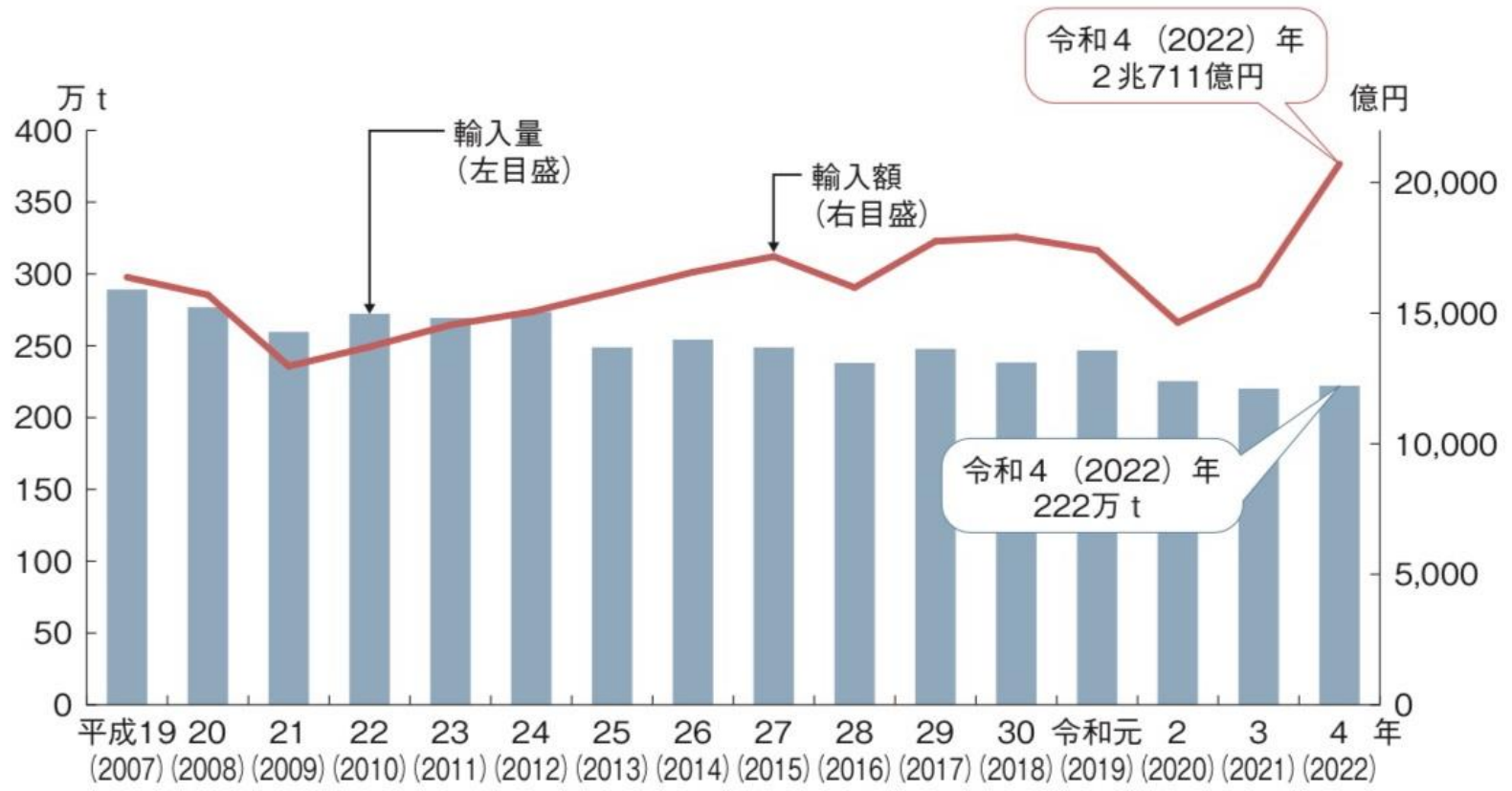
Nikkeicho Symposium
“To sustain marine resources”

19th July 2023

Maruha Nichiro Corporation
M.Ikemi

Decrease in imports of marine products, Import unit price rises

図表1－15　我が国の水産物輸入量・輸入額の推移



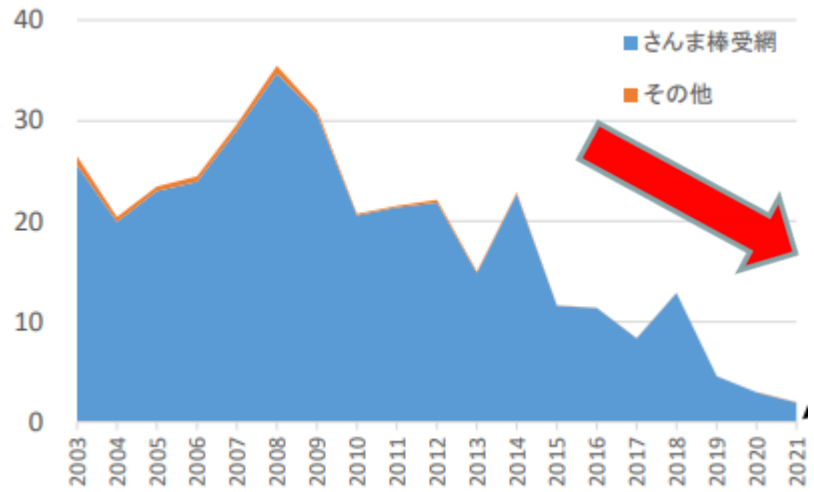
資料：財務省「貿易統計」に基づき水産庁で作成

Due to the global increase in demand for marine products, it is expected that the import volume will continue to decrease. And the import value will increase, which means the unit price will rise.

