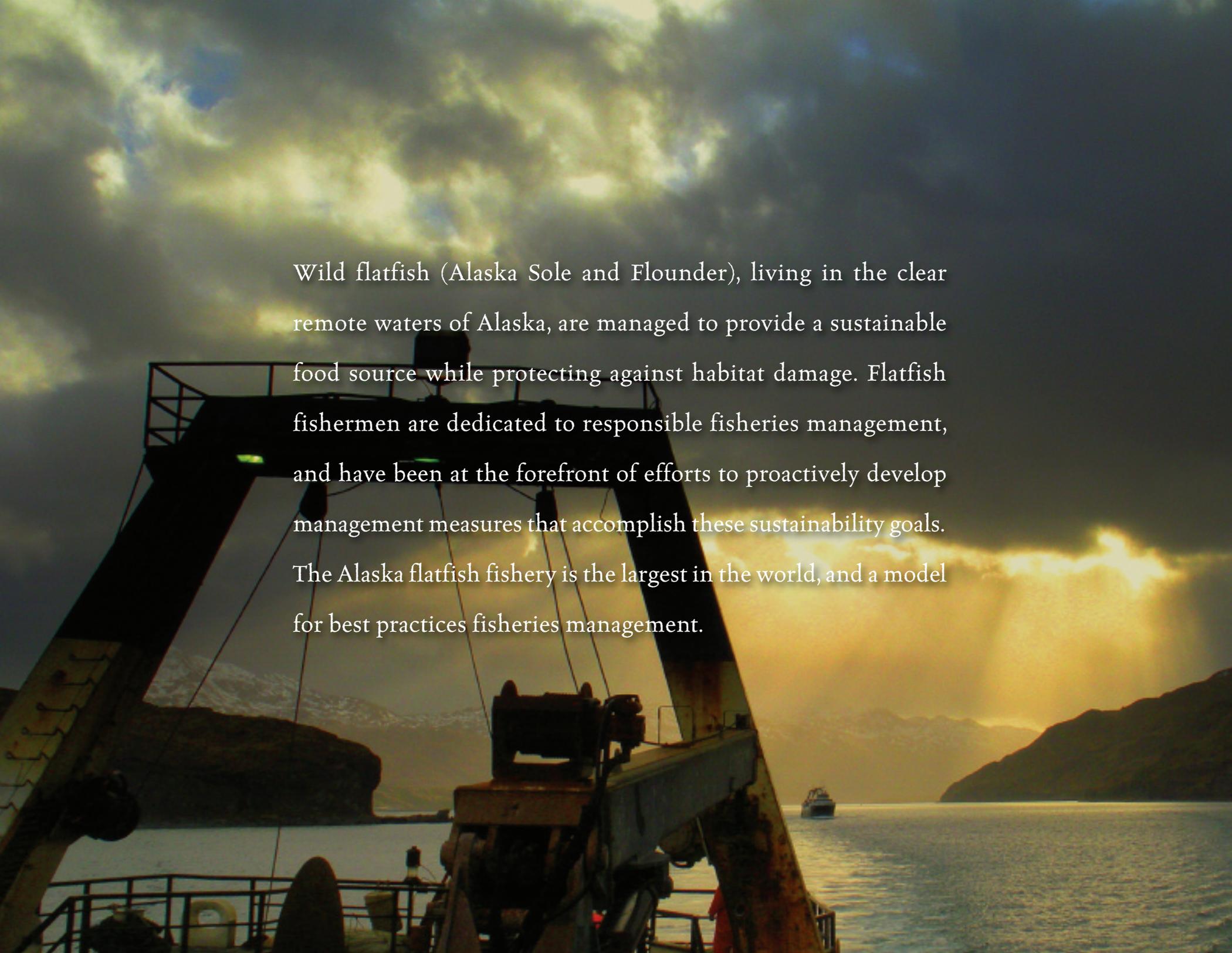


A fishing vessel is shown from a rear-quarter perspective, moving across a body of water. The vessel is dark with a white superstructure and features two large, angled outrigger cranes. The background consists of a range of mountains under a sky filled with large, textured clouds. The lighting is warm and golden, suggesting a sunrise or sunset. A semi-transparent rectangular box with a thin border is centered in the upper half of the image, containing the title text.

