

Japanese Sardine Oil As Omega-3 rich ingredient

March, 2026

EPA-rich oil from Japanese sardine

- ✓ Japanese Sardine oil usually has EPA 17-19% and DHA 8-10%
- ✓ Total EPA+DHA can be higher than 27%



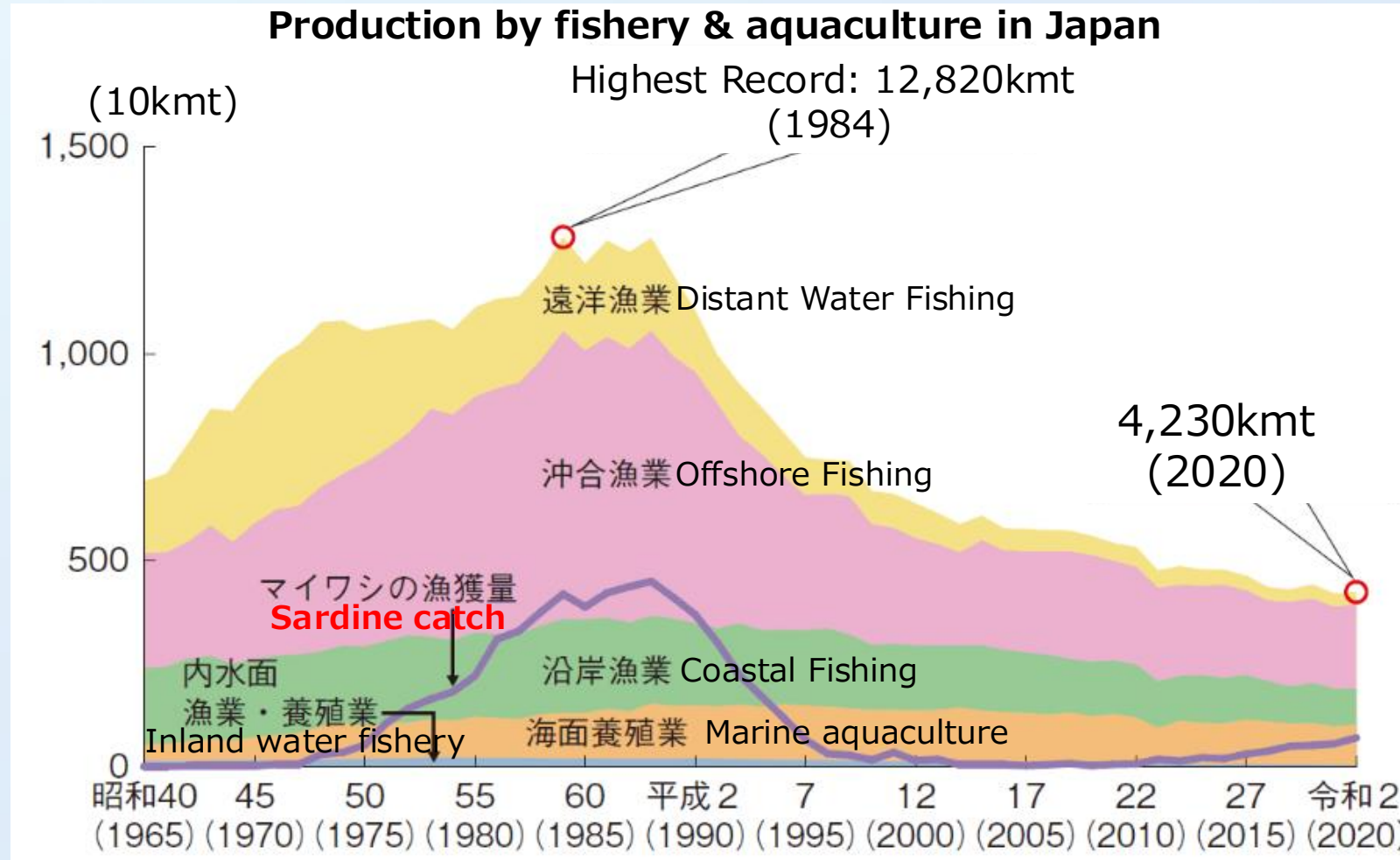
Result of Analysis (Example)