Catch movement of current fishery

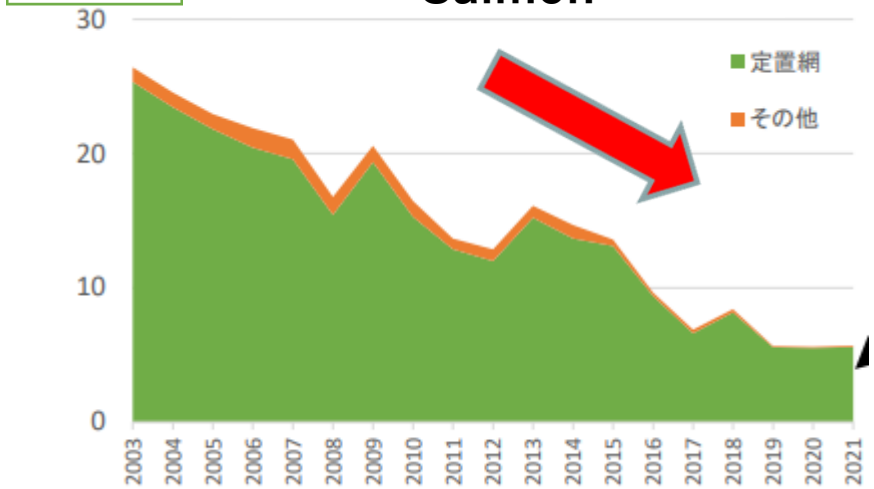
10,000mt

Saury

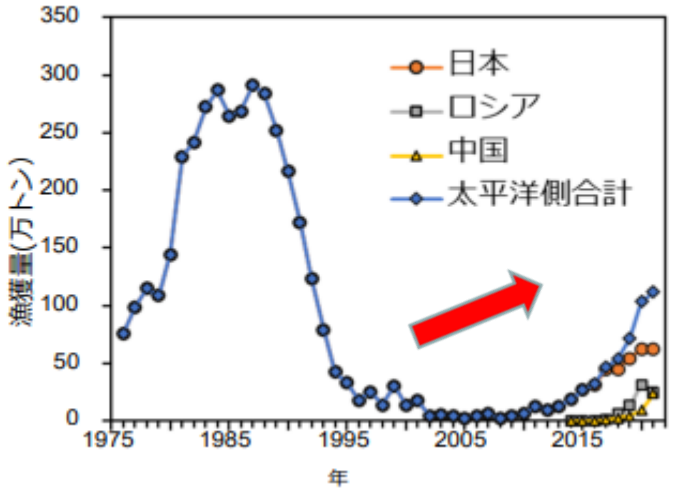


10,000mt

Salmon

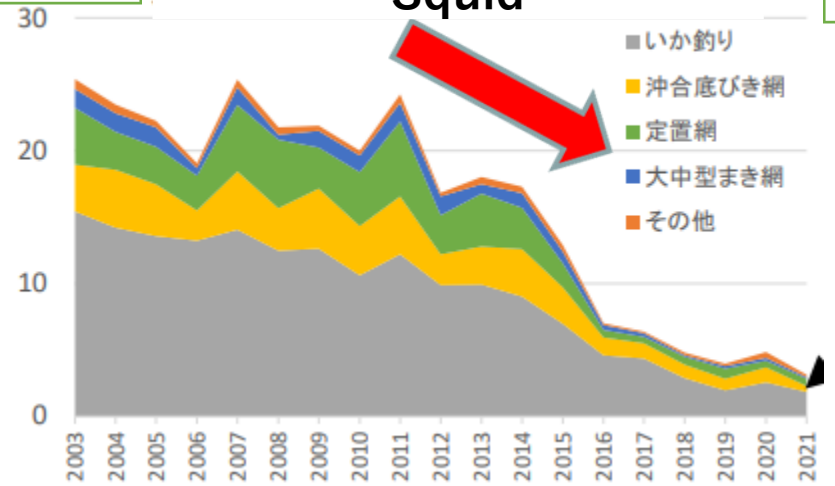


Sardine



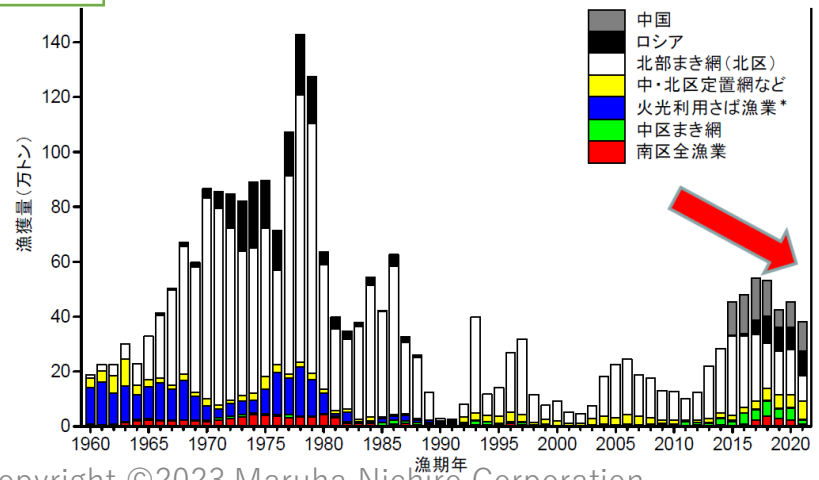
10,000mt

Squid



10,000mt

Mackerel(Pacific Ocean)



Except for sardine, catch of other species, such as, saury, salmon, squid and mackerel are kept decreasing.

水産庁・水産研究教育機構データ編集

Insufficient supply of marine products worsens with population growth

	2020 年(A)	2030 年(B)
世界人口(億人)	78 億人	85 億人
1人当たり水産物の年間消費量	20.2 キロ/年	20.2 キロ/年
食用水産物の必要供給量	1 億 58 百万ﾄﾝ	1 億 72 百万ﾄﾝ
10 年間で必要になる食用水産物の増加量　(B)－(A)＝14 百万ﾄﾝ		

(FAO・SOFIA　2022 年より作成)

世界の漁業・養殖生産量　2021年　FAO

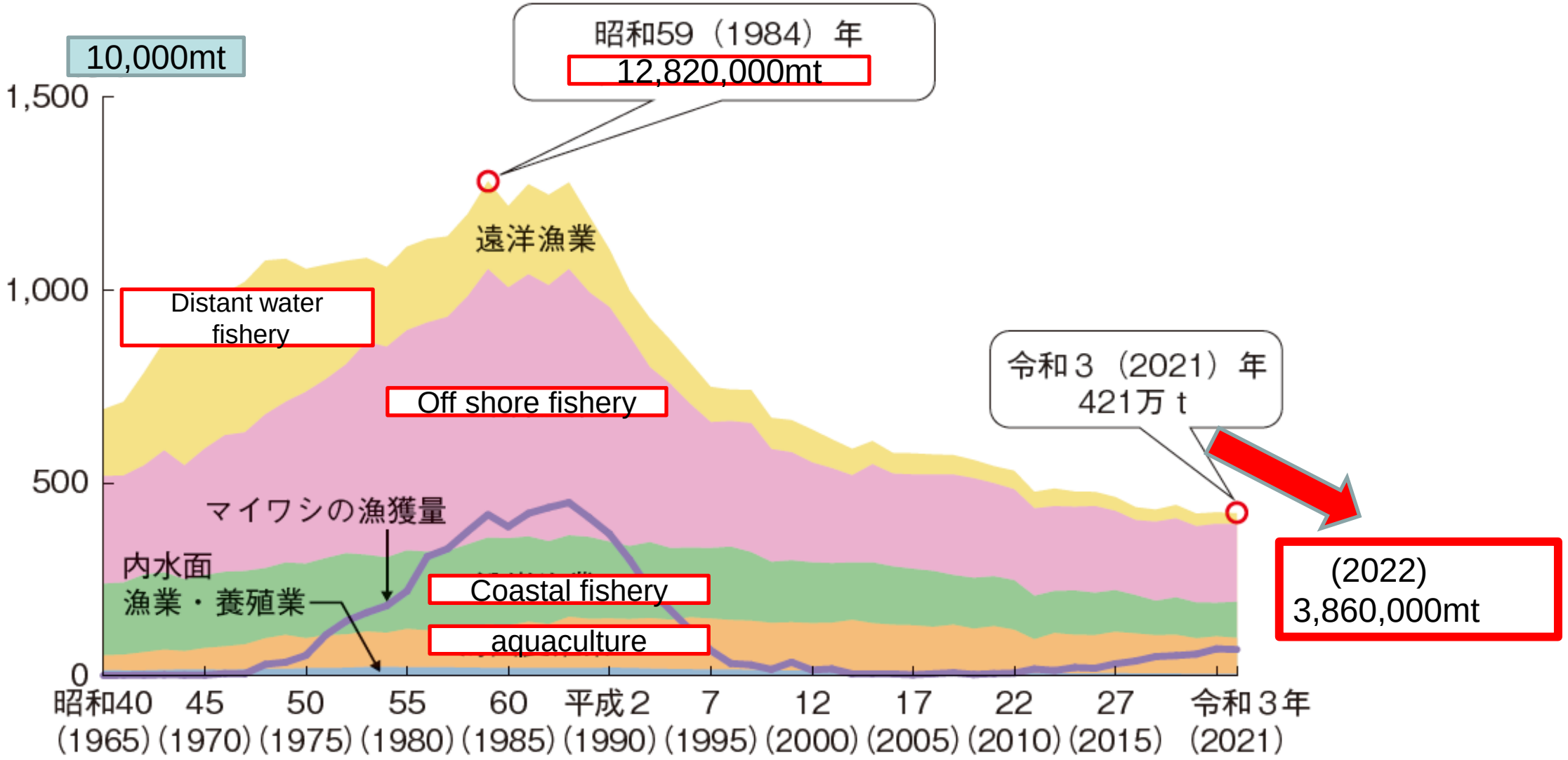
順位	国名	数量（ﾄﾝ）	前年比
1	中国	85,948,134	102%
2	インドネシア	21,813,413	100%
3	インド	14,433,205	109%
4	ベトナム	8,289,524	101%
5	ペルー	6,726,989	116%
6	ロシア	5,487,045	102%
7	米国	4,731,048	100%
8	バングラディッシュ	4,621,228	103%
9	ノルウェー	4,220,624	103%
10	フィリピン	4,114,594	97%
11	日本	4,114,570	97%