SUSTAINABLE ALASKA  
SOLE & FLOUNDER

The image shows a fishing vessel at sea during a dramatic sunset or sunrise. In the foreground, the dark silhouette of a large crane or derrick structure is prominent, with several cables hanging down. The sky is filled with heavy, dark clouds, but a bright sun is breaking through on the right side, creating a golden glow and illuminating the water's surface. In the distance, a small boat is visible on the horizon, and the background features dark, silhouetted mountains. The overall atmosphere is one of quiet industry in a vast, natural setting.

Wild flatfish (Alaska Sole and Flounder), living in the clear remote waters of Alaska, are managed to provide a sustainable food source while protecting against habitat damage. Flatfish fishermen are dedicated to responsible fisheries management, and have been at the forefront of efforts to proactively develop management measures that accomplish these sustainability goals. The Alaska flatfish fishery is the largest in the world, and a model for best practices fisheries management.

## ALASKA FLATFISH A MULTI-SPECIES FISHERY

The flatfish fishery is currently conducted in two separate management areas: the Bering Sea/Aleutians Islands (BSAI) and Gulf of Alaska (GOA). These fish prefer the sandy, flat bottoms of the Bering Sea shelf and similar areas of the Gulf of Alaska. The BSAI flatfish fishery, which accounts for most of the catch, is almost entirely conducted by catcher processors. Catcher processors utilize onboard equipment to process and freeze catch within several hours of harvest, providing a fresh, frozen-at-sea product. These vessels range in size from 110 to 300 feet, and carry crews of up to 50.

The GOA fishery is a combination of catcher vessels and catcher processors. Catcher vessels are generally smaller than their catcher processor cousins and carry 4 or 5 crew members.

	BERING SEA/ALEUTIAN ISLANDS (BSAI)	GULF OF ALASKA (GOA)
VESSELS	Catcher Vessels & Catcher Processors	Catcher Vessels & Catcher Processors
PROCESSING	At-Sea	At-Sea and on shore at Kodiak, King Cove, and Sandpoint
SPECIES	Yellowfin sole, northern rock sole, arrowtooth flounder, flathead sole, Alaska plaice, Greenland turbot	Arrowtooth flounder, northern and southern rock sole, flathead sole, rex sole
VOLUME	250,000 mt	40,000 mt

## ALASKA FLATFISH SPECIES



YELLOWFIN SOLE



NORTHERN ROCK SOLE



ARROWTOOTH FLOUNDER



FLATHEAD SOLE



ALASKA PLAICE

In 2010, 95% of the total Alaska flatfish catch was comprised of the following five species: yellowfin sole, northern rock sole, arrowtooth flounder, flathead sole, and Alaska plaice. Other commercially available flatfish are Greenland turbot, rex sole, butter sole, Dover sole and starry flounder.

- **Yellowfin Sole** (*Limanda aspera*) is the largest flatfish fishery in the United States. The waters off Alaska produce the majority of the worldwide yellowfin sole catch. It is harvested in the Bering Sea throughout the calendar year, with most taken March-May and August-October.
- **Northern Rock Sole** (*Lepidopsetta polyxystra*) Alaska accounts for the majority of the worldwide harvest of northern rock sole. Rock sole is mainly harvested from January-April when the fish are found in schools. Most of the northern rock sole is harvested by catcher processors in the BSAI. It is also caught occasionally by catcher vessels and catcher processors in the GOA.

- **Arrowtooth Flounder** (*Atheresthes stomias*)/ **Kamchatka Flounder** (*Atheresthes evermanni*) Until recently, harvest of arrowtooth flounder mainly occurred as bycatch in other higher valued fisheries. However, with the advent of technologies to improve meat quality and additional markets for arrowtooth flounder, a directed fishery has evolved. Arrowtooth flounder is currently the most abundant groundfish species in the GOA, and most of the world's arrowtooth flounder comes from Alaska fisheries. Arrowtooth/Kamchatka is mainly harvested May-August.
- **Flathead Sole** (*Hippoglossoides elassodon*) Alaska is responsible for the majority of U.S. flathead sole catch. Flathead sole is harvested throughout the calendar year by catcher processors in the BSAI and by a combination of catcher processors and catcher vessels in the GOA.
- **Alaska Plaice** (*Pleuronectes quadrituberculatus*) has generally been lightly harvested throughout the year, and is retained in other higher valued fisheries. However, since BSAI flatfish species management changed in 2008, Alaska plaice retention has increased, and markets have been developed.