Item	Result	Test Method
1. FFA	1.1 %	1) Converted as Oleic acid
2. Moisture	0.18 %	1) Karl Fischer Method
3. Impurities	0.01 %	1) Gravimetric Method
4. Total of Omega 3* ¹	28.6 %	1) Gas Chromatography
5. EPA (Eicosapentaenoic acid)	18.2 %	1) Gas Chromatography
6. DHA (Docosahexaenoic acid)	9.4 %	1) Gas Chromatography
7. Iodine value	186.5	1) Wijs method
8. TOTOX value	24.9	By calculation
9. Peroxide value	3.5 meq/kg	1) Acetic Acid-Isooctane Method
10. Anisidine value	17.9	1) Spectrophotometer
11. Heavy Metals: Mercury	Less than 0.01 mg/kg	Gold Amalgam-Cold Vapor Atomic Absorption Spectrometry
12. Heavy Metals: Cadmium	Less than 1 mg/kg	Inductively Coupled Plasma -Mass Spectrometry Method
13. Heavy Metals: Lead	Less than 1 mg/kg	Inductively Coupled Plasma -Mass Spectrometry Method
14. Heavy Metals: Arsenic	9 mg/kg	Inductively Coupled Plasma -Mass Spectrometry Method

¹ The sum of Eicosapentaenoic acid (EPA), Docosahexaenoic acid (DHA) and α -Linolenic acid (ALA)

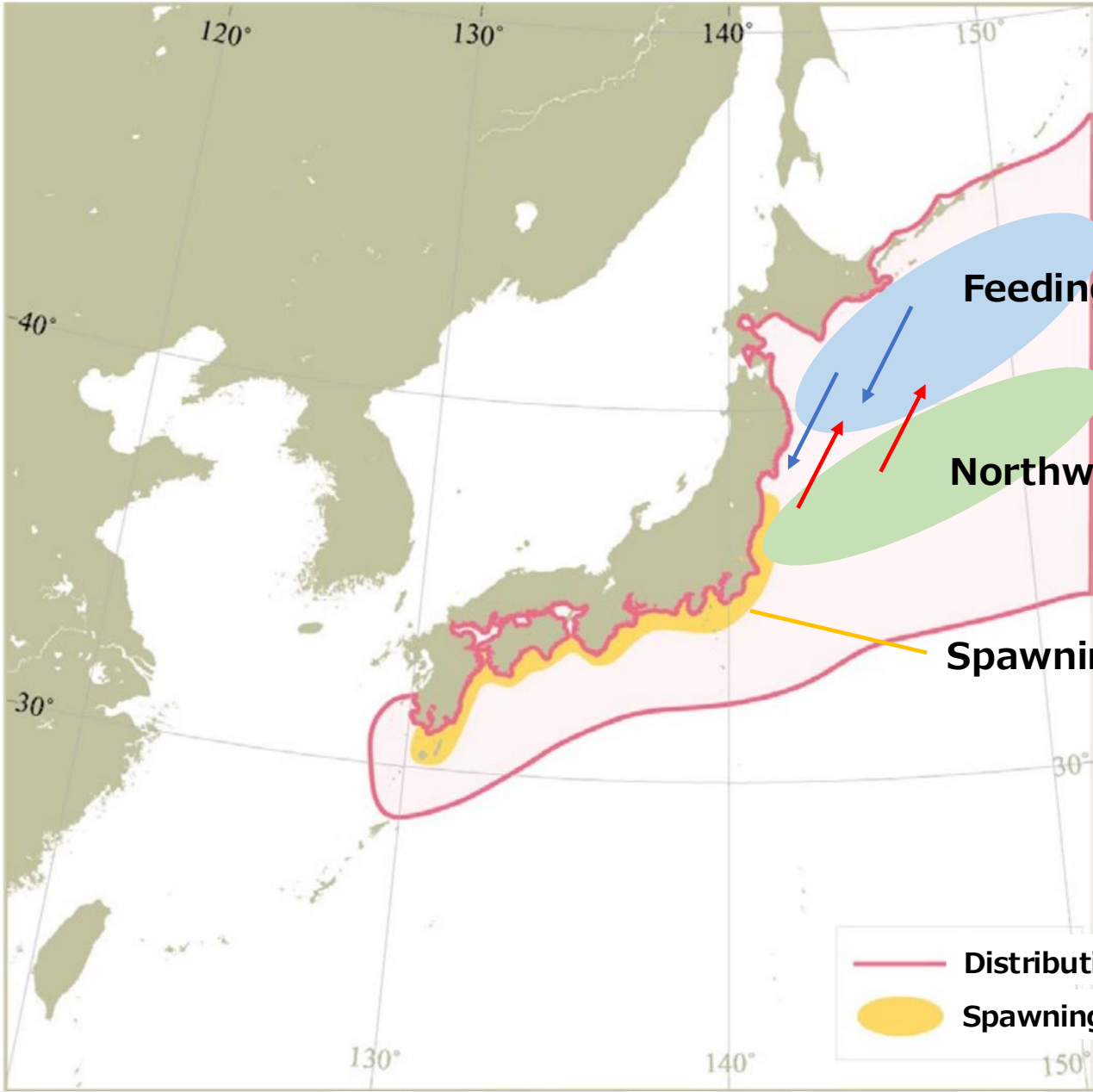
The position of sardine fishing in Japan

