ALASKA WHITEFISH BUYER'S GUIDE

ALASKA POLLOCK

COD

BLACK COD

HALIBUT

SOLE/FLOUNDER

ROCKFISH

Alaska Seafood®

Wild, Natural & Sustainable®

ALASKA WHITEFISH VARIETIES

BLACK COD/SABLEFISH

ALASKA POLLOCK

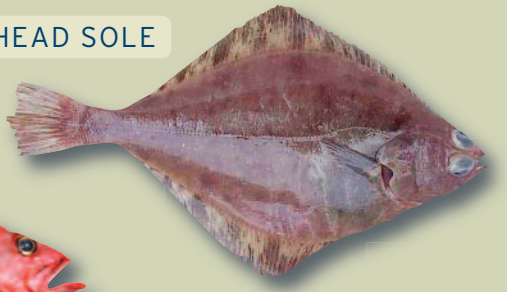
DOVER SOLE

COD

HALIBUT

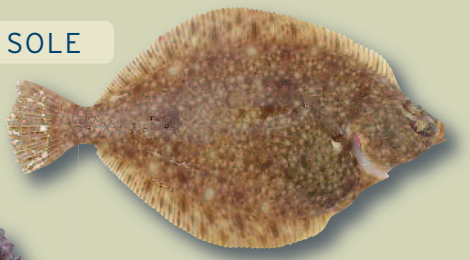
REX SOLE

FLATHEAD SOLE



ROCKFISH

ROCK SOLE



YELLOWFIN SOLE

Photos not to scale

Pollock & Cod: Dr. Donald Kramer, University of Alaska; Rockfish: NOAA; All others: NMFS

THE COLD, CLEAN WATERS OFF ALASKA support huge stocks of whitefish, many of which are in high demand in seafood markets worldwide. The term "whitefish" is synonymous with "groundfish" or "bottomfish" and refers to several species of white-fleshed fishes which live at or near the bottom of the ocean.

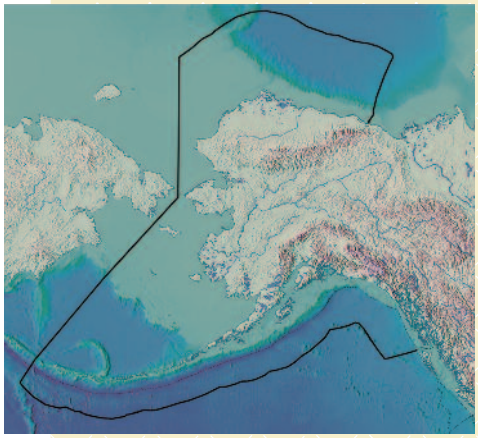
The scientific term for this lifestyle is "demersal," which distinguishes them from fishes which inhabit the entire water column, called "pelagic." While there are dozens of species of whitefish, this Buyer's Guide produced by the Alaska Seafood Marketing Institute, deals with the whitefish species of greatest interest to the seafood trade. Alaska whitefish species are sustainably harvested from the Bering Sea and Gulf of Alaska.

COMMON NAME	OTHER NAMES	SCIENTIFIC NAME
Alaska Pollock	walleye pollock	Theragra chalcogramma
Pacific cod	gray cod, true cod, Alaska cod	Gadus macrocephalus
Black cod	Sablefish, butterfish	Anoplopoma fimbria
Pacific halibut	Alaska halibut	Hippoglossus stenolepis
Yellowfin sole	Alaska dab	Limanda aspera
Dover sole	slippery sole, Alaska sole	Microstomus pacificus
Rex sole	longfin sole, witch flounder	Glyptocephalus zachirus
Rock sole	rock flounder, roughscale sole	Lepidopsetta bilineata
Flathead sole	paper sole, Alaska sole	Hippoglossoides elassodon
Pacific ocean perch	POP, ocean perch	Sebastes alutus
Rockfish	many species	Sebastes species

The Bering Sea and the Gulf of Alaska are huge bodies of water (see the chart at right depicting the 200-nautical-mile limit of the EEZ). All of this region lies within the Food & Agriculture Organization (FAO) of the United Nations' statistical catch area 67.

These two bodies of water are among the most productive on the planet because of the upwelling of nutrient-rich water from deep regions along the shelf edge toward the surface. The combination of nutrients and sunlight supports very large populations of phytoplankton (microscopic drifting plants such as diatoms), which are eaten by zooplankton (small drifting animals such as shrimp and krill).

The Bering Sea and the Gulf of Alaska are among the most productive waters on the planet because of the upwelling of nutrient-rich water from deep regions of the sea.



National Park Service

Alaska and the 200-nautical-mile Exclusive Economic Zone (EEZ)

Alaska glacier

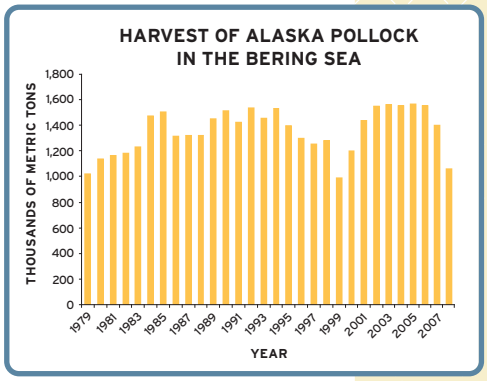
The phytoplankton and zooplankton are in turn eaten by small fishes which are eaten by bigger fishes, marine mammals and seabirds. For decades this rich ecosystem has supported abundant, sustainable fisheries, and it has been the subject of hundreds of studies by scientists from universities and government agencies.

Alaska whitefish spend all of their lives out in the ocean. They never enter fresh water. Out in the deep, clean, cold waters of the Gulf of Alaska and the Bering Sea, Alaska whitefish are a natural part of the ecosystem. At different stages in their lives they feed on plankton, shrimp and other crustaceans, other fishes and other marine organisms. In turn they themselves are food for bigger fishes, birds and mammals.

Cod, Alaska Pollock, halibut and yellowfin sole are known for their high fecundity: individual females produce tens of thousands to over a million eggs per spawning. All species spawn many times during their lives. These attributes serve to stabilize the populations by enabling these fishes to withstand natural fluctuations in ocean conditions and to tolerate environmental changes.

