Commercial fishermen use hook and line gear anchored on the bottom of the ocean. The groundline carries large baited hooks attached to gangions (or leaders) spaced several feet apart. The series of hooks, called a skate, may be linked with other skates to cover several miles of ocean floor.

Sport fishermen use traditional bottom tackle, often with a spreader bar. Line tests usually are 60 to 80 lb. Heavy weights, up to 48 ounces, help hold the bait in strong currents to 600 feet deep. Halibut jigs aren't much lighter and the constant jiggling motion can leave your arms numb. Sport fishing for halibut is an experience you'll remember—the stout gear gives your arms a workout, and 80 to 100 lbs. of brute strength on the other end will challenge you to just keep the rod in your hands!

Halibut bycatch taken by longline or bottom trawls while fishing for other species must be returned to the sea with minimum damage. Handled properly, many released halibut survive to reproduce and can be caught again. In 2006, the commercial halibut fishery harvested 68 million lbs., the sport fishery harvested 10 million lbs., bycatch removed 13 million lbs., subsistence fishery harvested 1.5 million lbs., and wastage was estimated at 2.2 million lbs., net weight.

Management

The International Pacific Halibut Commission (IPHC) is responsible for stock assessment, biological monitoring of the fishery, and research for the United States and Canada. Each country is responsible for domestic allocation among commercial, sport, and aboriginal groups. Enforcement of regulations is by state, provincial, and federal authorities.

History of the Fishery

Records show that aboriginal people of the western coast of North America consumed halibut from ancient times. They made sturdy lines from twisted fibers of cedar, kelp, and animal sinews. Primitive hooks made from crooked cedar branches, lashed to one side with a barb of bone, and baited with octopus attracted and caught halibut. The shanks were ornamented carved and intended to have magical powers. Stones used as anchors and buoys of bladders or skins completed this early fishing gear.

Commercial fishing for halibut in the 1890s was from two-man dories. Steam powered vessels carried 10 to 12 dories to the fishing grounds until the 1920s and 1930s, when diesel powered schooners, with lower operating costs, replaced them. More versatile boats entered the fleet in later years. The halibut fleet remained stable until the 1970s and 1980s when fleet size was dramatically increased because of a rise in halibut price, declining crab stocks, and ineffectiveness of fishermen for limited entry salmon fisheries. The fishing season quickly shrank from five months in 1970 to just two 24-48 hour openings by the late 1980s and early 1990s. This sea-borne Oklahoma land rush created dangerous conditions as fishermen worked in all kinds of weather to avoid losing a season of income. Fishermen and managers agreed something had to be done.

In 1995, the Individual Transferable Quota system was authorized for the Alaska commercial halibut fishery by the North Pacific Fishery Management Council. A similar system has been used in Canada since 1991. Fishermen are issued a percentage of the annual halibut quota based on their catch records, and they can catch and market their share of the quota from mid-March to mid-November. Not all are pleased with the ITQ system, but sanity has returned to the fishery and the system should benefit fishermen, processors, and consumers.

Alaskans have caught halibut for subsistence and personal use for as long as people can remember, but it wasn't until 1973 that the IPHC adopted sport fishing regulations. Taking of halibut by sport fishermen was initially incidental to salmon fishing. As halibut stocks rebuilt during the 1980s a charter fleet developed in Homer, Alaska, specific to halibut angling. Eventually interest spread from California to British Columbia as opportunities for salmon diminished. The sport fishery for halibut grew from 176,000 lbs. in 1976 to over 10 million lbs. in 2006.

Reproduction & Development

Females grow faster but mature slower than males. Most males are mature by the time they are 8 years old, whereas the average age of maturity for females is about 12 years. From November to March, mature halibut concentrate on spawning grounds along the continental shelf and the majority of halibut are believed to spawn at depths of 600 to 1,900 feet.