SPECIES	2008-2010 AVERAGE CATCH	2008-2010 AVERAGE QUOTA	PRODUCTS	SIZE
<b>YELLOWFIN SOLE</b>	125,021 mt	218,000 mt	H&G (headed and gutted), whole round, and kirimi (fish slices)	General H&G size 130-450 grams, whole round 200-700 grams
<b>NORTHERN ROCK SOLE</b>	51,048 mt	85,000 mt	H&G, H&G with roe in, and whole round	General H&G size 150-500 grams, whole round 230-800 grams
<b>ARROWTOOTH/ KAMCHATKA FLOUNDER</b>	BSAI: 30,548 mt GOA: 26,188 mt	BSAI: 75,000 mt GOA: 43,000 mt	H&G and H&G without tail (H&G/T)	General H&G/T size 500-2500 grams, whole round 750-3500 grams
<b>FLATHEAD SOLE</b>	32,296 mt	60,307 mt	H&G and H&G with roe in	General H&G size 180-750 grams
<b>ALASKA PLAICE</b>	15,829 mt	50,000 mt	H&G and whole round	General H&G size 350-1000 grams, whole round 500-1500 grams





## ALASKA FLATFISH FISHERY MANAGEMENT

Many of the challenges faced by flatfish harvesters in other parts of the world have been addressed in Alaska by the robust management system.

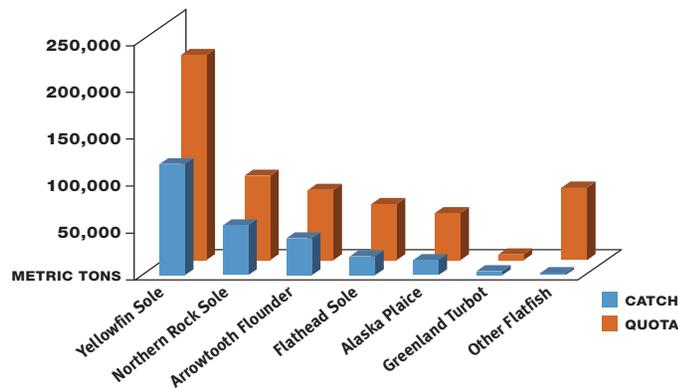
Alaska flatfish fishermen are dedicated to responsible catch methods, and have participated in scientific studies to avoid or reduce unwanted bycatch. Fishermen have cooperated with researchers to develop modified trawl gear that has less impact on the bottom. Their goal is a sustainable fishery that can provide a source of healthy protein for future generations.

- **Collaboration and Transparency.** The North Pacific Fishery Management Council (NPFMC or Council) has management authority for all non-halibut flatfish resources off Alaska. The Council is bound by law under the Magnuson-Stevens Act to ensure sustainable flatfish stocks through a conservative approach to fisheries management. The Council works collaboratively with the National Marine Fisheries Service (NMFS), the

State of Alaska, other government agencies, the International Pacific Halibut Commission, the fishing industry, environmental interests, and the general public to develop and implement sustainable harvest strategies. The Council process is transparent, and provides ample opportunity for input from all stakeholders and interested parties.

- **Precautionary Science.** Alaska has pioneered a science-based precautionary approach to fisheries management. Scientists provide the Council with Acceptable Biological Catch (ABC) limits that ensure robust and sustainable biomass levels into the future. The Council then sets annual Total Allowable Catch (TAC) levels, which never exceed the ABC amounts, and ensures a conservative harvest level.

## BSAI FLATFISH CATCH VS QUOTA 2010



- Bycatch Reduction.** Salmon, herring, Tanner crab, king crab, and halibut are identified as fully utilized by other non-flatfish fleets. To create incentives to avoid catching these species, the Council has designated them as “prohibited” and required that they be returned to the sea. In the flatfish fishery, there are established prohibited species caps (PSC). NMFS managers close fisheries when these PSC limits are reached.

Because halibut must be returned to the sea and catching halibut in trawl nets limits opportunities for other flatfish target fisheries, fishermen look for opportunities to reduce halibut bycatch. Fishermen work collaboratively on the fishing grounds to identify, and communicate areas of high halibut abundance so that the fleet can avoid these areas. Where halibut cannot be avoided, industry has developed “excluders” consisting of a flap, grid, or other device built into the net. Excluders take advantage of natural halibut behavior to allow halibut to avoid capture in the net.