Here are some important statistics about Alaska:

- Alaska has 34,000 miles of coastline, more than all of the other 49 states put together
- Alaska has over 795,000 square miles of continental shelf, 70% of the U.S. total
- The 200-mile Exclusive Economic Zone (EEZ) off Alaska is 28% of the U.S. total
- More than half of all seafood harvested from American waters originates in Alaska



NPFMC

ALASKA POLLOCK

Alaska Pollock are the most abundant commercial fish species in the Bering Sea, comprising 60% of the total biomass. They are members of the family Gadidae, which includes both Pacific cod and Atlantic cod. In the Gulf of Alaska, Alaska Pollock are the second-most abundant fish species, comprising 20% of the biomass. Fisheries scientists recognize four stocks of pollock: Gulf of Alaska, eastern Bering Sea, Aleutian Islands and Aleutian Basin. The three Bering-Aleutian stocks appear to be interrelated and are considered separate from the Gulf stock. Alaska Pollock in the Aleutian Basin are distributed across the U.S. EEZ, the Russian EEZ and international waters.

Most adult Alaska Pollock are found in waters 70 – 300 meters (230 – 1,000 feet) deep. They spawn between late February and early May. The eggs are pelagic, drifting in the currents for 15 – 25 days until hatching. The newly hatched larvae drift in the upper 40 m (130 ft) and feed on plankton for 60 days until they metamorphose into pelagic juveniles.

As they age and grow, they move deeper in the water and join the adult stock in about four years. Their diet changes at different life stages: juveniles feed on invertebrate eggs and small planktonic crustaceans, while adults feed mainly on copepods, krill, and other fishes, including juvenile Alaska Pollock. Alaska Pollock are an important food source for other fishes, marine mammals and birds.

COD

Pacific cod are also a member of the family Gadidae and are related to both Alaska Pollock and Atlantic cod. Pacific cod are considered a trans-oceanic demersal fish and are found at depths to 500 m (1,650 ft). They spawn from January through May. Their eggs are demersal and adhesive, clinging to rocks, coral, and other features on the seabed. The eggs hatch in 15–20 days, and the larval cod drift near the surface of the water.

The diet of Pacific cod also changes throughout their lives. Small fish feed mostly on invertebrates while large cod feed mostly on other fishes. In turn they are preyed upon by halibut, salmon sharks, northern fur seals, harbor porpoises, various whale species and tufted puffins.

BLACK COD

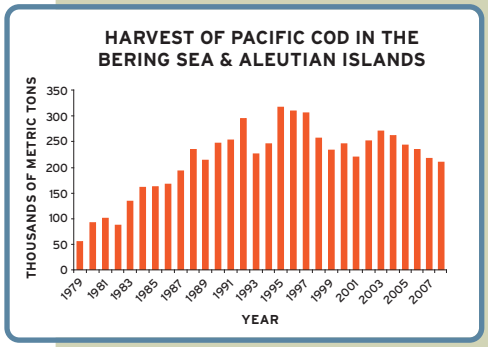
Sablefish are sometimes called "black cod," but they are not part of the cod family. Black cod live in deep waters, usually below 200 m (660 ft). They spawn in late winter and early spring, along the continental slope. The eggs incubate near the bottom but the larvae rise to near the surface.

Juvenile black cod are found in shallower water close to shore, but they soon move to deeper offshore waters. Larvae and juveniles feed on planktonic crustaceans while adults are considered "opportunistic" feeders, taking bottom fishes and invertebrates, squid and jellyfish.

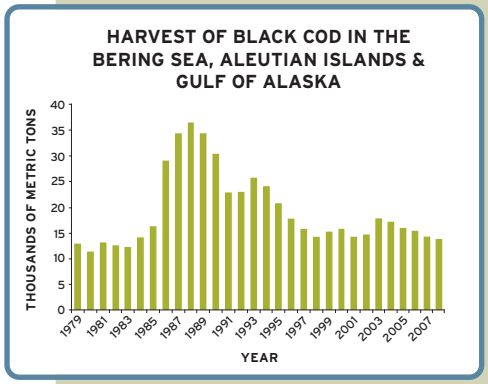
Alaska black cod with grapes, cauliflower and brown butter sauce

Steve Lee

Steller sea lion



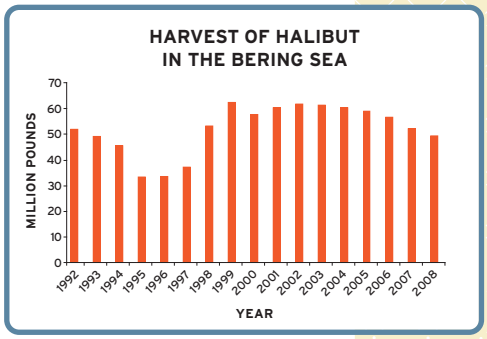
NPFMC



NPFMC

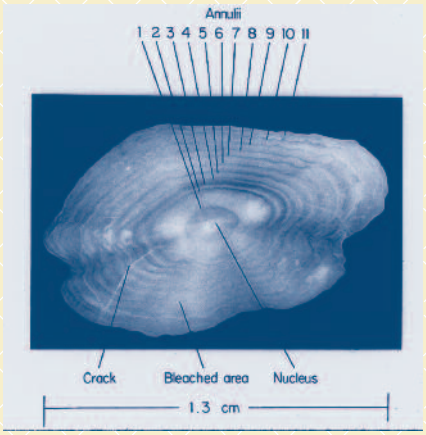
HALIBUT

Pacific halibut are related to Atlantic halibut, and some scientists consider them to be the same species. Female halibut are bigger than the males and generally grow faster and live longer. Few males reach 36 kg (80 lbs) in weight. Age is determined from the seasonal layers in earbones, called otoliths. (See diagram.)



IPHC

Halibut spawn from November to March at depths of 180-460 m (600-1,500 ft) along the continental shelf. A large female halibut can produce four million eggs. The eggs and larvae are free-floating but slightly heavier than surface seawater, so they drift in deep ocean currents. As the larvae grow they become lighter and rise nearer the surface. They drift from east to west in the Gulf of Alaska gyre for hundreds, sometimes thousands of miles.



IPHC

Halibut otolith (earbone) depicting the seasonal layers used to determine age

Landing a halibut

Most adult halibut remain in roughly the same area year after year. However, they are strong swimmers, and some halibut undertake extensive movements of thousands of miles.

Larval halibut feed on plankton while juveniles eat crustaceans and small fishes. Adult halibut eat mostly fishes of other species such as cod, pollock, black cod, rockfish and other flatfishes. They will even leave the sea bottom to consume pelagic fishes such as herring and sand lance. Adult halibut are big, active, strong-swimming, and bottom-dwelling, so they are less vulnerable to predation than smaller species.