In 2030, compared to 2020, a simple calculation shows that the supply of marine products will need to increase by about 14 million tons due to population growth.

This amount is comparable to the total production of Russia, the United States, and Japan (14.33 million tons) in the table on the left.

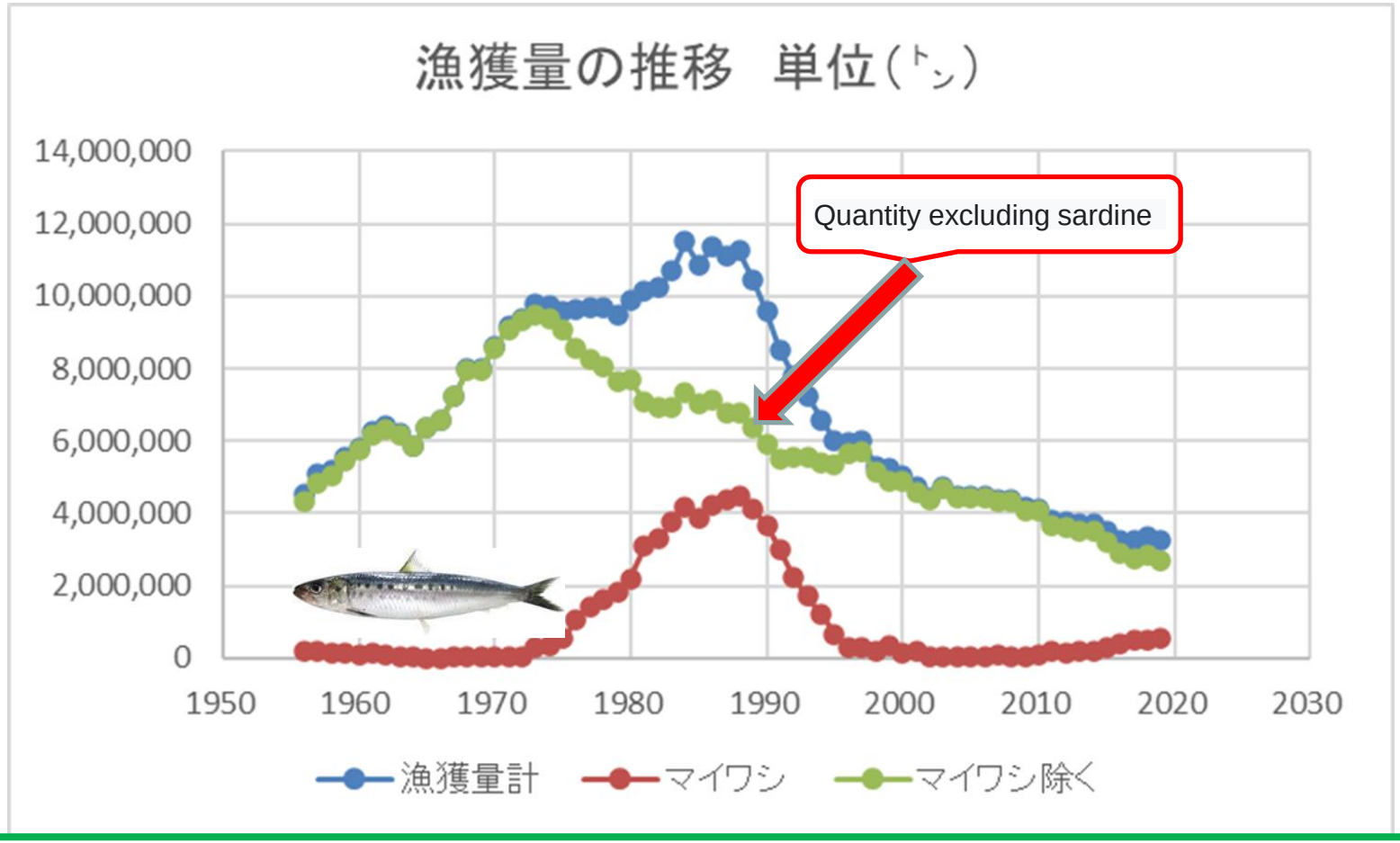
Furthermore, the following two points will lead to a shortage of supply.
・If annual consumption per capita increases
・Catch includes non-edible parts such as fish meal which means more landing for human consumption.

