to reach under the muscle edge and to slightly lift the cheek.
- Continue cutting along the front edge of the muscle to the corner of the mouth, gently lifting the muscle edge while cutting.
- Lift the muscle and cut the base attachment from the bony skeleton all the way to the back edge of the cheek muscle.
- When the back edge is reached, pull the muscle straight up on end, and cut the back edge of muscle attachment using the bony edge to guide the knife. This will free the cheek muscle from the body.
- Wash with clean sea water. Do not remove the transparent membranes which cover the flat surfaces of the cheek muscle. These membranes will help protect the flesh during storage.
- Place cheeks in plastic containers and seal the containers with lids. Place the containers in a bed of ice, or in a fish box, and cover the container generously with ice.

## Handling Techniques for Monkfish Tails

Monkfish tails are firm, and hold up well during butchering. To ensure a quality product, remove all the attached viscera from the tail, wash it thoroughly with fresh sea water, and stow it in clean ice. Leave the tail skin intact, and do not trim away the bluish-gray membrane from the tail's underside. This membrane, along with the skin, will provide a protective covering for the flesh during handling and stowing. Yellowing of the flesh is seen in tails that have not been handled properly, or ones which have been stowed too long. Generally, tails should only be taken during the final week of any extended fishing trip.

Figure 5.

There are many different ways to butcher a monkfish tail, and it is up to each crew member to discover the method he is most comfortable with. However, it is important that the proper cuts are made so that most of the tail meat is removed.



eye sockets. For a better grip, the eye sockets may have to be enlarged. Hold the fish against a stationary object, belly down; the dorsal spines will then protrude more predominantly.

- Pick up the fish by placing the fingers of the non-cutting hand into the fish's
- The first two cuts should be made on each side of the fish along the inner

most dorsal spines, and at a angle. This will result in a "v" cut with the "v" in the center of the fish, and just forward of the spines (Figure 5). When the knife passes the smaller dorsal spine on each side, a forward sweep with the knife to just behind the large dorsal spine will reach additional flesh located beneath and outward from the large spine. After the forward sweep, continue cutting in a downward direction.

- The third cut is made by inserting the blade into the bottom end of the "v" cut on one side, through to the bottom end of the "v" cut on the opposite side, and just under the tail meat and above the belly skin and attached viscera. Keeping a firm grip on the knife, run the blade down to the vent, cutting away the bottom skin from the largest portion of the tail.
- The final cut is made by severing the spinal column at the point of the "v" cut on the back.

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