YELLOWFIN SOLE

Yellowfin sole are much smaller than halibut, reaching a length of 46 cm (18 inches). They live on the seafloor where the adults feed on bivalve molluscs, crustaceans and other invertebrates. On the eastern Bering Sea shelf, yellowfin sole overwinter near the shelf edge and migrate toward the inner shelf in spring for feeding and spawning. A female can produce up to 3.3 million eggs. As the larvae mature into juveniles they undergo a metamorphosis similar to that of halibut, in which the left eye moves to the right side of the head, and the left side of the body loses pigmentation.

AFSC/NOAA

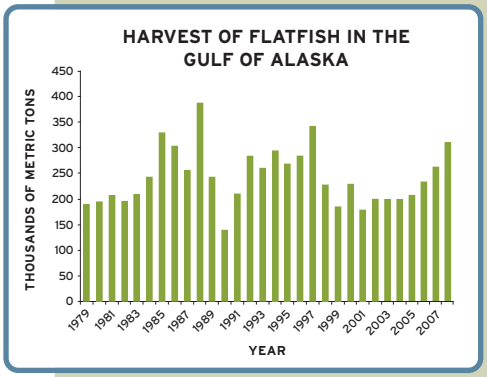
Yellowfin Sole

DOVER, REX, ROCK & FLATHEAD SOLE

The collection of small flounders known as "deepwater flatfish" includes Dover sole, rex sole, rock sole, and flathead sole, along with other, less abundant species. They live on the ocean bottom of the continental shelf and conduct annual migrations between spawning grounds and feeding grounds. They eat similar foods ranging from crustaceans and molluscs to a variety of other invertebrates. In turn, they are consumed by a wide range of predators including cod, halibut, skates and large flounders such as arrowtooth. They occupy slightly different ecological niches, based on species-specific preferences for food, substrate (mud, sand, gravel, rock), depth and other factors.

AFSC/NOAA

Rock Sole

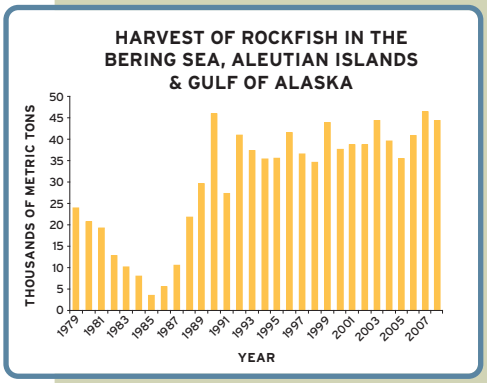


NPFMC

ROCKFISH

The name "rockfish" is applied to several related species of Alaska whitefish, which live near, but not on the sea floor. Rockfish are sometimes called "snapper," but they are not related to snapper from other waters. The most well-known species is Pacific ocean perch (POP), but there are many other species in the "rockfish complex" – northern, dusky, canary, widow, shortraker, rougheye, thornyhead and many others.

There is much uncertainty about the life history of POP, although generally more is known than for other rockfish species. Adults are found primarily offshore on the outer continental shelf and the upper continental slope in depths of 150 –420 m. A seasonal pattern of shallower in the summer and deeper in the winter is probably related to summer feeding and winter spawning. Many rockfish feed on euphausids, shrimp, and other crustaceans, as well as on deep water fishes. All rockfish are slow-growing species, with a low rate of natural mortality, a relatively old age at maturity, and a very old maximum age (84 years for POP in the Gulf of Alaska).



NPFMC

Seared Alaska sole on spicy sesame noodles

WHITEFISH HARVESTING

There are four basic types of fishing gear used to harvest Alaska whitefish – trawl, longline, pots and jig.

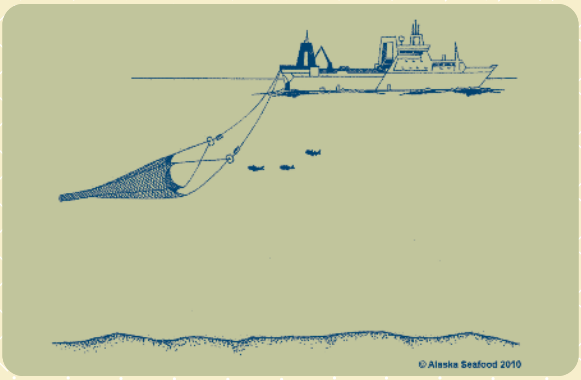
TRAWL

AFSC/NOAA

Trawl gear

A trawl is a large, funnel-shaped net that is towed by a fishing vessel. Trawlers are generally large boats ranging from 70 feet to over 400 feet in length. The trawl doors, because of the way they are built and rigged to the trawl, keep the mouth of the trawl open as it moves through the water. The headrope is equipped with floats forming the upper opening. The footrope is rigged with weights forming the lower opening. Trawlers use sophisticated ultrasonic devices attached to the vessel and the net, both for location of fish underwater and for species identification.

Pelagic trawls are designed to operate in mid-water, and their heavy doors and wires are kept off the bottom to avoid damage to benthic habitat. Fishing with pelagic trawls is a selective method of fishing because the nets can be operated in ways to minimize the incidental catch of non-target species. Alaska Pollock are usually harvested with few other species. Sole are generally captured in bottom trawls in mixtures of the various species which are sorted onboard the fishing vessel. Trawling is allowed only in certain areas and strict limits are enforced upon the amount of non-target species (such as crab or halibut) that may be caught. In fact, it sometimes happens that a trawl fishery is closed because it reached the pre-set "bycatch" limit and does not achieve full harvest of its target species.



M. Sigler, NMFS/Auke Bay Lab

Net acoustic imagery

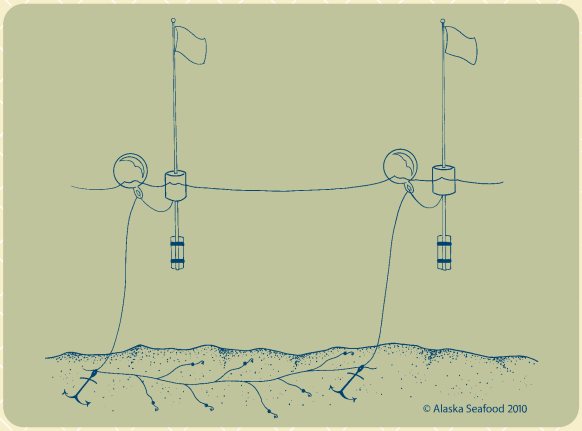
Upon locating a school of the desired species, the vessel trawls through the school and captures the fish. The fish accumulate in the end of the trawl, which is called the "cod end," regardless of the species of fish being harvested. Electronic sensors tell the harvester exactly where the trawl is in relation to the fish and the ocean floor, while other sensors report how full the trawl becomes. When capture is complete, the trawl is brought to the surface.