Japanese ever-decreasing production (fishery + aquaculture)



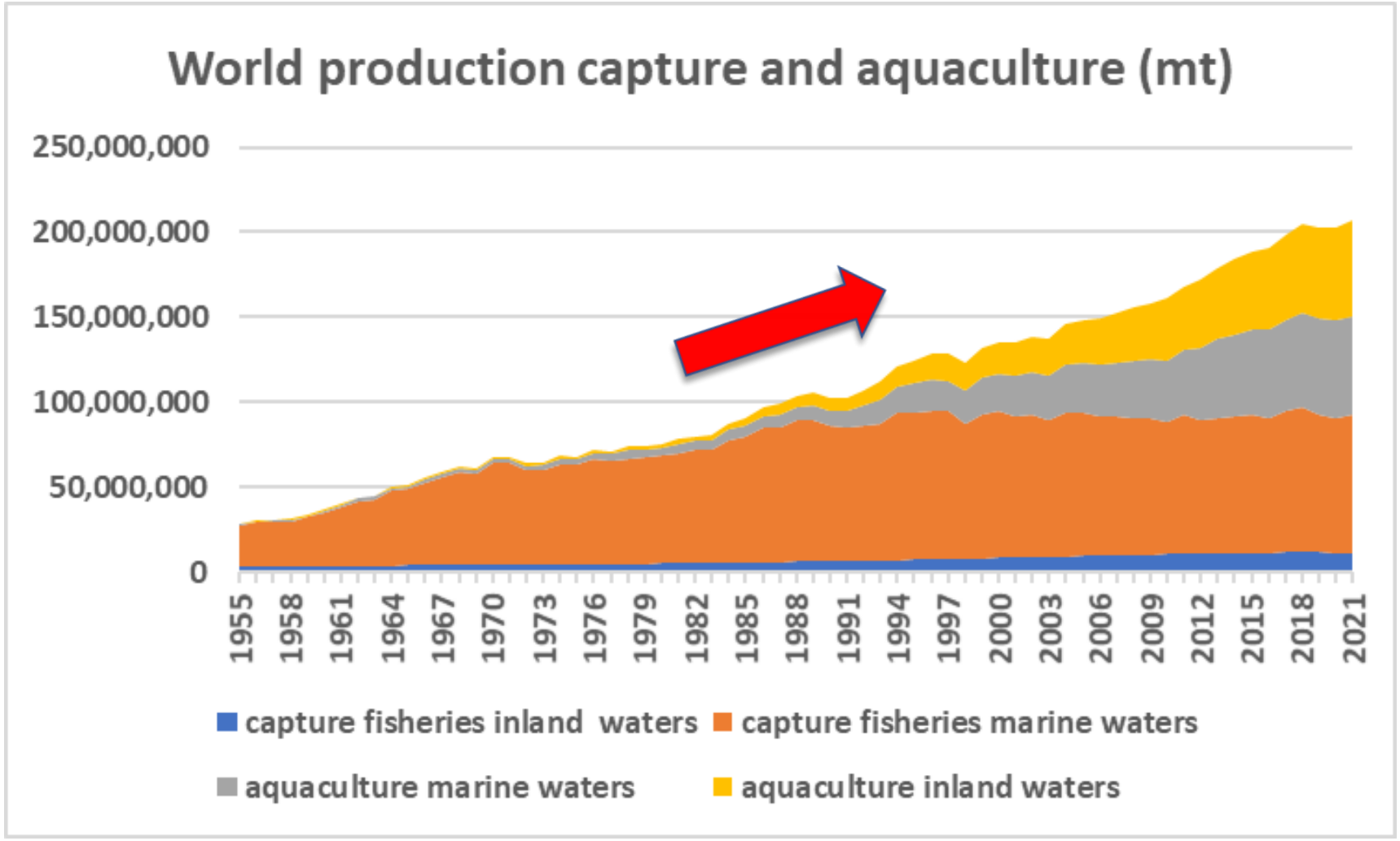
Production in 2022 is the lowest since 1956, when statistics began to be collected in the current form .

Decrease in fish catches (including aquaculture) and decrease in sardines



See green graph (catch excluding sardines). It is not the decline of sardines that continues to cause the decline in fish catches.

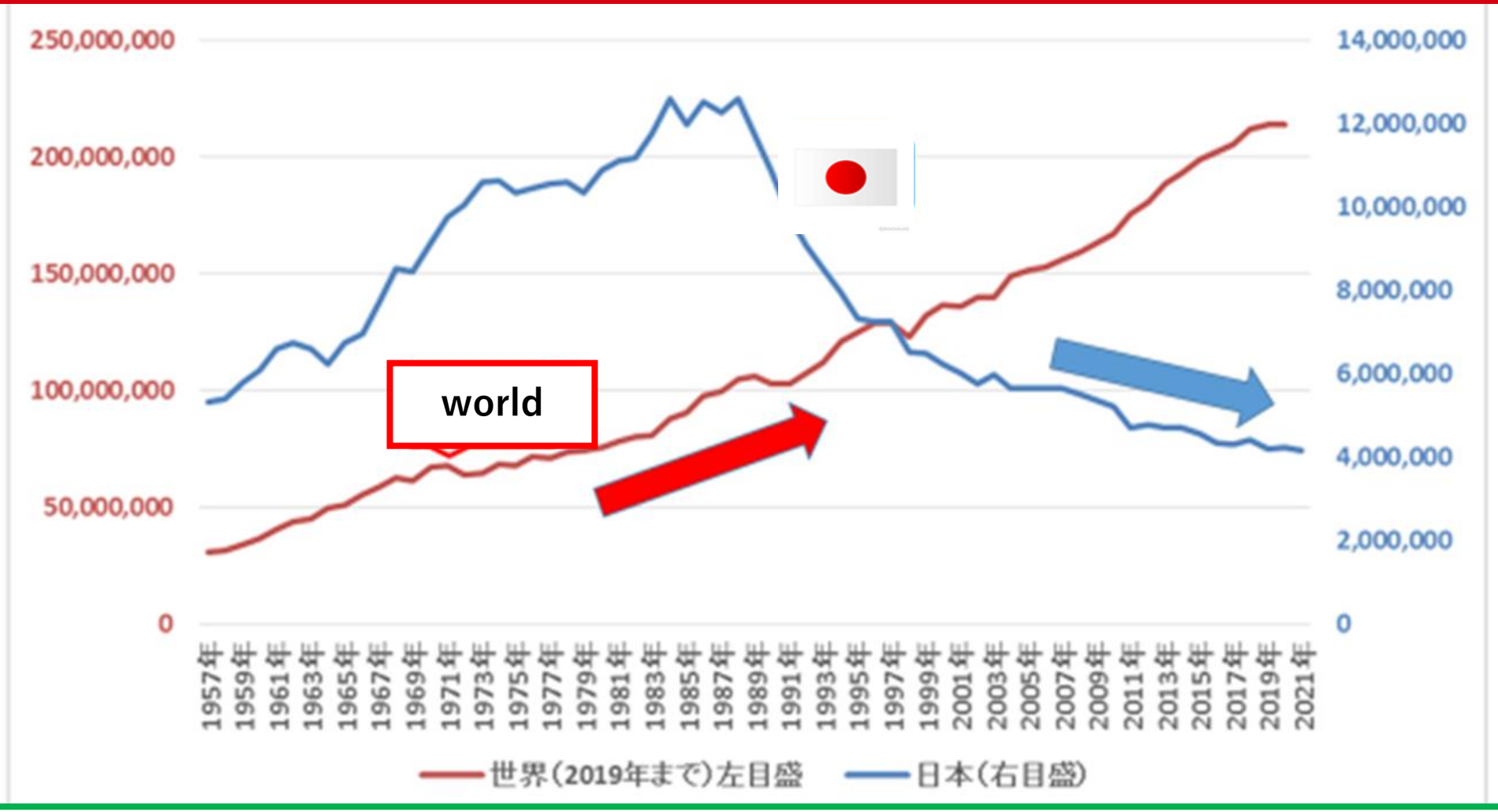
Changes in global landing volume (fishery + aquaculture)



Edited FAO Data

In contrast to Japan, the world's total landing volume is on the rise.

