Fisheries Industry of Miyagi

MIYAGI PREFECTURE

Introduction

Oceans and rivers are called the mother of life on Earth, giving birth to and raising an abundance of food products. This pamphlet introduces the fisheries industry of Miyagi Prefecture, which is blessed with bountiful bodies of water. By highlighting Miyagi's initiatives for continuously producing delicious seafood products as well as the fishing and aquaculture industries, we hope that many people will be able to enjoy seafood from Miyagi.

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On April 13, 1992, the "Top Ten Fish in Miyagi" list was established to help promote Miyagi Prefecture's fisheries industry by widely publicizing Miyagi's seafood products, improving the reputation of Miyagi's fisheries industry, and increasing the demand for seafood products.



Tuna (maguro)

Well-known for being used in sashimi and sushi. Popular overseas for being healthy, it is also used in western-style dishes.



Skipjack (katsuo)

The symbol of the Kinkasan fishing ground, where warm and cold corrents converge. While the first catch of skipjack in spring is a well-known seasonal dish, it is also delicious in the autumn when it is richer and fattier



Pacific saury (sanma)

Rich in flavor and known as a symbol of autumnal cuisine. Loved by locals for generations, saury is also known for being healty and full of minerals and vitamins.



Coho salmon (ginzake)

Utilizing the calm bays of the rias coastline, Miyagi is the first prefecture in the country to successfully farm coho salmon. Recommended for use in sashimi, marinated dishes, and meuniere.



Flounder (karei)

The expansive sandy areas of Sendai Bay are the perfect living environment for flounders. They have been a local favorite for many years.



Abalone (awabi)

With its sophisticated ocean-like aroma and tenderness, abalone embodies the taste of the Minamisanriku sea. Known for being steamed, grilled, and used in sashimi.



Goby (haze)

Catching gobies is a typical autumn sight in Matsushima Bay. Grilled gobies are prized for being used as the stock for Sendai-zoni, a soup traditionally served during Japanese New Year.



Sweetfish (ayu)

Known as the "queen of clear waters", sweetfish can be caught even in the rivers of metropolitan Miyagi. Salt-grilled sweetfish is a delicious dish that highlights the fragrance and exquisite form of the fish.



Pacific oyster (kaki)

The history of oyster farming in Miyagi dates back to the end of the Edo period. In addition to having a rich flavor, oysters are called the "milk of the ocean" for their highly nutritious content.



Sea squirt (hoya)

Also called sea pineapple because of its pineapple-like appearance. Known for having a subtle, sweet flavor that allows you to enjoy its unique scent and qualities, sea squirts can be enjoyed in a variety of ways such as sashimi, vinegared dishes, and Chinese-style cuisine.



Every season, Miyagi is one of the first prefectures in the country to produce nori. With a history dating back to the Meiji period, nori farms are a traditional sight from autumn to winter. Nori is also known for being healthy due to its high nutritional content.



Seaweed (wakame)

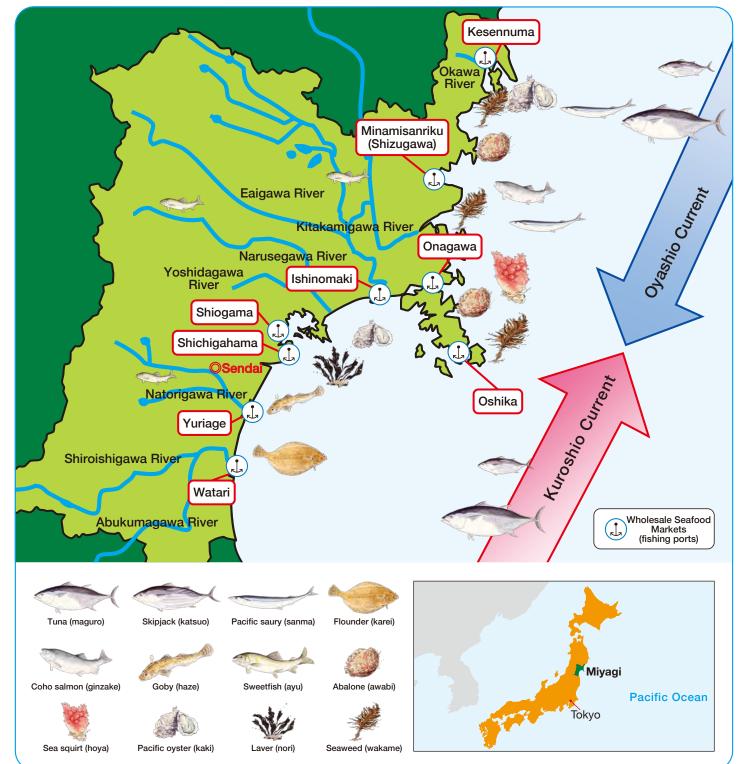
Miyaqi is a leading domestic producer of wakame, which is known for being used in a variety of dishes. Recently, wakame has received attention for being rich in minerals and has become popular with younger generations as the "salad of the sea".