Once the trawl full of fish reaches the surface of the water, one of two things happens. If the vessel has the ability to process the fish onboard, it is called a catcher-processor. These vessels simply pull the net aboard, empty the net, sort the species, and process the catch. If the vessel is only capable of catching fish, then it must deliver the catch to a processing plant. These processing plants might be on other vessels, called floating processors,

or they might be on shore. The catcher vessel (trawler) usually takes the fish onboard and stores the fish in refrigerated tanks below deck. This keeps the fish in top quality until they are delivered and processed. In either case, the fish are kept well-chilled and they are processed within a few hours of harvest. Trawls are the only fishing method used to harvest Alaska Pollock and sole. They are sometimes used to catch cod and black cod, but never halibut.

LONGLINE

The only legal fishing method for halibut is longline gear. Longline fishing is also often used for harvesting black cod and cod, but never for Alaska Pollock or sole. Longline fishing vessels are usually independently run by owner-operators. Some longliners are small boats, less than 50 feet in length, but most are somewhat larger.



Longline gear is composed of groundline, buoy lines, and gangions, which are short pieces of line with hooks on the end. Longlines are set along the seabed with baited hooks every few yards. Longline hooks are retrieved one at a time. The fishermen can unhook other species of fish and return them alive to the sea without bringing them onboard. In this way, longlining is considered a style of fishing with very little bycatch.

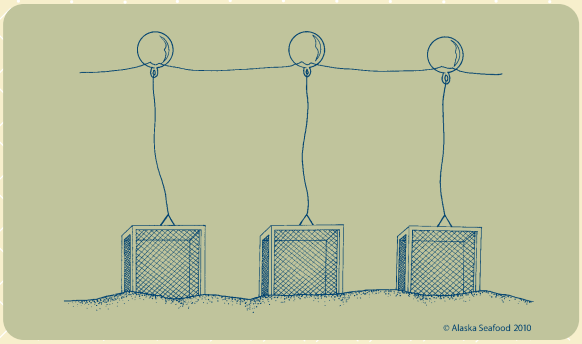
Andy Vatter/IPHC

Longline gear being set with streamers to prevent seabirds from being caught

POTS

The third type of fishing gear used to catch Alaska whitefish is pot gear. Pots are used only for black cod and cod, never for Alaska Pollock, halibut or sole.

Pots are large steel-framed cages covered in net mesh. The baited pots are placed on the seafloor where they trap the fish. Fish enter the traps through tunnels, but cannot escape. Later, the pots are retrieved and the fish are sorted on deck. Non-target fishes are returned alive to the sea.



David Cseep, NMFS/Auke Bay Lab

Setting pots

JIG

Jig fishing is a hook-and-line fishing method that utilizes artificial lures and an electric machine to jerk (jig) the line up and down. Each machine may have up to five lines and each line may have up to 30 hooks attached. The fish are taken off the hooks and handled individually on the boat.

Along with longlining, jig fishing is the only other legal hook-and-line method for catching cod. Rockfish and ling cod are also harvested using this method.

Alaska SeaLife Center

Rockfish

Jig fishing reels in hundreds of thousands of pounds of fish per year; however, this is a small percentage of the total Alaskan catch.

CLEAN FISHING

All fishing gear is operated in as "clean" a manner as possible. Bycatch of small fishes and non-target species is reduced, and interaction with marine mammals and birds is minimized. In contrast to years past, very little fishing gear is lost at sea. The old problem of "ghost gear" (lost gear that continues to fish) has essentially disappeared. The loss of a trawl is a very rare event because of improvements in cable, net materials and fishing methods. Pots must have biodegradable panels which allow fish to escape in the event that a pot is lost. Important changes in fishery management regulations allow longliners to fish at a slower and safer pace, so they can avoid setting more gear than they can recover. There are also strict rules in place to prevent seabirds from being accidentally caught in longline gear.

Longliner

RESOURCE MANAGEMENT

Precautionary management and responsible stewardship guide the sustainable conduct of Alaska whitefish fisheries. In Alaska, the future of seafood stocks and the environment are more important than immediate opportunities for commercial harvest. The state, federal and international processes ensure this by separating conservation from decisions regarding allocation. The management agencies are structured so that scientists make harvest level decisions, and policy allocation can never dictate harvest levels above the scientific recommendation.

The guiding principle of Alaska's fishery management is solidly based in science and managers must take a precautionary conservative approach rather than risk damage to the resource.

Measuring flatfish

Several different agencies of the state or federal government manage Alaska's fisheries (salmon, groundfish, halibut and crab), but the fundamental principles and procedures are consistent throughout – conservation is based on sound science and is precautionary.

Management of whitefish is separated into two categories: groundfish and halibut. Groundfish are federally managed. The National Marine Fisheries Service (NMFS) performs the conservation and management duties, while the North Pacific Fishery Management Council (NPFMC) determines policy and allocation.

The halibut fishery is managed internationally through a cooperative agreement between the U.S. and Canadian governments. The International Pacific Halibut Commission, an organization composed of members from the U.S. and Canada, works closely with the NPFMC.

REGULATORY ENFORCEMENT

Each fishery is also protected by a designated regulatory enforcement agency, such as the NMFS Office of Law Enforcement. The federally mandated At-Sea Observer Program places civilian scientific observers, certified by the NMFS, aboard fishing vessels to collect data and report suspected regulatory violations to the Office of Law Enforcement. This program helps to monitor and account in real time fish taken from the sea. It also addresses the issues of bycatch and discards and keeps track of catches as they progress during the season so that quotas are not exceeded.