The catch of Japanese sardine peaked in the 1980s and then declined, but it has been showing a gradual recovery trend again since the 2010s.



Ref: Fisheries Agency of Japan

The ecology of Japanese sardine (Pacific Ocean stock)



Feeding ground in summer-autumn (Jun-Oct)

80-90% of whole sardine fishmeal/fish oil is produced at the factories along this coast
Catch amount is controlled under TAC system

Northward migration transitional area (Feb-May, Nov-Dec)

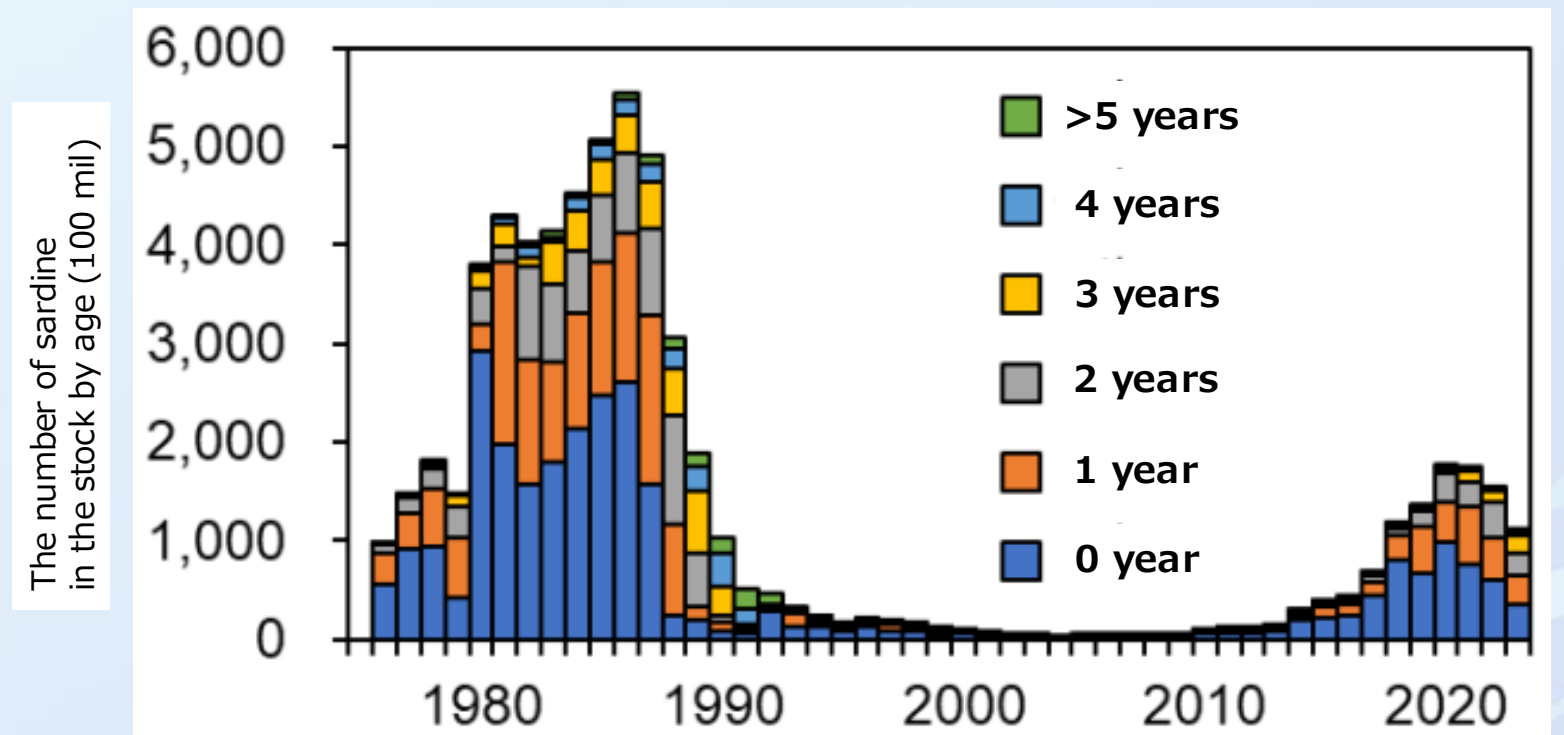
Sardine is caught during the limited periods mainly for direct human consumption