Changes in landed volume in Japan and around the world (unit: tons)



Landing trends in Japan and the rest of the world differ greatly. The fishery industry is a growth industry in the world !!

Edited FAO Data

FAO production forecast (2020 ⇒ 2030) excluding seaweed and others

TABLE 18 PROJECTED FISHERIES AND AQUACULTURE PRODUCTION TO 2030

	Production			Of which aquaculture		
	2020	2030	Growth of 2030 vs 2020	2020	2030	Growth of 2030 vs 2020
	1 000 tonnes (live weight equivalent)		%	*1 000 tonnes (live weight equivalent)*		%
Africa	**12 044**	**13 763**	**14.3**	**2 250**	**2 759**	**22.6**
Egypt	2 011	2 339	16.3	1 592	1 911	20.0
Nigeria	1 045	1 208	15.6	262	318	21.4
South Africa	602	522	-13.3	6	12	90.5
Americas	**21 903**	**24 499**	**11.8**	**4 375**	**5 623**	**28.5**
Argentina	840	896	6.7	2	2	10.3
Brazil	1 339	1 527	14.1	629	751	19.3
Canada	901	1 061	17.8	171	244	42.5
Chile	3 259	4 290	31.6	1 486	2 193	47.6
Mexico	1 780	1 910	7.3	279	296	6.2
Peru	5 770	6 210	7.6	144	184	28.2
United States of America	4 694	5 298	12.9	448	548	22.3
Asia	**124 960**	**143 182**	**14.6**	**77 384**	**94 095**	**21.6**
China	62 846	73 608	17.1	49 620	60 068	21.1
India	14 141	16 775	18.6	8 636	10 995	27.3
Indonesia	12 152	13 678	12.6	5 227	6 598	26.2
Japan	3 751	3 471	-7.5	599	684	14.1
Korea, Republic of	1 934	1 933	-0.1	566	633	11.7
Philippines	2 766	3 337	20.6	854	1 045	22.3
Thailand	2 618	2 763	5.5	962	1 113	15.6
Viet Nam	8 023	9 123	13.7	4 601	5 202	13.1
Europe	**17 096**	**18 696**	**9.4**	**3 263**	**3 704**	**13.5**
European Union[1]	5 026	5 555	10.5	1 094	1 256	14.9
Norway	3 941	4 012	1.8	1 490	1 612	8.2
Russian Federation	5 342	5 855	9.6	270	368	36.3
Oceania	**1 752**	**1 972**	**12.5**	**229**	**264**	**15.7**
Australia	284	305	7.4	106	129	21.3
New Zealand	482	541	12.1	119	131	10.3
World[2]	**177 757**	**202 112**	**13.7**	**87 501**	**106 445**	**21.7**

[1] Cyprus is included in Asia as well as in the European Union. [2] For 2020, the aggregate includes also 1 030 tonnes of not identified countries, data not included in any other aggregates.
NOTE: Excluding aquatic mammals, crocodiles, alligators, caimans and algae.
SOURCE: FAO.

拡大

		生産量・天然と養殖合計（単位　千ﾄﾝ）		2020年と2030年対比（%）
		2020年	2030年（予測）	
アフリカ	エジプト	2,011	2,339	16.3%
	ナイジェリア	1,045	1,208	15.6%
	南アフリカ	602	522	-13.3%
	地域計	12,044	13,763	14.3%
南北アメリカ	アルゼンチン	840	896	6.7%
	ブラジル	1,339	1,527	14.1%
	カナダ	901	1,061	17.8%
	チリ	3,259	4,290	31.6%
	メキシコ	1,780	1,910	7.3%
	ペルー	5,770	6,210	7.6%
	米国	4,694	5,298	12.9%
	地域計	21,903	24,499	11.8%
アジア	中国	62,846	73,608	17.1%
	インド	14,141	16,775	18.6%
	インドネシア	12,152	13,678	12.6%
	日本	3,751	3,471	-7.5%
	韓国	1,934	1,933	-0.1%
	フィリピン	2,766	3,337	20.6%
	タイ	2,618	2,763	5.5%
	ベトナム	8,023	9,123	13.7%
	地域計	124,960	143,182	14.6%
欧州・ロシア	EU	5,026	5,555	10.5%
	ノルウェー	3,941	4,021	1.8%
	ロシア	5,342	5,855	9.6%
	地域計	17,096	18,696	9.4%
オセアニア	オーストラリア	284	305	7.4%
	ニュージーランド	482	541	12.1%
	地域計	1,752	1,972	12.5%
世界全体		177,757	202,112	13.7%

Edited FAO Data

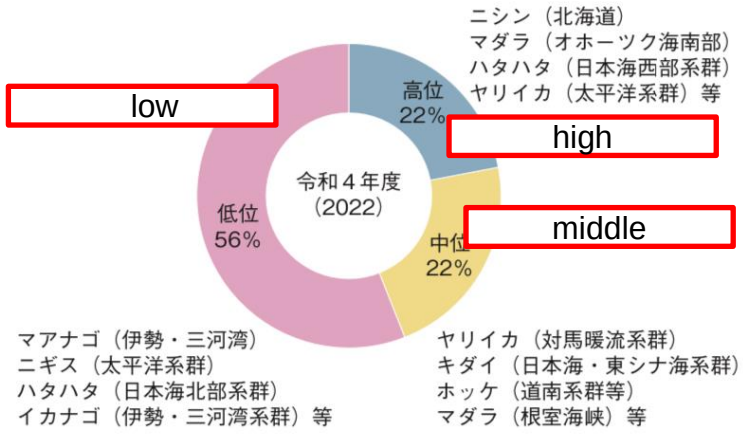
FAO expects Japanese production to fall 7.5% in 2030 compared to 2020. However, by 2022, it has already decreased by [8.9%]. Deteriorating beyond FAO's forecast for 10 years already. Globally, it increased by 13.7%. Japan is the only decreasing country that catches more than 1 million tons of fish.

Is the resource assessment correct?