- Ecosystem Considerations.** Each year, scientists make progress on understanding the ecosystem. NMFS scientists annually report on these findings so that the Council may take appropriate management

measures to reduce fishing effects. Better understanding ecosystem components and maintaining the viability of these components are steps towards the goal of ecosystem-based management. The Council has a long track record of identifying habitats necessary for sustainable propagation of all forms of marine life, and protecting those areas through establishment of Marine Protected Areas (MPAs). Alaska’s MPAs are some of the most extensive in the world. For more on MPAs, go to <http://sustainability.alaskaseafood.org/resources-and-tools>.

The Council also established the Northern Bering Sea Research Area (NBSRA), closing that area to all non-pelagic trawls. The NBSRA is a pristine area of the arctic that has seen relatively little fishing. As ocean temperatures warm, fish stocks are showing evidence of a northward migration. The NBSRA represents a unique opportunity to understand fishing effects. NMFS, the Council, western Alaska community representatives, and the fishing industry are collaborating in an unprecedented effort to develop a research plan to understand this unique area. Only after conducting this research would the Council allow fishing.





• **Allocation as a Conservation Tool.** Prior to 2008, the BSAI trawl flatfish fleet was engaged in a “race for fish,” competing against each other for larger portions of quota limits. The race for fish resulted in inefficient fishing practices and in prematurely reaching PSC limits, in many cases prior to reaching flatfish TACs.

In 2008, the Council ended the race for fish in the BSAI by providing for annual allocations of several species, and the formation of harvesting cooperatives. Allocated species include yellowfin sole, flathead sole, northern rock sole, Pacific cod, Atka mackerel, and Pacific ocean perch, as well as PSC limits for king crab, Tanner and snow crab, and halibut. Discards have been reduced substantially due to retention requirements and the new co-op management system. Over 90 percent of all groundfish caught in this multi-species fishery are retained.

Allocating quota to cooperatives allows them to internally distribute quota limits based on what makes sense for the cooperative. Member vessels can slow operations, focus on product quality, avoid high bycatch areas, and focus on changes to gear that improve efficiencies and reduce environmental effects.

• **Monitoring.** To ensure accurate catch accounting, the Council, NMFS, and industry collaborated on development of one of the most robust fishery monitoring programs in the world.

- Two federally certified observers per vessel, ensuring that nearly all hauls are sampled.
- Motion-compensated scales to ensure accurate observer sample weights despite the vessel’s motion at sea.
- Flow scale for weighing the entire catch. These devices are placed under a conveyor for moving catch from one area to another, and give accurate weights of total catch.
- Designated observer sampling station, electronic or visual options for monitoring the flow of catch through the vessel, and other catch monitoring tools.
- Vessel Monitoring System (VMS). VMS allows NMFS enforcement officers to ensure vessels only fish in open areas.





## ALASKA INDUSTRY TRAWL GEAR INNOVATION

Flatfish trawl gear has evolved significantly in the last 20 years, and is no longer the large heavy gear formerly used by the foreign fleets, and currently used in other parts of the world. Today's gear is lighter, leaves less of an environmental imprint, and incorporates innovations to target marketable species while also reducing unwanted bycatch such as halibut and crab.

Fishing industry representatives and NMFS scientists collaboratively developed **Bering Sea Flatfish Trawl Gear**.

Beginning in 2011, all Bering Sea flatfish vessels were required to utilize Bering Sea Flatfish Trawl Gear. This gear uses devices that raise the trawl sweeps off the bottom, nearly eliminating impacts to the seafloor. The sweep

portion of the Bering Sea Flatfish Trawl Gear represents 90 percent of the area fished. Because trawl sweeps are elevated and prevented from contacting the seafloor, their impact is reduced by 90 percent. Research conducted by NMFS scientists indicate that effects to sea stars, sea whips, and other seafloor dwelling invertebrates has been reduced, and effects to Tanner and king crabs has been reduced to nearly zero. Some vessels are also using "flying" pelagic doors which are not in regular contact with the sea floor.

The GOA fleet is currently working with NMFS scientists to understand the feasibility of using this modified trawl gear in the deeper, harder bottom areas typical of the GOA.





Alaska flatfish are a high-quality sustainable seafood resource. The excellent flavor and texture of these whitefish are appreciated around the world. For more on flatfish fishery management visit the Council website at [www.fakr.noaa.gov/npfmc/](http://www.fakr.noaa.gov/npfmc/)

More information on Alaska's sustainable fishery management, flatfish identification and whitefish buyers guidance is available from the Alaska Seafood Marketing Institute. Please contact us at 800-806-2497. Or visit [www.alaskaseafood.org](http://www.alaskaseafood.org)



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