Spawning (Feb-Apr mainly)

Sardine Biomass (Japanese Pacific Ocean Stock)



- ✓ Sardine biomass & catch has been recovering gradually since 2010 and the biomass size has been estimated at 4.264 million tons in 2023
- ✓ The research shows that Japanese Sardine stocks have declined again in the past few years. One possible factor is the increasing fishing pressure on the same stock including from neighboring countries



Ref: Fisheries Agency of Japan

Sardine fishmeal/fish oil is mainly produced in Hokkaido



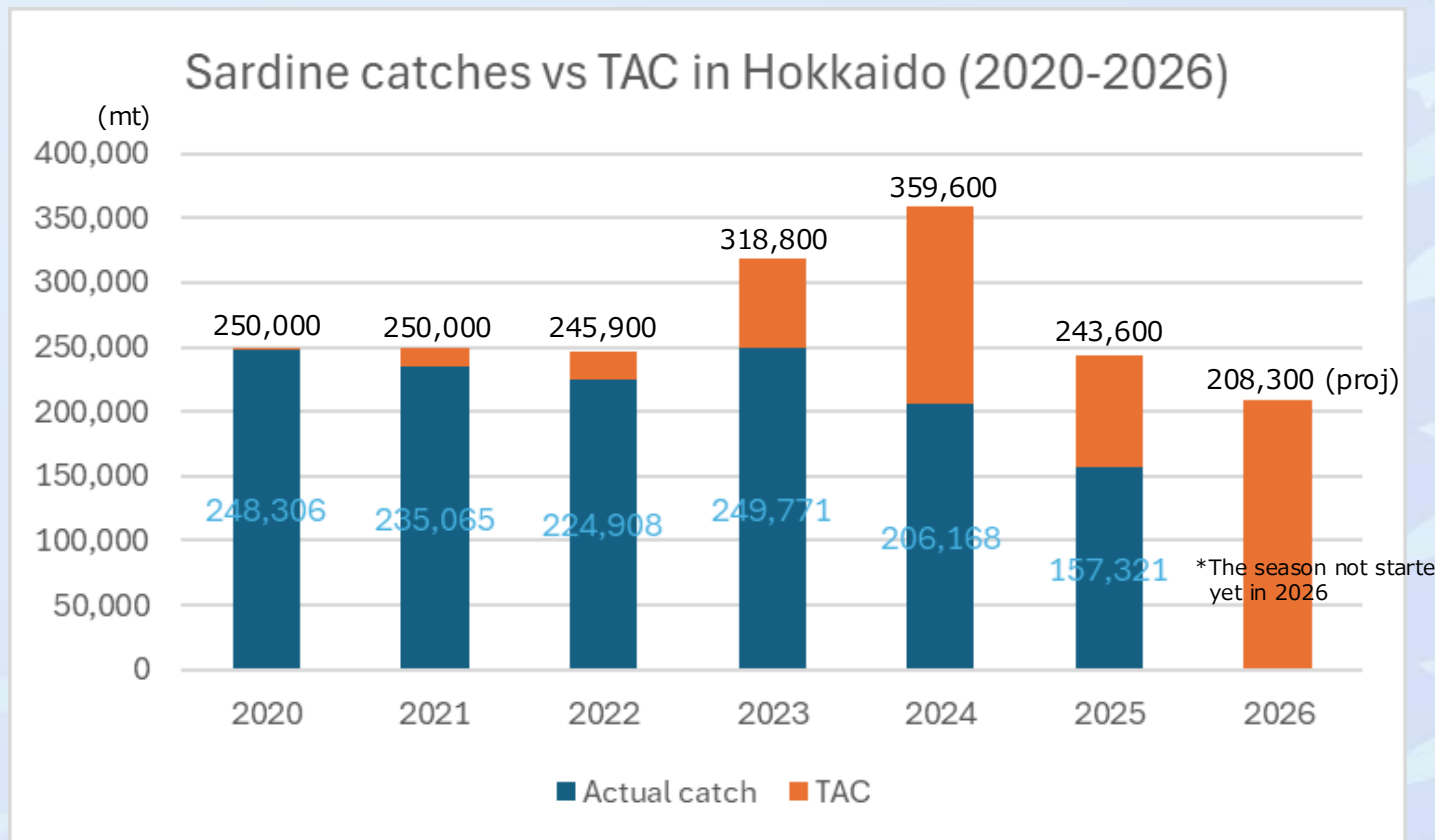
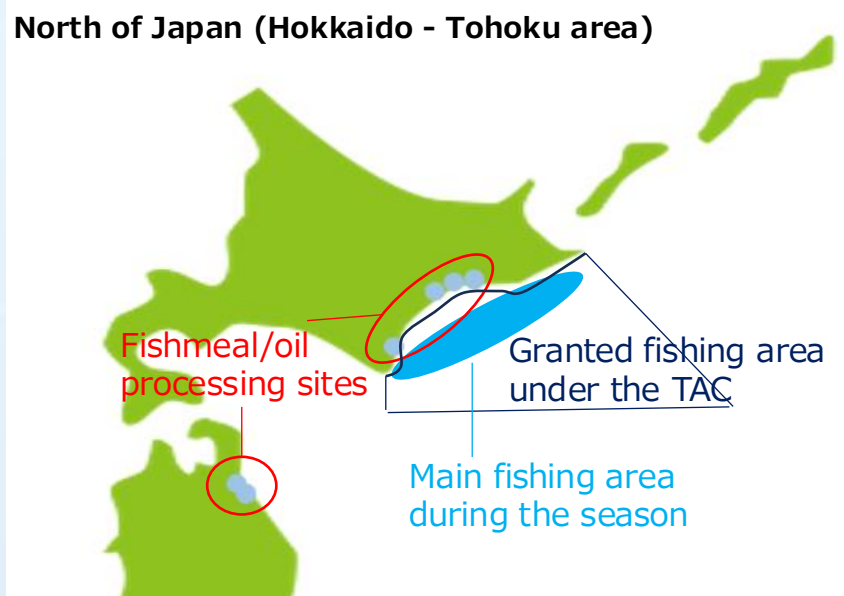
Official fishing season : June 15 – October 31

TAC : TAC for sardine is set at each fishing region and reviewed every year

Fishing fleets : 24 purse-seine fleets are granted to catch under the license

Fishmeal manufacturers : Usually 6 manufacturers receive the sardine during the season for fishmeal/fish oil processing

Fish oil yield : Around 10% in recent years



Fresh oil is available from fresh sardine..