The number of eggs produced by a female increases with her size. A female over 250 lbs. may produce 4 million eggs. The free-floating eggs are about 3 millimeters in diameter (about

IPHC biologist Tracee Geernaert stands next to a female halibut with a weight of 395 lbs. gutted. The fish measured 7 feet 9 inches and was 28 years old. (Shumagin Islands, 1996.)
Halibut Q and A

1. How big do halibut get? What is their average size?
Halibut are the largest flatfish and are among the largest fish in the sea. The largest Atlantic halibut are over 9 feet and 700 lbs. In 1974 an 8 foot, age 33 female Pacific halibut was caught commercially in the Bering Sea, weighing 375 lbs. gutted and estimated at 500 lbs. whole. Commercially harvested halibut are almost always gutted before landing so the live weight must be estimated from a length-weight chart. The measurement of the halibut must be taken in a straight line from the tip of the jaw to the middle of the tail in order to correctly use the length-weight chart. Reports of halibut larger than 500 lbs. have been reported, but the actual length of the fish is often unreported or in question. The average commercially caught halibut in 2007 was 40 inches and 25 lbs.

2. What do halibut eat?
Halibut are strong swimmers and carnivorous feeders and eat almost any animal they can catch. Larval halibut feed on plankton. Halibut age 1-3 feed on small shrimp-like animals and small fish. As halibut increase in size, fish become more important in the diet. They eat cod, sablefish, pollock, rockfish, scalpins, turbot, and other flatfish. Octopus, crabs, and clams, and an occasional smaller halibut also contribute to their diet. Halibut often leave the bottom to feed on free swimming fish such as sand lance and herring.

3. What is the recovery rate when you fillet a halibut? The amount of edible meat from a whole (live weight) fish depends on the skill of the dresser. You should get about a 50 percent recovery of skin-on fillets.

4. How fast do halibut grow, and how old do they get? IPHC studies have shown that halibut grow about 3 inches for females and about ¾ of an inch for males per year. An age 10 male averages 9 lbs. net weight, and a female averages 15 lbs. Weight increases rapidly in relation to length, with highly variable growth rates. Almost all halibut larger than 100 lbs. are females. In the commercial fishery almost all of the 100 lb. halibut were between 15 and 30 years. The oldest recorded age for halibut is 55 years old, for both males and females.

5. What is the largest Pacific halibut ever caught? The International Game Fish Association (IGFA) lists a 459 lb. fish as their “All Tackle” World Record Pacific Halibut. It was caught on 130 lb. test line, June 11, 1996 near Dutch Harbor, Alaska.

6. Why are both eyes on the same side? Halibut larve begin life in an upright position with an eye on each side of the head. When they are an inch long, an extraordinary transformation occurs: the left eye moves over the snout to the right side of the head and pigmentation on the left side fades. When the fish are about 6 months old, they have the characteristic adult form and settle to the bottom in shallow inshore areas. This is an adaptation for life on the ocean floor. With both eyes on one side of the head the halibut can survey all that passes above it and, aided by camouflage, ambush passing prey.

7. What is chalky halibut? Occasionally halibut flesh appears chalky, white-meated, milky, or mushy. In contrast to the normal shiny translucent appearance of the raw flesh, the flesh of chalky halibut is dull and opaque, and has a cooked appearance. The condition develops after death and is related to acidity from the glycogen-lactic acid balance of the feeding process. This chalky condition is not a health hazard, but it is unappealing.

8. What is a left-handed halibut? Halibut are normally right-handed (dextral) with both eyes on the right side. Unlike some flounders, left-handed (sinistral) halibut are infrequent. It is estimated that one in 20,000 Pacific halibut are “left-handed.”

9. Do halibut have parasites? While halibut do have their share of parasites, as do all animals, they are not a significant public health problem. Being a marine species, halibut are free of a number of parasites such as the tapeworms that trouble freshwater fish. Also, as a wide ranging, offshore species, halibut seem to have fewer parasites than most marine fish. Roundworms and flatworms have been identified in halibut, but those appearing in the flesh are easily seen and can be removed by hand. Studies are currently under way to understand if parasites may be useful in determining the geographic origin of a halibut.

10. How tough are halibut? If “toughness” is measured by hooking mortality, then halibut are fairly hardy. The Alaska Department of Fish and Game recently estimated that hooking mortality in the halibut sport halibut fishery is under 10 percent and likely in the 5 to 7 percent range. Circle hooks that impale in the jaw and mouth are less damaging than J-style hooks, which can be swallowed or hooked in the gills. Remember: carefully release any fish that you don’t want to keep. If extracting the hook will damage the fish, cut the gillgion or leader and leave the hook in place. Over time the hook will dissolve and leave the fish.
Description and Name

Like all flounders, halibut are compressed laterally and, except in the larval stages, have both eyes on one side of the head. The eyed side is pigmented and the underside is white. Halibut usually have both eyes on the right side. The mouth is relatively large, extending to below the lower eye. The small, smooth scales are well buried in the skin and the lateral line has a pronounced arch above the pectoral fin. The scientific name for Pacific halibut is *Hippoglossus stenolepis*, derived from the Greek hippo (horse), glossa (tongue), steno (narrow) and lepis (scale).