Characteristics of Miyagi's Fisheries Industry

Miyagi Prefecture is considered to be one of the country's leading prefectures in the fisheries industry. With Oshika Peninsula jutting out from the center, a jagged rias coastline lining the north, and flat sandy coasts located in the south, Miyagi has a diverse range of geographical features. The fishing industry is also booming with cultivation of laver, oysters, seaweed, sea squirts, scallops, and coho salmon as well as gillnetting and trawling of salmon, cod, and flounder.

In addition, the coast of Miyagi is highly abundant due to the collision of the Oyashio and Kuroshio currents, and the Kinkasan-Sanriku fishing grounds are considered one of the three largest in the world.

Furthermore, there are 142 fishing ports and 9 wholesale seafood markets. In particular, Kesennuma, Minamisanriku, Ishinomaki, Onagawa, and Shiogama are considered to be bases for coastal, offshore, and distant water fishing. These areas also play an important role in the fisheries industry as bases for distribution such as wholesale markets, as well as processing facilities.



2 Recovery from the Great East Japan Earthquake

When the Great East Japan Earthquake occurred on March 11, 2011, all aspects of the fisheries industry as well as distribution and processing facilities in coastal areas were severely damaged.

As a result, many fishermen and distribution and processing businesses lost their bases of production and operation, causing a significant drop in overall production of fresh seafood and processed seafood products. With support from a variety of sources such as the national government and the private sector, members of the fisheries industry are working together towards recovery.

Damage from the Great East Japan Earthquake





Kesennuma Fishing Port



Ishinomaki Fishing Port



Shiogama Fishing Port

Onagawa Fishing Port

Removal of Debris from Sea Routes and **Fishing Grounds**

The large amounts of debris left behind in ports, sea routes, and fishing grounds were preventing ships from coming in and going out to sea and fishing operations from resuming operations. As a result, experts and fishermen have been making progress on retrieving objects.





Retrieval of a sunken ship

Retrieval of an oil tank

Restoration of Markets and Seafood Processing

Damaged wholesale markets were rebuilt to include advanced sanitation capabilities. Additionally, construction on refrigeration facilities, ice storage facilities, and seafood processing factories is in progress in order to provide more of Miyagi's delicious seafood and processed products.



Seafood processing factory



Shiogama Fish Market

Restoration of Fishing Ports

All 142 fishing ports in Miyagi were damaged. In order to restart fishing operations such as boat moorings and fish landings, construction on ports and port-related facilities is in progress.





Onagawa Fishing Port

Ishinomaki Fishing Port

Restoration of the Fishing and Farming Industries

In general, construction has been completed on any shared facilities that requested restoration, including fishing vessels, farming facilities, and oyster processing plants.



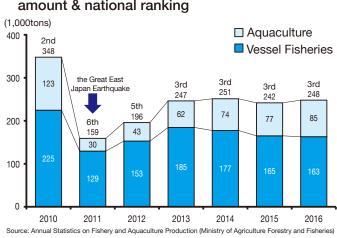
Fishing vessel built after the disaster Sea squirt harvesting



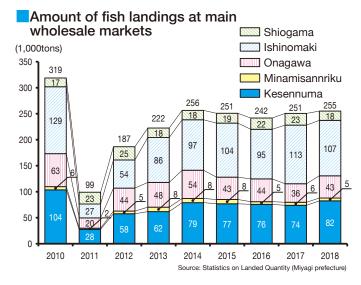
Statistics of Miyagi's Fisheries Industry and Recovery

Miyagi had the second largest fisheries industry production volume in the country following Hokkaido and the fifth highest fisheries industry production value up until 2010, right before the Great East Japan Earthquake. While the production volume dropped significantly due to the disaster, restoration of distribution and processing facilities such as fishing vessels, aquaculture systems, and fish markets has made progress. In 2016, Miyagi had the fifth highest fisheries industry value in the country, marking a return to pre-disaster figures, as well as the third largest fisheries industry production amount.