図表3－4　我が国
種50系

Stock condition estimated

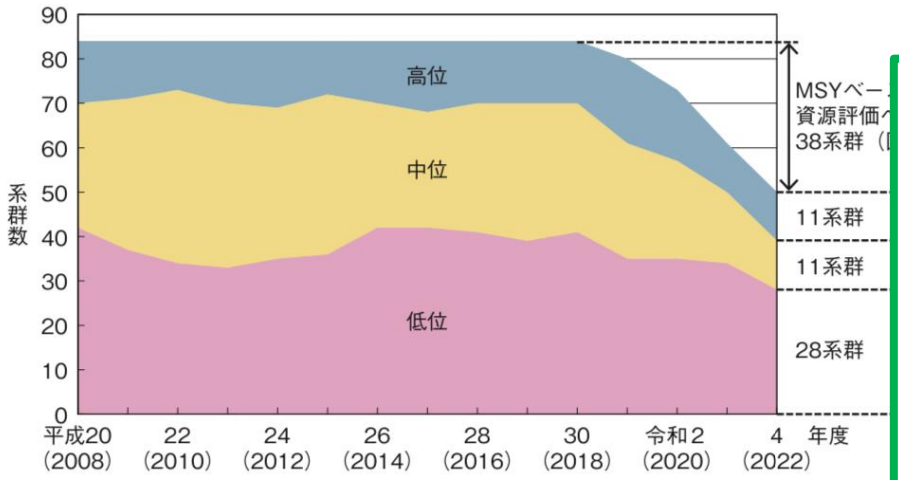
よる資源評価36魚



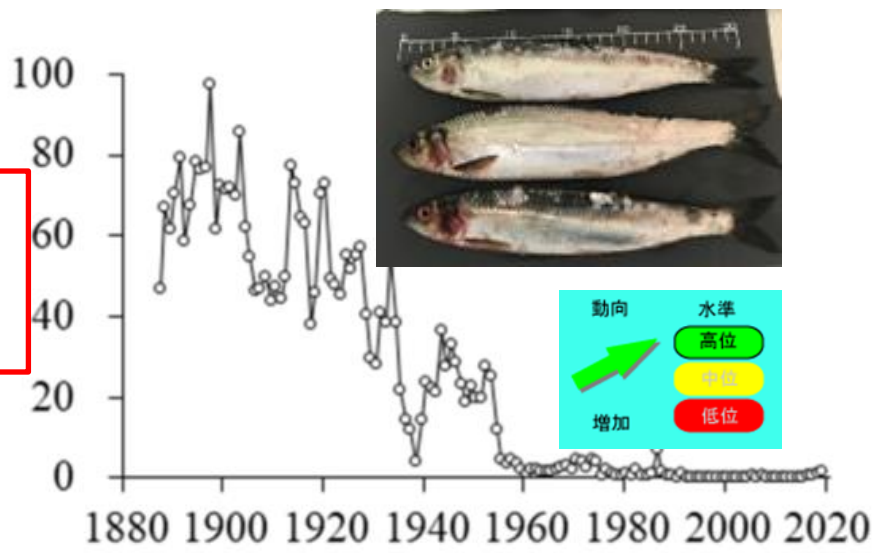
low

high

middle



Catch unit
10,000mt



The graph on the left shows the resource status in the conventional stock assessment. Due to the revision of the Fisheries Act and SDGs14, stock assessment is being changed to MSY base. MSY stands for "maximum sustainable yield", which means "the maximum amount that you can continue to catch without reducing the number of fish".

If stock assessment is not appropriate, even if the stock condition is bad, it becomes the basis for catching more fish.

For example, in the herring stock assessment, see upper right graph. Long-term catch trends and ratings are different from the actual trend to compare with the trend of casome decades . Prompt, appropriate MSY stock assessment and Resource management are required.

Catch quotas that are too large for resource

Chub mackerel

単位（ﾄﾝ）

日本	2011年	2012年	2013年	2014年	2015年	2016年	2017年	2018年	2019年	2020年	2021年
TAC(漁獲枠)	717,000	685,000	701,000	902,000	905,000	822,000	745,000	812,000	987,000	721,000	774,200
Catch	425,901	378,351	430,622	529,041	522,000	508,264	557,545	520,312	431,937	451,754	408,840
Digestion rate	59%	55%	61%	59%	58%	62%	75%	64%	44%	63%	53%

Average rate

59%

Atlantic mackerel

単位（ﾄﾝ）

ノルウェー	2011年	2012年	2013年	2014年	2015年	2016年	2017年	2018年	2019年	2020年	2021年
TAC(漁獲枠)	186,560	180,843	153,355	278,868	242,078	205,694	234,472	189,482	152,811	213,880	304,648
Catch	196,859	176,066	164,684	277,651	241,748	210,293	222,968	186,273	158,948	211,213	270,698
Digestion rate	106%	97%	107%	100%	100%	102%	95%	98%	104%	99%	89%

Average rate

100%

水産庁・Norge Sildesalgslagのデータを編集

Japanese mackerel catch quota does not function in resource management, with a digestion rate of about 60% over the past 10 years. Fishing boats catch mackerel regardless of the season or size.

In the case of Norway, almost 100% of the quota is used. Fishermen themselves avoid catching low-value small mackerel.

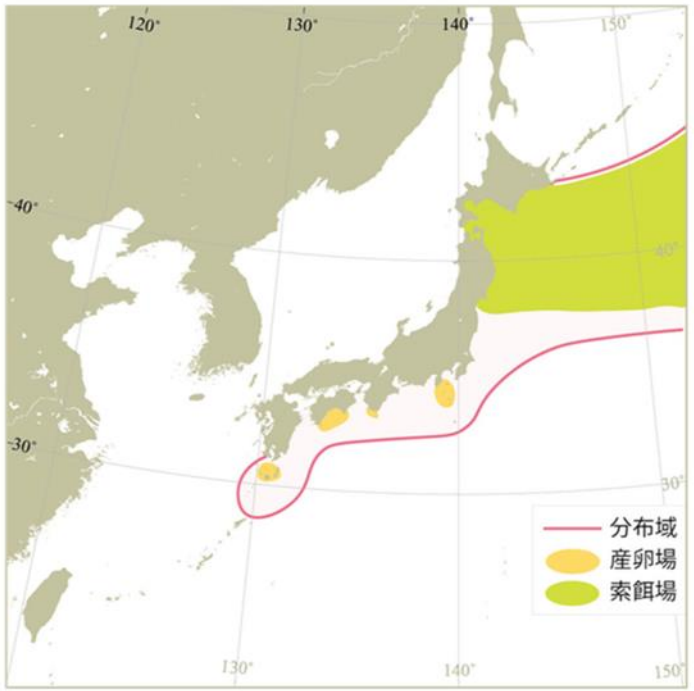
40% of mackerel is not edible! of Japan and Norway are virtually 100% edible

Usage of Mackerel, not used for human consumption

	2012年	2013年	2014年	2015年	2016年	2017年	2018年	2019年	2020年	2021年
Fish oil etc	0.7	0.62	1.25	2.11	2.32	2.64	1.9	0.78	0.54	0.76
For fish farm, bait	36.3	28.5	30.1	30.53	32.18	28.16	42.45	39.85	40.79	45.27
	37	29.12	31.35	32.64	34.5	30.8	44.35	40.63	41.33	46.03
Ave.not for human consumption	36.78%									

(Recommendation 2) Improve the quality and quantity of data and set TACs that minimize uncertainties based on scientific evidence.