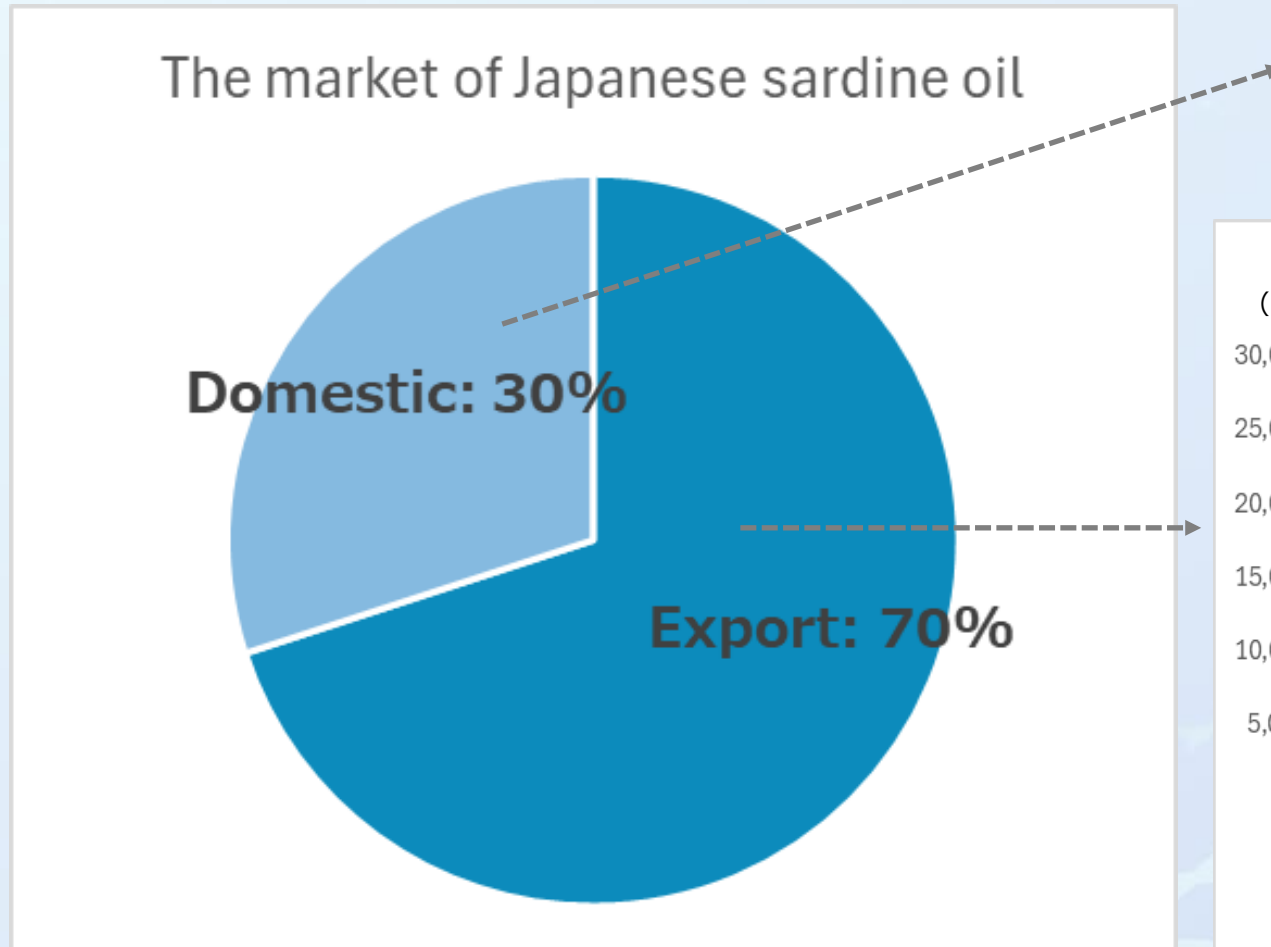
Japanese sardine caught in Hokkaido



Japanese sardine oil

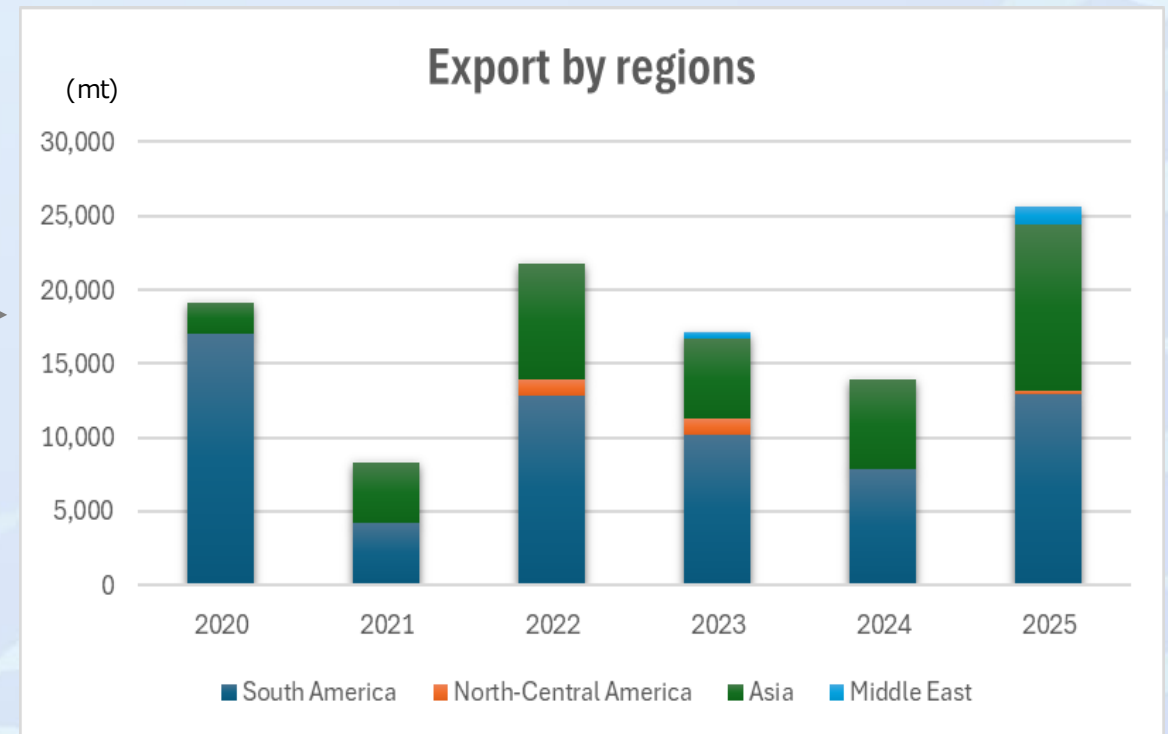
The market of Japanese sardine oil

- ✓ Although it depends on fish oil production volume and global market conditions, the ratio of exports to domestic is roughly 70:30.
- ✓ The main market used to be aquaculture primarily for Chile and local, but recently the demand for human consumption market has been gradually increasing



Domestic usage for:

- Aquaculture
- Refining for human consumption



Our actions..

We launched FIP for Japanese Sardine in Hokkaido in 2022



Promoting Sustainable Fisheries

HOKKAIDO JAPANESE SARDINE SUSTAINABLE FISHERIES PROJECT (FIP)