(Unit ton)



Trend of fisheries industry production amount & national ranking

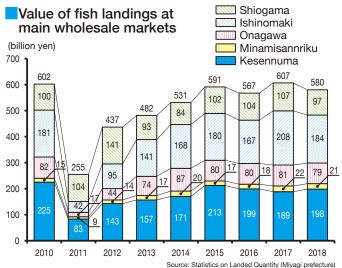


Production status of main fish species

		•			(01111-101
0010	2014	0015	0010	Nationa	ranking
2013	2014	2015	2016	2010	2016
19,173	21,356	20,531	19,258	2nd	2nd
3,435	3,293	3,375	3,435	1st	1st
6 20,743	16,575	19,828	16,275	3rd	4th
14,083	15,603	16,088	16,686	1st	1st
3 22,412	29,994	15,641	14,562	2nd	2nd
7 987	1,465	1,644	1,015	7th	2nd
2 1,296	1,827	1,926	3,804	10th	2nd
17,040	18,447	14,410	7,965	3rd	4th
2,831	3,582	3,319	2,192	6th	3rd
7 537	449	418	363	9th	3rd
9,076	8,066	6,773	4,995	4th	7th
66	173	518	662	32th	1th
13,032	9,923	12,845	8,055	2nd	2nd
6 135	×	112	145	2nd	2nd
5 359	434	407	460	3rd	4th
					359 434 407 460 3rd rtaining to persons, corporations or other organizations

Source: Annual Statistics on Fishery and Aguaculture Production (Ministry of Agriculture Forestry and Fisheries)

Trend of fisheries industry production value & national ranking (billion yen) Aquaculture 1,000 Vessel Fisheries 5th 5th 5th 777 800 760 the Great East 737 5th lapan Earthquake 669 5th 253 233 206 600 571 7th 196 9th 500 133 438 107 53 400 200 0 2010 2011 2012 2013 2014 2015 2016 Source: Total Fishery Output (Ministry of Agriculture Forestry and Fisheries)



Production amount of main processed seafood products & national ranking

	· · ·		2010		2017					
Name o	Name of product		Production amount	National ranking	National production amount	Production amount	National ranking			
Fish paste products	Fish cake products	468,830	50,115	1st	444,116	34,425	3rd			
Frozen food	Fish and shelfish	153,346	7,508	5th	128,249	11,767	3rd			
products	products Precooked seafood products		23,458	1st	120,194	18,623	1st			
Salted products	Salmon and trout	93,115	10,490	3rd	83,813	5,511	5th			
Salled products	Cod and Alaska pollock		5,228	1st	11,876	8,912	1st			
Other processed	Salted squid guts	21,331	6,347	2nd	12,324	2,992	2nd			
products	Pickled seafood foods	63,598	9,888	2nd	57,742	8,259	4th			
Fresh frozen products	All types of fish and shellfish	1,539,592	252,730	2nd	1,366,166	161,106	3rd			

Source: Statistical Survey on Processed Fishery Products (Ministry of Agriculture Forestry and Fisheries

(Unit:ton)

Ostational Structures Structures Structures Miyagi's Processed Seafood Products

From many years ago, Miyagi Prefecture has been one of the major producing area for processed seafood products due to its abundant ocean resources. Let's enjoy the processed seafood products that Miyagi Prefecture is proud of.

Fish cake (kamaboko) products

Fish cakes are made with minced fish and packed with flavor and protein. The fish surimi is prepared through various methods such as steaming, grilling, boiling, and frying, resulting in fish cakes with a diverse range of shapes, flavors, and textures.



Canned fish

Miyagi has a rich variety of canned products using mackerel, saury, and oysters that are seasoned with soy sauce, salt, and miso.



Pollock roe (tarako)

Made by salting Alaskan pollock roe, tarako can be enjoyed with rice or mixed in pasta sauce.



Sea squirt (hoya)

Miyagi is the largest producer of sea squirt in the country. Known as a summer delicacy, it is commonly available as a steamed or salted product.



Dried laver (nori)

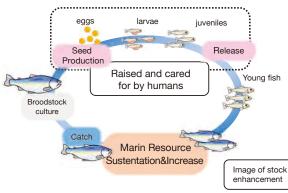
Dried laver is made by cutting laver and laying them out into paper-like sheets to dry. Used mainly in sushi rolls and rice balls.