Scientific analysis of "there are mackerel but not catch“



Distribution of Pacific mackerel

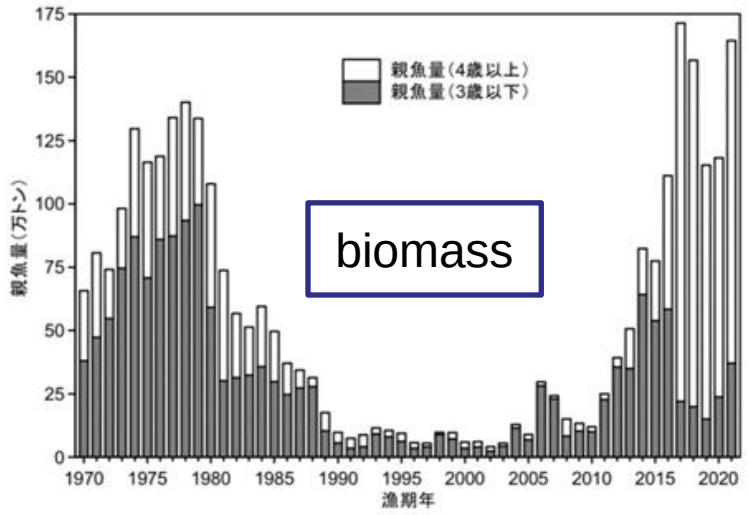
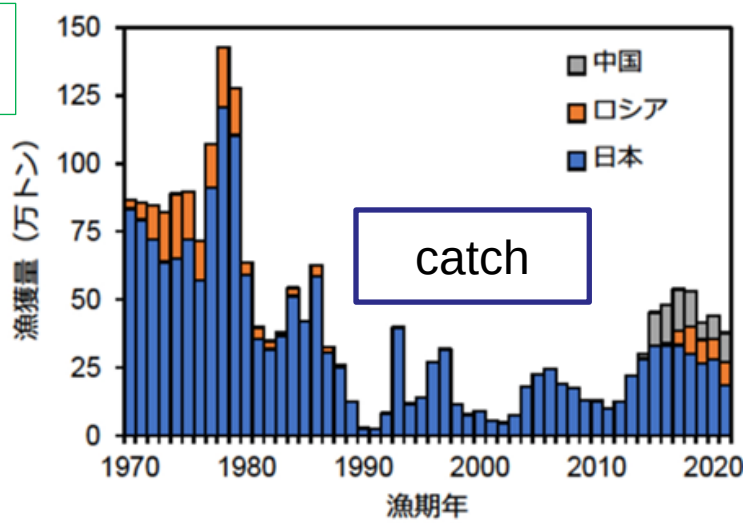


図 4-5. 親魚量の推移
親魚量の棒グラフは 3 歳以下と 4 歳以上に分けて図示。



It is reported that "there are mackerel (Pacific stock), but they cannot be caught," but when comparing the amount of resources in the upper right and the catch in the lower right, mackerel has not been caught as much as it was in the 1970s.

Japan's mackerel catch quota is much larger than the actual catch. For this reason, it is thought that the trends in catches directly reflect resource trends.

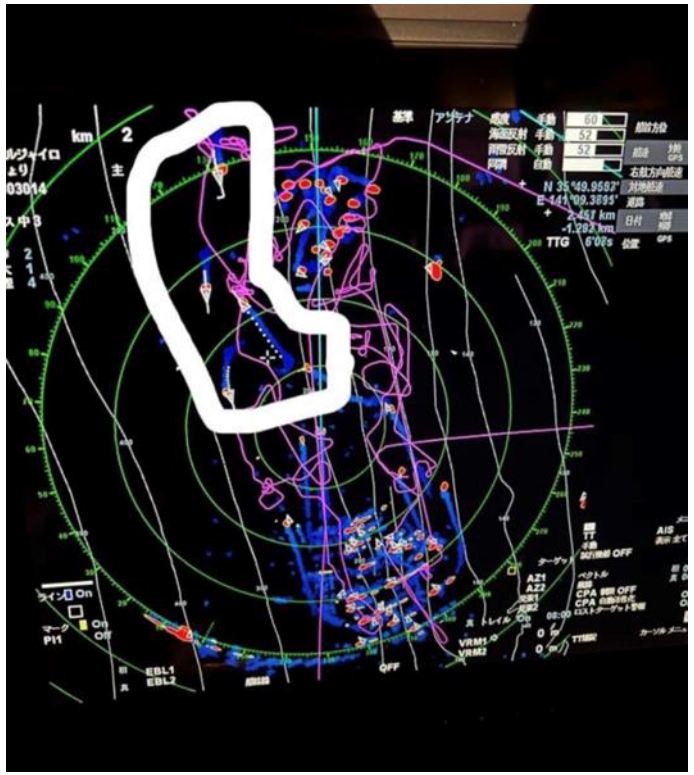
In 2021, NOAA (U.S. National Oceanic and Atmospheric Administration) pointed out that mackerel resource surveys "need significant improvement.“

(Example) High uncertainties such as age of fish and number of schools

Is it because the mackerel is so deep that the purse seine can't reach it?

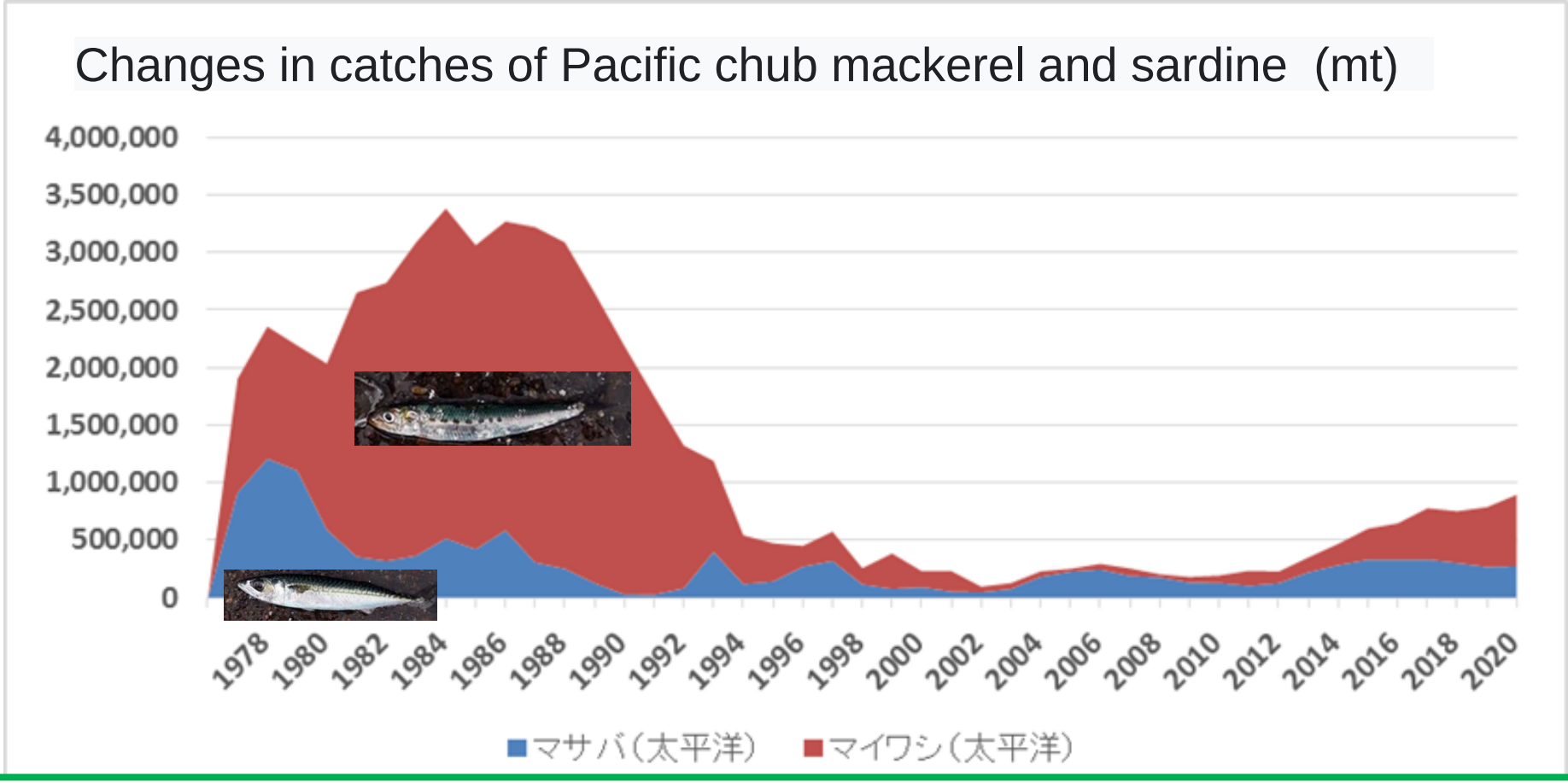
NPFC（北太平洋漁業委員会） (mt)