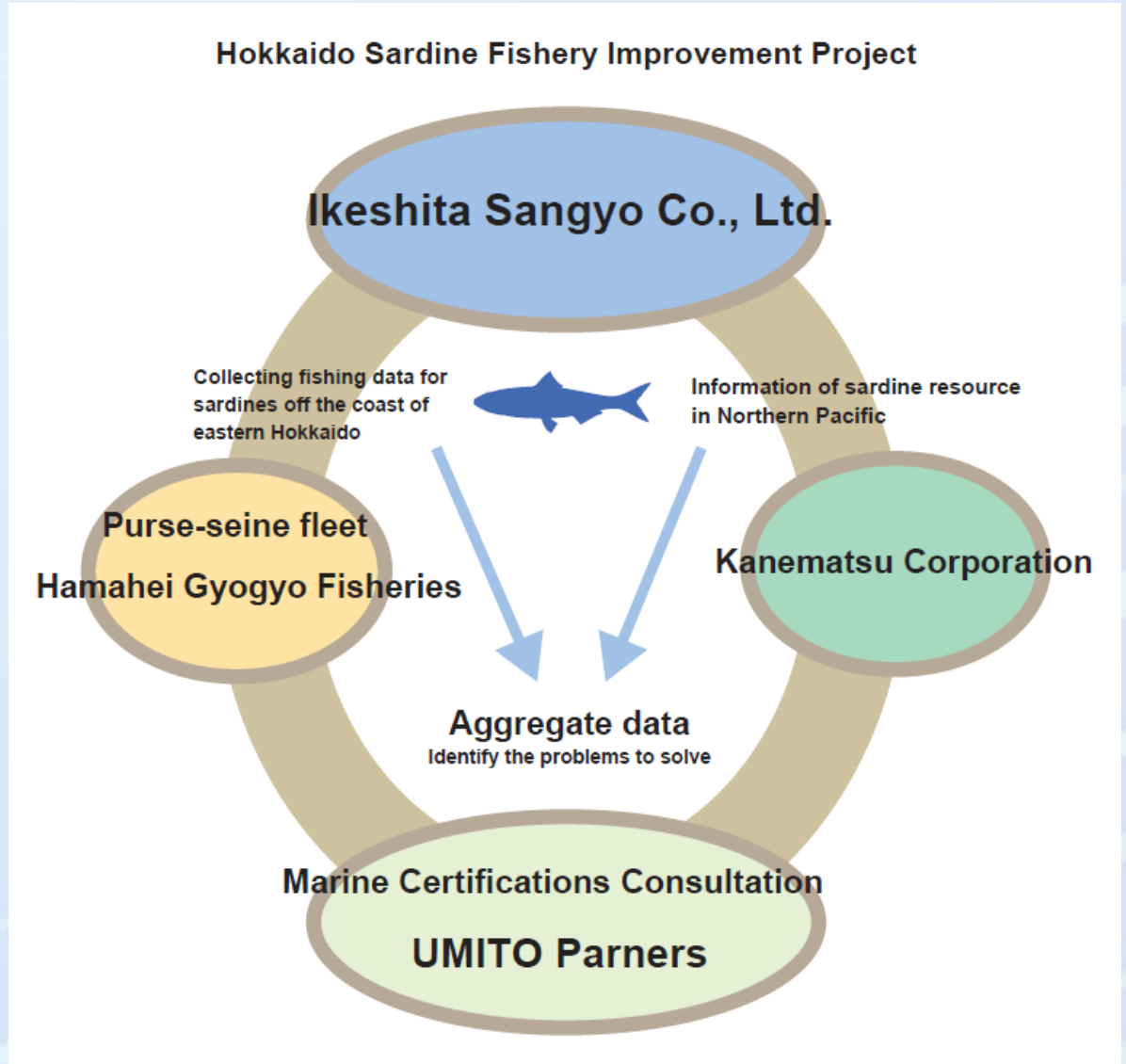
Enhancing Japanese aquaculture supply chain competitiveness by improving domestic feedstock sustainability

2022/09/27

Beginning in September 2022, a provision was added in the ASC standards stating that “feedstock used in the farm must be MSC certified”. In order to accelerate the spread of ASC certification in Japan and abroad in the effort to meet the increasing demand, acquisition of MSC certification as well as implementation of Fishery Improvement Projects have become highly important for feedstock species. In addition, Japan’s aquaculture fisheries are dependent on imports for its feed; therefore, there is an added importance from a food security perspective to be able to provide as much domestically sourced feed.

In order to increase the sustainability of domestic feed ingredients and improve market competitiveness of Japanese aquaculture supply chain as a whole, Ikeshita Sangyo (fish meal and fish oil manufacturer in Hiroo city, Hokkaido), Hamahei Gyogyo (owner and operator of large- to medium-scale purse seine fishing fleet), Kanematsu (trading company) and UMITO Partners are collaborating together to obtain MSC certification of Japanese sardine caught in the Northern Pacific Ocean. FIP work include recording of catch data, monitoring of impacts to surrounding ecosystem and environment .

Ref: UMITO Partners Inc web site



Collecting By-Catch info, Objective fishing data (by video),etc.. since 2022 season

Please feel free to contact us if you have an interest in Japanese fish oil..



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