IPHC

Wiretagged halibut

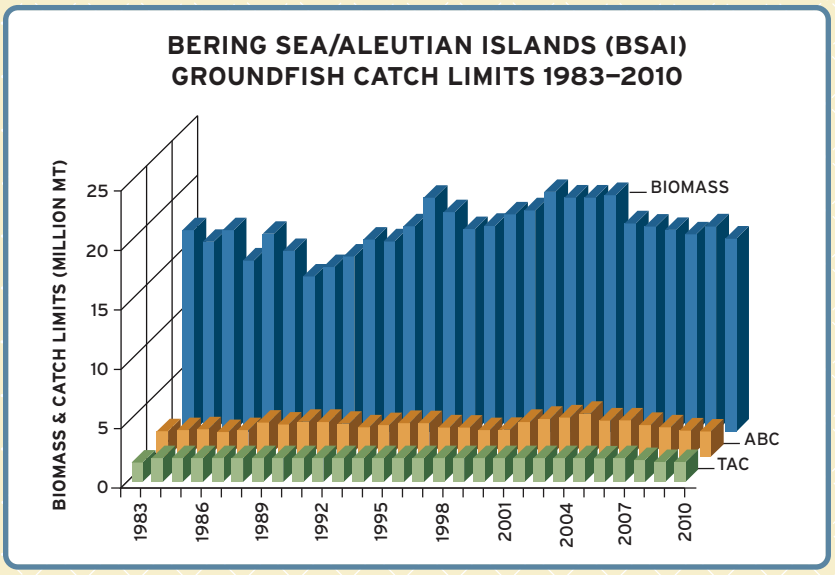
State of Alaska fisheries enforcement vessel

STOCK ASSESSMENT AND QUOTA ESTABLISHMENT

Every year, Alaska's scientists conduct and analyze research on a wide variety of topics including climatic, environmental, and socio-economic factors that affect the fisheries. Such research helps scientists determine what a sustainable catch would be: this is the Allowable Biological Catch (ABC). Notice in the chart that the ABC is a small fraction of the total fish biomass. However, Alaska goes a step further and sets the actual harvest level with even more precaution. The Total Allowable Catch (TAC, the amount actually allowed to be harvested) is set not to exceed the ABC. The TAC limit has never exceeded the sustainable level in the Bering Sea groundfish fishery.

David Cseep, NMFS/Auke Bay Lab

Fisheries observers



NPFMC

For the Alaska whitefish fisheries, the NPFMC and industry have made great progress in reducing the environmental impacts of fishing operations through regulations which:

- prohibit on-bottom trawling in large areas of the ocean: some 98,000 square nautical miles are closed year-round, and other areas are closed seasonally
- prohibit fishing activity within wide zones around marine mammal habitats
- minimize bycatch of prohibited species (e.g., salmon, crab)
- mandate the use of equipment to prevent contact of fishing gear by endangered marine birds
- require the use of Vessel Monitoring System technology by vessels operating in certain sensitive habitat areas

INDIVIDUAL FISHING QUOTAS

Alaska's halibut and black cod fisheries are managed by an Individual Fishing Quota System (IFQ), one of the first such systems in the USA and one of the most successful in the world. IFQs are a system of property rights to the fish.

Since 1995, anyone fishing for halibut or black cod must own enough IFQ shares to match the amount of fish they wish to land. There are limits on the amount of shares that any individual may own, thus preventing excessive accumulation of shares by any one person or company. Successes and benefits of the Alaska IFQ system include:

- far less fishing gear is left on the fishing grounds than in previous, more frantic years; this reduces unwanted catch by abandoned gear
- seafood quality is better because steady landings allow for better on-boat handling and prompt processing; this also reduces waste
- bycatch is minimized because fishing grounds are carefully selected and tested, and non-target species can either be avoided or returned alive to the sea
- fisherman safety is improved because harvesters can fish during suitable weather

The American Fisheries Act (AFA) is a good example of how tightly Alaska's fisheries are regulated. AFA is federal law that took effect in 1998 and restructured the Alaska Pollock fishing and processing industry into a group of cooperatives which no longer had to compete for the fish. The positive impacts of the AFA include:

- better fishing practices, which spread out the harvest in space and time, using the most efficient methods
- increased safety at sea, eliminating old-style "Olympic race for the fish," so that vessels are not forced to fish during bad weather
- better utilization of the harvested fish, and less waste
- further lowering rates of bycatch and discards
- mitigation of the impacts of closing fishing grounds to protect marine mammals
- better fishery monitoring by expansion of the mandatory scientific observer program

HABITAT PROTECTION

In addition to traditional fishery management, over 40 Marine Protected Areas (MPAs) have been established to protect ecological structure and function, conduct research, conserve bottom habitat, protect vulnerable stocks, and preserve cultural resources. Of these 40 Marine Protected Areas, 31 prohibit either all commercial fishing or all bottom contact gear, such as trawls. There are thousands of square miles under MPA protection in Alaska. Evidence of the success of the Alaska approach is that no species or stock of Alaska whitefish is overfished or approaching an overfished condition. In fact, no species of Alaska seafood has ever been listed as endangered under the Endangered Species Act.

David Cseep, NMFS/Auke Bay Lab

Fish sampling

PURE WATERS, PURE FISH

Alaska whitefish remain pure with little to no traces of contaminants and surpass products from other parts of the world. The health benefits of eating Alaska whitefish are indisputable. In fact, the Alaska Department of Health and Social Services recommends that Alaska whitefish can be safely eaten by anyone in unrestricted amounts.

Alaska is thousands of miles away from large sources of pollution that can contaminate the human food supply in other parts of the world. These distances, combined with the earth's patterns of circulation of water and air, help to ensure that Alaska's own waters are among the cleanest in the world and produce pure seafood products. Alaska's human population density is the lowest of any in the United States, and lower than most places in the world. Alaska has strict regulations governing development activities, such as road building, mining, logging and sewage treatment. The State of Alaska Department of Environmental Conservation (ADEC) has a regulatory section dealing specifically with water quality.

SEAFOOD MONITORING AND PURITY

There has been world-wide concern about environmental contaminants in food and water and new information is reported on a daily basis in the news. In 2001, ADEC developed the Fish Monitoring Program in order to conduct a more rigorous examination of contaminant levels in Alaskan fishes. The program involves a general survey of selected marine and freshwater finfish species from around the state and testing of these fishes for certain environmental contaminants. The program has continued to evolve from its start in 2001.

In a collaborative effort with biologists from several agencies, commercial fishermen and some Native fishermen, samples of salmon (all five species), halibut, Alaska Pollock, black cod, cod, lingcod, rockfish, and other species are being collected from throughout the state. Every year more samples are collected from additional species of fish from new geographic locations.