How to Handle Halibut

Like most fish, halibut is at its eating best when it is fresh out of the water. The next best thing to fresh halibut is fresh frozen halibut that has been handled and packaged with care. Since most sport caught halibut will not be consumed fresh because of size and/or the distance to your home, a guide to freezing halibut is included here.

First, with a decent filleting job you can expect about a 50 percent recovery of meat from your fish. That is, a 30 lb. halibut should give you about 15 lbs. of fillets. Most charter operators include the cost of filleting in the charter fee, but be sure to ask about this before you pay for the trip.

If you plan to fillet the halibut yourself, you need a sharp fillet knife and a large cutting board. Plastic or fiberglass-covered wood is best. Don't bother gutting the halibut. Simply remove two fillets from each side of the fish by making a cut along the lateral line (clearly visible along the middle of the body on both sides) from the gill cover to the tail. The backbone is just beneath the surface at the lateral line. With short strokes work the knife blade from the backbone along the rib bones toward the fins at the edge of the fish. Work in one direction to remove the fillet and then in the opposite direction to remove the second fillet. Turn the fish over and repeat this process.

If your fish is over 20 lbs., remove the cheeks too. The cheeks are the fleshy part of the head just behind the mouth. Insert the knife tip at a slight angle and make a circular cut, keeping the tip in one place. There is one halibut cheek on each side of the head.

After the fillets are removed the carcass should be properly disposed of. At a public cleaning table, look for totes or bins for collecting carcasses. If you are at sea, throw the carcass overboard.

The fillets and cheeks should be thoroughly rinsed in fresh water to remove any trace of blood. Cut away any part of the fillets that is bruised or bloody. After your fillets are clean you are ready to package and freeze them.

Packaging seals the fillet from contact with air. Leaving the skin on the fillet is the best way to protect one side. Next cut the fillets into portions for your use. Here are two good ways to protect the skinless side of the fillet:

- Wrap each cut piece of fillet in a plastic film like Saran Wrap. Several pieces can then be bundled together with aluminum foil.
- Place fillet pieces in a freezer-weight sealable plastic bag, or seal them in plastic with a vacuum packaging unit.

Glazing is used by most commercial fish packers to protect frozen fish from oxidation and dehydration. A thin coating of ice replaces the plastic film. To glaze a whole fish or a fillet, place individual pieces on a tray and freeze solid. Then dip each piece in ice water and return it to the freezer until it is solid. Repeat several times to increase the thickness of the ice coat. You can also glaze with a solution of six tablespoons corn starch or gelatin dissolved in a gallon of water. After a fish or fillet is glazed, it should be placed in freezer paper, foil, or a plastic bag to keep the glaze from chipping or breaking.

The time varies that halibut can be kept frozen. Because halibut are low fat fish, they keep better than higher fat fish like salmon and herring. These factors also affect keeping time:

- **Condition at time of freezing.** Clean, process, and freeze the halibut as soon as possible after catching.
- **Freezing temperature.** Freeze at −20°F or colder.
- **Storage temperature.** Store at −10°F or lower.

With the best of the above factors, you should be able to keep halibut frozen and in good condition for up to 6 months in a home freezer.

Shipping Halibut

For tourists and visitors who try their luck halibut fishing and unexpectedly end up with 50 lbs. or more of halibut fillets, the question now becomes “how do I get it home?” If you don’t want to get all of your fish back to your residence, you can donate some to a local food bank or soup kitchen. Your charter operator or a local resident can help you find a worthy recipient. If you want to take your catch home, decide whether you want it to arrive fresh or frozen. Fresh is nice, but it is much riskier. The fillets should be packaged as described above for freezing and then placed in an appropriately sized “wetlock” box. Include in the box several frozen gel-pak units for cooling. The box can be sealed and carried with you as baggage on your flight home or shipped home via air freight. Gel-paks will keep your halibut in good condition for 12-24 hours, so make sure your flight schedule is within this time frame. If you are shipping your fish, make sure someone is on the other end to receive it and care for it. Wetlock boxes and gel-paks can be purchased in most coastal communities. Your charter operator can direct you to a supplier. Gel-paks must be frozen before they can be used.