Stock Enhancement

Stock enhancement, also known as fish-farming fisheries, is the process in which aquatic life (marine resources) is sustained and expanded by raising and caring for fish between the egg and juvenile stages, when they are most vulnerable, and releasing them into the ocean once they are able to protect themselves from predators.

In Miyagi, the seeds of ezo abalone, spotted halibut, Japanese halibut, and ark clam are released into water.



Ezo abalone (ezo-awabi)

Ezo abalone from Miyagi is known as a luxury ingredient and can be harvested in rocky areas north of Shichigahama Town. They are released at around 3cm and harvested over 9cm after four years.



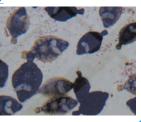
Japanese halibut (hirame)

Japanese halibut can be caught throughout the prefecture by trawling or gillnetting. Initially 6cm in length when released as artificial juveniles, they typically grow to over 30cm two years after release.



Spotted halibut (hoshi-garei)

With its exceptionally delicious white meat, this high-class species is known to sometimes surpass other types of flatfish. It is caught by trawling or gillnetting, and is exquisite when served as sashimi.



Ark clam (akagai)

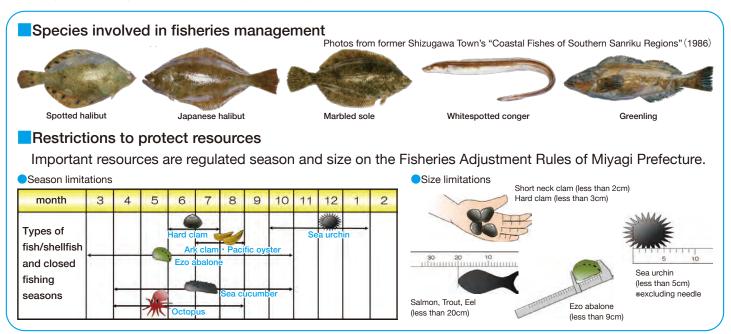
Ark clams are scattered across sea floors up to 50m below water level from southern Hokkaido to Kyushu, and are caught using dredge nets. The clams in Sendai Bay are used in sushi and sashimi.



Fisheries Resources Management

"Marine resources" refers to fish and shellfish that live in the sea. The act of managing the amount and size of landings in order to conserve sustainable resources is called "fisheries management."

Fisheries management efforts include size limitations to prevent overfishing of smaller species and closed fishing periods to protect fish during breeding season.



6 Main Fisheries in Miyagi

Distant water Fishery

Using large vessels (100 tons or more) employing many crew members, distant water fishing can take months to complete away from Japan. Methods include longlines for tuna and trawl nets.

Offshore Fishery

Using vessels larger than those used for coastal fishery (10 tons or more), offshore fishing involves several days of fishing at a time. Stick-held dip nets for pacific saury, surrounding nets, bottom trawl nets, and squid jigging are the main methods used.

Longline Fishery

Baited hooks on ropes are evenly spaced on and hang down from the mainline, which is kept on the surface. Tuna, swordfish, and sharks are lifted up and caught through this method.



Stick-held dip net Fishery

Using fish-luring lights, fish are gathered near the surface of the water and scooped out with a pre-arranged, underwater net.



Coastal Fishery

Using small vessels (less than 10 tons), fish and shellfish that are close to shore are caught. Gill nets, small-scale trawl nets, and set nets are used.

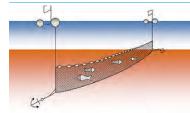
Set Net Fishery

A hedge net blocking the path of the fish is installed, leading them into another net from which they cannot escape once having entered.



Gill Net Fishery

A net is placed in the path of the fish, causing them to get tangled in the mesh. This method is used on a diverse range of species.







Tuna (maguro)

In Miyagi, Shiogama Fishing Port is famous for tuna landings. An abundance of bluefin and bigeye tuna is caught during summer and fall, respectively. Among these, bigeye tuna landed in Shiogama Port deemed to have excellent freshness, color, fattiness, and flavor are sold as "Higashimono," a brand well-known across the country.

Mackerel (masaba)

Near the Sanriku-Kinkasan fishing grounds, set nets, pole-and-line fishing, and purse seine nets are used to catch mackerel. High-quality mackerel landed between October and November at Ishinomaki Fish Market that meet a certain level of freshness, fattiness, and size are branded as "Kinka mackerel." Processed products using Kinka mackerel are very popular.