Alaska whitefish samples show very low levels of not only heavy metals, but also organochlorines. Results of the monitoring program can be viewed at www.dec.state.ak.us/eh/vet/FMP2007.htm

ALASKA FAMILY AND COMMUNITY SUSTAINABILITY

Alaska is a very big place with very few people. Its coastal communities are very far apart and they are very small, with rarely over 2,000 year-round residents per town. Aside from commercial fishing and seafood processing, there is little other economic opportunity in many of these communities. This explains why these coastal Alaskans, many of whom are Alaska Natives, are so keenly interested in the health and sustainability of the fisheries, and in the long-term economic benefits that support their communities.

In 1992, the North Pacific Fishery Management Council (NPFMC) initiated the Community Development Quota (CDQ) program. The CDQ program granted ownership share rights in several Alaska whitefish stocks to non-profit organizations that represent the small coastal communities of the Bering Sea region. These CDQ shares are normally 10% of the annually adjusted TACs, and are divided among the communities for the benefit of their residents. The successes of the CDQ program include:

- fisheries-based economic opportunity for residents of rural communities
- increased sense of stewardship of the resource among Alaskans
- increased participation by rural coastal Alaskans in the management of the fisheries and companies that use these resources

For more in-depth information on the sustainability of Alaska whitefish, go to www.alaskaseafood.org/sustainability

North Pacific Research Board

Fisherwoman holding a black cod

PROCESSING

Alaska Pollock, cod, black cod, sole and rockfish are processed both at-sea, on catcher-processors (also called factory-trawlers or freezer-trawlers) and floating processors (also called motherships), and in on-shore plants. Halibut are only processed on-shore. Alaska processors are careful to extract maximum value from the harvest and minimize waste. Many of these companies process the byproducts (skin, bones, viscera, etc.) into protein meal, bone meal, and oil, for use in industrial applications such as fertilizers and as food supplements for humans and animals. New applications are constantly being investigated.

Steve Lee

Processing facility in Dutch Harbor, Alaska

Processing cod

North Pacific Research Board

The NPFMC has enacted regulations to divide the harvest of many whitefish species between companies that operate at-sea and companies that operate on-shore. This is done to strike a balance among many factors, such as efficiency of operation, quality of product, distribution of fishing pressure, and the economic and social health of coastal Alaska fishing communities.

SAFETY

All Alaska whitefish are processed in plants that are in full compliance with food safety regulations and practices, such as HACCP (Hazard Analysis/ Critical Control Point) and SSOP (Standard Sanitary Operating Procedures). HACCP addresses the safety of the products, and requires monitoring of control points to ensure that food hazards do not arise. HACCP, required by federal law, is overseen by the U.S. Food & Drug Administration (FDA) and the ADEC.

© Dan Lamont, Courtesy Genuine Alaska Pollock Producers

Candling whitefish for quality control

PRODUCT QUALITY

The quality of the products is ensured by each company's standard practices in accordance with the specifications of their customers. The producers and the customers work together to guarantee the highest quality products. Many customers conduct their own inspections and audits of their suppliers. This practice is routine in the industry and includes a focus on the traceability of all products. For basic quality information, please review the Alaska Seafood Marketing Institute's *Premium Quality Specifications for Whitefish Fillets*.

Pan-roasted Alaska Pollock with garden vegetables

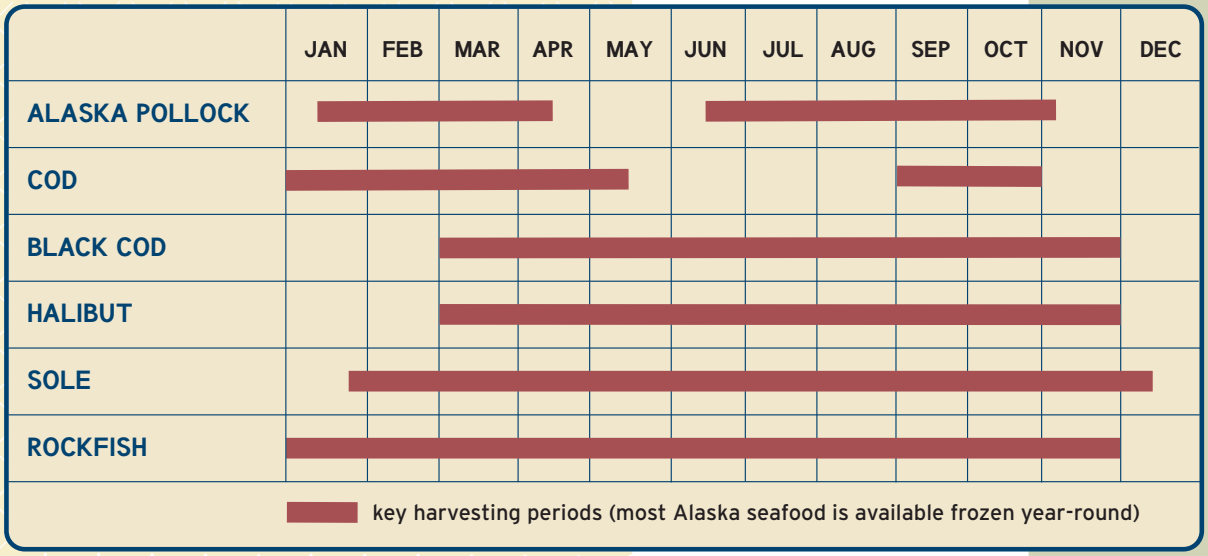
NUTRITION INFORMATION

	Calories	Protein (g)	Fat (g)	Saturated Fat (g)	Sodium (mg)	Cholesterol (mg)	Omega-3s (EPA + DHA) (mg)
ALASKA POLLOCK	110	23	1	<0.5	115	95	470
COD	100	23	<1	<0.5	90	45	280
BLACK COD	250	17	20	4	70	65	1,800
SMOKED BLACK COD	260	18	20	4	737	65	1,800
HALIBUT	140	27	3	<0.5	70	40	460
SOLE	120	24	1.5	<0.5	105	70	500
ROCKFISH	120	24	2	0.5	75	45	450

Note: Nutritional values for Alaska surimi seafood vary depending on brand and product form. Please check suppliers' information for specific data.

Reference: Nutritional data is sourced from the USDA National Nutrient Database for Standard Reference using 3.5 oz./100g cooked portions, accessible at: http://www.nal.usda.gov/fnic/foodcomp/search

HARVESTING SEASONS



BUYING TIPS

Important considerations for buyers of Alaska whitefish include product forms, packaging, and quality and purity. This Buyer's Guide provides general information on these topics. Buyers are encouraged to discuss specific details with their supplier. Buyers who use metric sizes can reference the conversion chart on the inside back cover.