It is safer to carry or ship your fish frozen. Use the process described above to freeze your fish solid. An alternative to packaging and freezing it yourself is to use a custom processing store, found in most sport fishing communities. Just before you fly out or ship out your frozen fish, place it in a wetlock box, add several gel-paks, seal, and ship. Mark the container as frozen fish so the freight handler can care for it properly. Many custom processors will also take care of shipping your fish for an additional fee.

How to Prepare & Enjoy Halibut

Halibut tastes good and is easy to prepare. Its white color, flaky texture, and mild flavor are very appealing, even to people who do not care for fish. Its mild flavor allows it to take on delicious flavors added in the cooking process.

The following halibut recipes show its versatility and convenience. Baked
Halibut Parmesan can be on the table in less than 20 minutes as a main dish. Heart-Smart Halibut Roll-Ups are made from cooked halibut, and Halibut in Parchment is a gourmet delight. There are thousands of recipes for halibut, so don’t stop with these three.

**Baked Halibut Parmesan**

- 1/2 cup mayonnaise (can use lite mayonnaise)
- 1/3 cup Parmesan cheese
- 1 tbs. lemon juice
- 1 lb. halibut fillets (skin-on or skinless)

Mix together in a small bowl: mayonnaise, Parmesan, and lemon juice. Cover a baking sheet with foil and place halibut fillets skin side down on the foil. Spread mayonnaise mixture generously on top of each fillet. Bake in oven at 350° until mayonnaise is golden brown, about 15 to 20 minutes.

**Heart-Smart Halibut Roll-Ups**

- 1 lb. halibut, cooked and flaked
- 1/4 cup celery, chopped
- 1/4 cup onion, chopped
- 1/4 cup black olives, chopped
- 1/4 tsp. black pepper
- 1/4 tsp. oregano
- 1/4 can mushroom soup
- 1/4 cup lite mayonnaise

Combine above ingredients in a bowl. Make the “roll” from 2 cups Bisquick (or other baking mix) and about 1/2 cup skim milk. Stir in milk until well mixed, turn onto floured pastry board, and knead about 10 times. Roll dough to form a rectangle, 9” x 12”. Spread fish mixture evenly on it and roll like a jelly roll, starting with one of the long sides. Brush the roll with egg substitute. Put the roll on a baking sheet with seam side down or cut the roll into 1” slices and lay them flat on baking sheet. Bake at 400° for 25 to 30 minutes. Serve with mushroom sauce.

Mushroom sauce: The remaining mushroom soup (1/4 can), 1 tbs. lemon juice, 1/4 cup milk. Combine in a sauce pan and heat to serving temperature.

**Halibut in Parchment**

Salty Restaurant, Halibut Cove, Alaska

- 4 pieces of parchment paper
- 4 halibut steaks, about 3/4” thick, skinned
- 2 whole oranges + 2 tbs.
- fresh orange juice
- Salt and pepper to taste
- 1 small red onion

Slice the peel off the oranges and cut oranges crosswise into thin rounds. Dice fennel bulb into 1/2” cubes, reserve leaves as garnish. Thinly slice the red onion.

Cut parchment paper into four heart shapes. (Parchment paper is available at gourmet cooking shops.) Place onion on one half of the paper, then lay each halibut steak on top of the onions. Decoratively arrange the orange slices, and sprinkle fennel bulb and garlic over the halibut. Add 1/2 tbs. orange juice per steak and then splash with anise liqueur, such as Pernod. Dot with butter and lay fennel leaves across the top as garnish. Fold the paper in half and crimp the edges to seal. Place on baking sheet and bake at 350° for 12 to 15 minutes. Serve the halibut still in the paper, but open just before serving. Serves four.

This brochure was written by Doug Coughenower, University of Alaska Professor of Fisheries and Alaska Sea Grant Marine Advisory Agent, Homer, AK; and Calvin Blood, Biologist, International Pacific Halibut Commission, Seattle, WA. Designed by Dave Brenner, Alaska Sea Grant College Program.

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