Skipjack (katsuo)

Kesennuma Fish Market is among the top producers of fresh skipjack in the country. Depending on the season it is caught, the flavor of the skipjack can differ. For example, skipjack caught from June to August is called "hatsu-gatsuo" and has a lighter taste, while skipjack caught from September to November is called "modori-gatsuo" and is fattier and richer in flavor.

Pacific saury (sanma)

Pacific saury, which is caught with stick-held dip nets from September to November, is a seasonal food that best represents autumn. In Miyagi, Kesennuma Fish Market and Onagawa Fish Market have a large amount of landings. Fresh, fatty saury is delicious when served as sashimi or shioyaki (salt-grilled).

Japanese halibut (hirame)

Halibut can be caught in all regions of Miyagi through gill nets and bottom trawl nets. While halibut is available throughout the entire year, it is particularly fatty and delicious in the winter. Known as a high-class white fish, halibut is popular in sashimi and sushi.











Mariculture

This branch of aquaculture involves placing a raft in calm seawater by the shore, installing a tank, and raising and cultivating fish, shellfish, and seaweed. In Miyagi, laver, oysters, coho salmon, seaweed, kelp, sea squirts, and scallops are farmed using this method.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pacific oyster (magaki)		Produ	uction s	eason								



Aquaculture Stewardship Council (ASC) Certification

As a result of the recent focus on sustainable marine resources, the Aquaculture Stewardship Council (ASC) certification system was established to recognize aquaculture and seafood producers that take the regional society into consideration while minimizing the burden on the environment. In Miyagi, oyster farming in Minamisanriku Town and Ishinomaki City has acquired ASC certification, thus raising expectations that Miyagi oysters will be able to enter new markets.

Also called "the milk of the ocean," oysters are particularly flavorful from winter to spring and are rich in glycogen (a type of nutrient). The history of oysters in Miyagi is long, dating back to approximately 300 years ago when cultivation first began in Matsushima Bay. Miyagi oysters are known for primarily being distributed to be eaten raw. Additionally, since a stable supply of seed oysters is available in Miyagi, seed oysters are distributed from Miyagi to other producers throughout the entire country.



Oysters with shell

Oyster hot pot Also includes vegetables and tofu. Best when served in winter, when oysters are in season.



Grilled with butter soy sauce Also pairs well with butter and soy sauce.





Feb Apr May Jun Jul Aug Oct Dec Jan Mar Sep Nov Production season



Coho salmon (ginzake)

First Registered Geographical Indication (GI) Product in Miyagi \sim Miyagi salmon \sim

"Miyagi salmon" is a high-class brand of coho salmon that has been killed using the "ikejime" method. In May 2017, it became the first marine product in Miyagi to become GI-registered. By using the ikejime method on Miyagi salmon as soon as they are caught, the delicious flavor of the fish is retained. With its beautiful pink appearance, rich fat content, and depth of sweet and savory flavor, Miyagi salmon is well-regarded as an excellent choice for sashimi.

In 1975, farming of coho salmon began in Shizugawa Bay and has since spread to the central northern region of the prefecture. Miyagi is the largest producer of coho salmon in Japan and accounts for 90% of total domestic production. The juvenile are raised in freshwater farms and moved to the ocean in the fall when they have grown to about 200g. From there, the salmon grow rapidly and begin to be shipped out by spring the following year when they are around 1kg. By early summer, they typically weigh 2- 3kg.



Sashimi Coho salmon are in season in the summer. Mivagi salmon is fatty and fresh, making it perfect as sashimi.

農林水産大臣登録第31



Temarizushi You can eat this sushi with one hand. Due to its elegant appearance, it can also be served at parties.



Miyagi salmon sashimi

Logo of Miyagi salmon and GI mark *GI is the name given to agricultural or marine products that have been produced in a certain region for a long time, are high-quality, and can be linked back to their geographical origin. GI-registered products are recognized as regional brand products and are protected as intellectual property by the national government.