Steve Lee

Alaska cod in miso broth with udon noodles

PRODUCT FORMS

All Alaska whitefish products are sent to large domestic and international markets:

- Both block and IQF pollock fillets are consumed in the U.S., but a significant portion is shipped to Europe
- Most pollock surimi and roe is eaten by customers in Japan, but an increasing amount is sold in Europe
- Cod products are sold mostly in the U.S. and in Japan. Other markets include Canada, Korea, and Europe
- Most halibut is shipped to the U.S. and Canada
- Most black cod is sold in Japan
- Alaska sole serve a truly global market, including U.S., China, Japan, and Europe

ALASKA POLLOCK PRODUCTS	
SIZES	Range 1 to 4 lbs.; average 1.5 to 2 lbs. Fillet Sizes: 2-4 oz., 4-6 oz., 6-8 oz., 8-up oz.
PRODUCT FORMS	Fillet block (PBO & PBI) Deep-skinned fillet block Mince block Skinless boneless fillets IQF and shatterpack Dressed/headed (H&G) Surimi Pollock roe Salt pollock (dried, butterfly-shaped, split, collar-on, fins on, ribs and backbone removed)
PRODUCT PACKAGING	Fillet block: 16.5 lb. / 49.5 lb. master Mince block: 16.5 lb. / 49.5 lb. master Surimi block: 22 lb. / 44 lb. master Shatterpack: 15 lb. / 45 lb. master IQF: 10, 15, and 25 lb. H&G: 50 and 80 lb. Roe: 16.5 lb. / 49.5 lb. master

ALASKA POLLOCK AND COD

"Deep-skinned" fillets of pollock and cod have been trimmed to remove the darker, higher-fat tissue just under the skin.

In addition to the products based on their meat, Alaska Pollock and cod are also used to produce a variety of other products. The most valuable of these is roe, but the milt and stomachs of both species are also used. Alaska Pollock viscera and trimmings (belly meat) are sold, while other cod-based products include livers, heads, and tongues. Cod is also produced in a split-and-wet-salted form.

COD PRODUCTS	
SIZES	Average weight: 5-10 lbs., up to 40 lbs. Fillet sizes: 4-8 oz., 8-16 oz., 16-32 oz., 32-up oz. Portion sizes: 4-8 oz. IQF
PRODUCT FORMS	Fresh: dressed; dressed/headed (H&G); fillets, skin-on or skinless, pin-bone in or boneless Frozen: dressed; dressed/headed (H&G); IQF fillets, skinless/boneless or skin-on pin-bone in or skinless/boneless shatter or layer packs; skinless/boneless fillet and mince block Salt cod (dried, butterfly-shaped, split, collar-on, fins on, ribs and backbone removed)
PRODUCT PACKAGING	Fresh: fillets 5, 10, and 15 lb. poly bags; 10, 12, and 20 lb. plastic boxes Frozen: dressed/headed (H&G) 50 and 80 lb. boxes; fillets 15 lb. shatter packs / 45 lb. master, and 10 to 25 lb. IQF packs; mince and fillets 16.5 lb. blocks / 49.5 lb. master

BLACK COD

Fresh and frozen H&G black cod are usually produced in J-cut form, with the collar bone off and the belly unsplit.

BLACK COD PRODUCTS	
SIZES	Average weight: 5-10 lbs., up to 40 lbs. each Dressed/headed (H&G) fish typically graded under 2 lbs., 2-3 lbs., 3-4 lbs., 4-5 lbs., 5-7 lbs., and 7-up lbs.
PRODUCT FORMS	Fresh: dressed/headed (H&G), split or unsplit belly, collar on or off (Western or Eastern cut); skin-on or skinless fillets, pinbone-in; steaks Frozen: dressed/headed (H&G); fillets, skinless, and skinless boneless; steaks
PRODUCT PACKAGING	Fresh: fillets 10 lb. poly bags, 10 lb. plastic containers Frozen: dressed/headed (H&G) 50-80 lb. boxes, fillets 10-25 lbs., IQF and layer packs

HALIBUT

Halibut are produced in H&G, steak, and fletch (split body-length fillet) forms. Fletches can be skin-on or skinless. Halibut "cheeks" are the portions of meat adjacent to the operculum or gill cover and are usually frozen in 5 lb. blocks.

HALIBUT PRODUCTS	
SIZES	Average weight: 35-50 lbs., range: 10-500 lbs. Fletches/Fillets: 1-3 lbs., 3-5 lbs., 5-7 lbs., 7-up lbs. Steaks/Portions: 4, 6, 8, 10 oz. Dressed/headed (H&G) grades: 10/20 lbs., 20/40 lbs., 40/60 lbs., 80-up lbs.
PRODUCT FORMS	Fresh or Frozen: dressed/headed (H&G); fletches/fillets, skin-on or skinless; steaks and loins; cheeks
PRODUCT PACKAGING	Larger fish glazed, smaller fish glazed and boxed in 100-150 lb. cartons Steaks, fillets, and loins can be individually vacuum-packed in 10-20 lb. cartons IQF fletches glazed and bagged in 50 lb. cartons Cheeks frozen in 5 lb. blocks

SOLE

All species of sole are available in H&G and fillet products. Both skin-on or skinless fillets are available. Rock sole are sometimes available in frozen H&G form with roe.

SOLE PRODUCTS	
SIZES	Whole average 1-5 lbs. Alaska plaice fillets average 3-10 oz. Arrowtooth fillets average 3-8 oz. Dover fillets average 5-10 oz. Flathead fillets average 2-7 oz. Rex fillets average 3-8 oz. Rock fillets average 2-5 oz. Yellowfin fillets average 2-5 oz.
PRODUCT FORMS	Whole Dressed/headed (H&G) J-cut/tail-off (kirimi-cut) Fillets
PRODUCT PACKAGING	Frozen: dressed/headed (H&G) 35-42 lb. bags; IQF fillets 10, 25, and 40 lb. master pack

ROCKFISH

All species of Alaska rockfish are available in H&G and fillet forms, both skin-on and skinless, and pinbone-in or pinbone-out.