Laver (nori)		Feb	Mar Iction se	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
In Miyagi, nor during the Ec central and s around 1955	lo perio outheri , adva	ation be d and n regio nces i	egan in eventu ns of ti n artifie	Keser ally spr he pret cial se	read to fecture eding	the By and			wrappi	le dish m ng ingreo ri. Enjoy	ade by lients in r the pleas	
an overall dra processing is	niques led to open sea nori farming and amatic increase in nori production. Nori s now mainly automatized, allowing for on of uniformly delicious dried nori.								You ca like tun	a, place	ingredie them on into sush	rice,

Feb Mar Apr

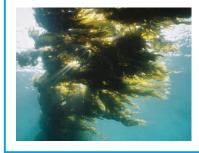
Production season

May

Mar Apr May Jun

Jun

Seaweed (wakame)



In 1956, with the successful start of mass sporeling production, wakame cultivation using longlines began in Onagawa Town. Wakame cultivation is now a major industry in all coastal areas north of Oshika Peninsula, with Miyagi ranking second after Iwate in domestic production.

Jan Feb

Jan



Jul

Aug

Sep

Wakame shabu-shabu hot pot

Oct

Nov

Dec

Dipping raw wakame into the stock turns it to a vivid green. Enjoy the crisp texture!

Wakame pasta

Sep Oct

Steamed

unique taste.

Jul Aug Sep Oct Nov Dec

Grilled with butter

You can also eniov wakame in sov-sauce flavored. Japanese style pasta.

Nov Dec

Sea squirt (maboya)



Cultivation of sea squirts, which takes place in all coastal areas north of Oshika Peninsula, takes 3 to 4 years from seeding to harvest. Seed collection takes place from December to January, and harvesting takes places from the beginning of spring through summer. In Miyagi, sea squirt also named sea pineapple for its prickly appearance. Sea squirt, which are in season during the summer, are delicious when served as sashimi, with vinegar dressing, or as a processed delicacy.



Jul

Production season

Production season

Aug



Stir-fried in garlic oil The sea squirt is also delicious when cooked. Perfect for those who don't like raw seafood.

Cut in half while still shelled

and then steamed with sake.

this method highlights its

Scallop (hotategai)



Considered the southernmost limit for scallop cultivation, Miyagi is the largest producer following Hokkaido and Aomori. Primarily cultivated through ear-hanging, scallops grown in the nutrient-rich Sanriku coast are large and plump. Considered to be of high quality, Miyagi scallops are in demand to be used raw in dishes.

Jan Feb Mar Apr May Jun



Scallop salad Scallops also pair perfectly with vegetables. Any type of

Seasoned with butter and soy

scallops pairs well with butter.

sauce, the savory taste of

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kelp (makombu)				Produ	iction s	eason						



While Hokkaido may be famous for kelp, Miyagi has also been cultivating it since 1965, mainly in Kesennuma Bay and Matsushima Bay. Miyagi kelp is known for its soft leaves, making it perfect to be served sliced or in oden.



Fish such as salmon or saury are wrapped in kelp and simmered in sweet seasoning. This dish is common in traditional Japanese New Year food.

Oden

The kelp is wrapped into a knot before being simmered in oden, a hot pot dish. The savory flavor of kelp enhances the flavor of the broth.



\sim Main Wholesale Markets in Miyagi \sim

Kesennuma Fish Market, Ishinomaki Fish Market, and Shiogama Fish Market are the main wholesale markets in Miyagi and are considered to be some of the leading markets for fish landings.

In order to maintain markets with advanced sanitation capabilities that meet the safety and security needs of consumers, various efforts to eliminate potential risks such as food poisoning are being implemented.

Kesennuma Fish Market

Located in the northernmost part of the prefecture, Kesennuma Fish Market has one of the largest number of landings in Japan due to the close proximity of the abundant Sanriku fishing ground and Kesennuma Bay, which has calm waters suitable for cultivation. In particular, many types of skipjack, tuna, swordfish, pacific saury, and sharks are caught.



(Ishinomaki Fish Market)

Located in the northeastern part of the prefecture, Ishinomaki Fish Market is one of the largest distribution centers in Japan due to close proximity of the Kinkasan fishing grounds, which have the Oyashio and Kuroshio currents, and the rias coastline, which is suitable for cultivation. Over 200 species of marine life are caught, ranging from sardines and mackerels through purse seine nets and cods through offshore bottom trawl nets.



Shiogama Fish Market

Located near the center of the prefecture, Shiogama Fish Market is a large base for longline fishing vessels for tuna and seine fishing vessels near the Sanriku Coast. With an abundance of bluefin tuna landings in the summer and bigeye tuna landings in the fall, this market boasts one of the highest volume of tuna landings in the country.



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