ROCKFISH PRODUCTS	
SIZES	Whole average 3-14 lbs. Maximum 30-36 lbs. Round yelloweye graded under 6 lbs. and over 6 lbs. Round chilipepper graded under 3 lbs. and over 3 lbs.
PRODUCT FORMS	Whole round Dressed/headed (H&G) Fillets; skin-on and skinless, pinbone-in and pinbone-out, skin-on/scaled
PRODUCT PACKAGING	Fresh: dressed/headed (H&G) 50-80 lb. boxes; fillets 10 lb. poly bags & 10 lb. plastic containers Frozen: dressed/headed (H&G) 50-80 lb. boxes; fillets 5-15 lb. layer, shatterpack, or IQF

SURIMI SEAFOOD

A large portion of the Alaska Pollock harvest is made into surimi seafood. There are many standard grades of surimi:

- First grade: SA, FA, A, and AA; produced from butterfly skin-on or skinless fillets
- Second grade: KA, and KB; produced from meat recovered after a second refining step
- Third grade: RA, and B; produced from meat recovered after second-grade refining, which might include meat recovered from collar cuts and frames (skeletons)

Each manufacturer sets its own target values for gel strength, elasticity, color and water-binding ability.

SURIMI SEAFOOD PRODUCTS	
PRODUCT PACKAGING	All product forms are available in a variety of sizes: 8 oz., 12 oz., 16 oz., 2 lb., 2.5 lb., 5 lb., 10 lb.

WHITEFISH ROE

The roe of many Alaska whitefish species is harvested seasonally. These products are consumed in many markets around the world. There are many varieties and styles of roe products, so buyers should discuss specific details with their suppliers.

WHITEFISH PUBLICATIONS

Readers are encouraged to consult other ASMI publications for more information on Alaska whitefish, including:

- Characteristics of Common Flatfish
- Recommended Whitefish Quality Guidelines
- Premium Quality Specifications – Whitefish Fillets
- Alaska Halibut Cutting Brochure
- Fact Sheets for Alaska Pollock, Sole, Cod, Halibut, Black Cod and Surimi Seafood
- Handling Halibut – A Handbook for Commercial Fishermen

WHITEFISH RECIPES

- For Alaska Pollock, Sole, Cod, Halibut, Black Cod and Surimi Seafood recipes, visit www.alaskaseafood.org/recipes

Steve Lee

Wild Alaska cod with sautéed courgettes and cracked black pepper

Steve Lee

Pan-seared wild Alaska Pollock with wilted spinach and garden peas

SUSTAINABLE FISHERIES

For information on Alaska's fisheries management systems, the following ASMI publications are available:

- Traceability Standard
- Traceability Fact Sheet
- Sustainability Brochure
- Sustainability Fact Sheet
- Sustainability Standards Comparison Fact Sheet
- Sustainability Pocket Guide
- Marine Protected Areas Brochure
- Sustainability White Paper
- Marine Protected Areas Paper
- FAO Checklist
- Sustainability Timeline

These materials can be obtained by ordering online from our website at **www.alaskaseafood.org,** or by requesting a Sales Aids & Literature catalog by calling 1-800-478-2903.

INFORMATIVE WEB SITES

- North Pacific Fisheries Management Council
  www.fakr.noaa.gov/npfmc
- National Marine Fisheries Service, Alaska Region
  www.fakr.noaa.gov
- International Pacific Halibut Commission
  www.iphc.washington.edu
- Alaska Department of Fish and Game
  www.adfg.state.ak.us

THE DORYMAN

Oh, some may sit in their swivel chairs,
'Midst the cities' rush and rumour,
And fret o'er the cares of the world affairs
And the woes of the poor consumer.
But I don't envy such gilded ease;
Just give me the salt-soaked ocean breeze,
The lift and surge of the white-capped seas,
And the deck of a halibut schooner.

I want no fuss with the pale-faced cuss,
The clerk or piano tuner,
Who spend their lives in those stifling hives
In the struggle for more mazuma.
But give me the windswept ocean's space
Where the "flat ones" flop in the dory's waist
And the salt scud whips in your upturned face
As you pull for the side of the schooner.

Yes, give me a packet that's sound and tight
And a skipper with guts to boom her,
Up under the heel of the Northern Lights
Where the grey seas strive to doom her.
Through the grinding ice, where the ground lines freeze,
Through the howling gales and the pounding seas-
For it's into such tranquil spots as these,
You must drive with a halibut schooner.

We earn what we get, you may lay to that
Though we sometimes "pull a boner";
For the weather that's brewed off Yakutut,
It can change like a woman's humour.
When the "queer thing" flies to the schooner's truck,
We slash our gear and damn our luck,
For we've time for naught but to cut and duck
For safety, aboard the schooner.

And then, when our schooner is safe in port,
And we land in a boisterous humour,
We thank the gods that our stay is short
And wish we were leaving sooner.
We're rough and we're coarse and we're loud-what then?
We're the salt of the earth; we're dorymen
And tomorrow night we'll be off again
To the banks in a halibut schooner.

METRIC CONVERSIONS

OUNCES	GRAMS
1	28.350
2	56.699
4	113.398
6	170.097
8	226.796
12	340.194
16	453.592
24	680.388
32	907.184

POUNDS	KILOGRAMS
1	0.454
2	0.907
3	1.361
4	1.814
5	2.268
7	3.175
10	4.536
15	6.804
16.5	7.484
20	9.072
22	9.979
25	11.340
40	18.144
50	22.680
60	27.216
80	36.287
100	45.359
150	68.039
1,000	453.592

Historical Notes

A.K. Larsen: "I found a typewritten copy of 'The Doryman' in a locker I was cleaning out on joining the diesel schooner Aleutian *in 1939. I showed it to the rest of the crew but they knew nothing of its origin." (Interview by PJT, May 30 1974). M., PJT.*

This is a song describing the life of halibut fishermen, dating from the 1920s. Halibut schooners would sail from ports on the west coast up to the halibut grounds off the coast of Alaska. Small boats or "dories" would be put down and the dorymen would row out. Since the halibut is a bottom fish, the dorymen would drop "long lines" of two thousand feet with baited hooks nine feet apart, so that the line sat on the bottom.

Each end of the long line had a rope attached on the surface to a buoy to mark it. Verse 2: "...mazuma..." was a slang term for money. Verse 3: "...packet..." was a sailor's name for a ship. Verse 4: "...queer thing flies to the schooner's truck..." meant the ship's lookout would be able to see bad weather coming faster than the doryman, in which case, a "queer thing" (anything unusual and inappropriate, such as a basket) would be hoisted to the top mast. When the dorymen saw the "queer thing," they would cut their lines and row for safety back to the schooner.

Wild, Natural & Sustainable®

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