	2021年	2022年	Decrease QTTY and %	
	302,434	171,808	-130,626	43%
	87,388	49,894	-37,494	43%



Russian trawler fishing for mackerel in Japanese EEZ is also poor. Trawlers can fish at depths of hundreds of meters.

Is there a lot of sardines and mackerel can't get close scientifically?

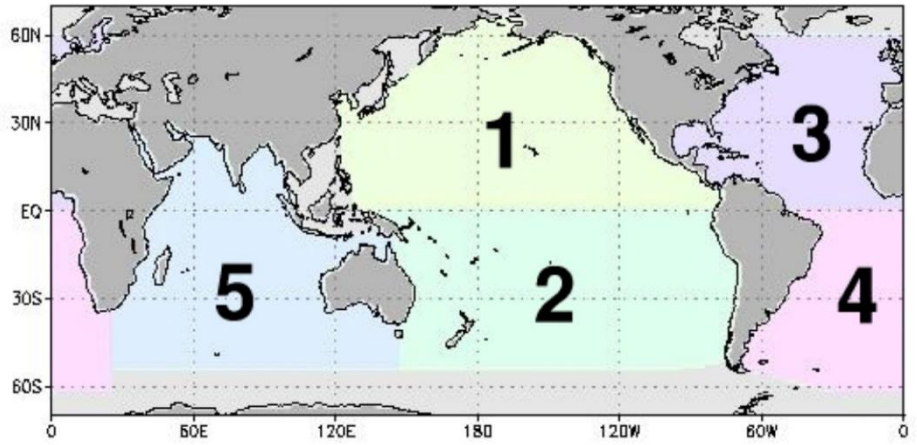


If sardines were the reason for the poor catch of mackerel, then in the 1980s, when the sardine was a bountiful catch, there must have been a great shortage of mackerel. "However, they actually caught a lot." Sardine is food for mackerel. Why don't they approach the bait?

Is the rise in seawater temperature limited to the waters near Japan?

海域別年平均海面水温の長期変化傾向

海域	長期変化傾向
1：北太平洋	0.55℃/100年
2：南太平洋	0.47℃/100年
3：北大西洋	0.64℃/100年
4：南大西洋	0.71℃/100年
5：インド洋	0.61℃/100年



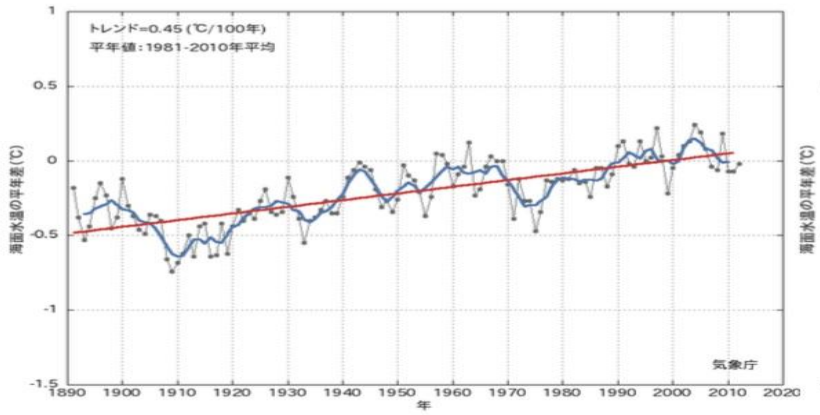
Seawater temperatures are rising more rapidly in the North Atlantic, where resources are more sustainable.

On the other hand, the decline in fish stocks is progressing rapidly around Japanese seas.

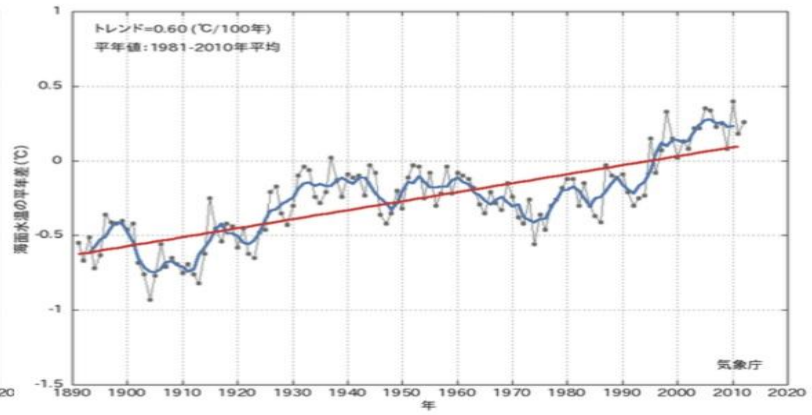
年平均海面水温

第１章　地球温暖化に関わる海洋の長期変化
世界の海面水温・表層水温

Japan Meteorological Agency



北太平洋



北大西洋

Is the rise in seawater temperature limited to the waters

	北太平洋 日本	North Atlantic
mackerel	△　幼魚漁獲（成長乱獲）	◎　漁獲枠で厳格に管理
bluefin tuna	△　同上	○　同上・資源は急回復中
cod	△　漁獲枠なし	◎　漁獲枠で厳格に管理
herring	△　漁獲枠なし	◎　同上
sandeel	X　幼魚漁獲	◎　同上

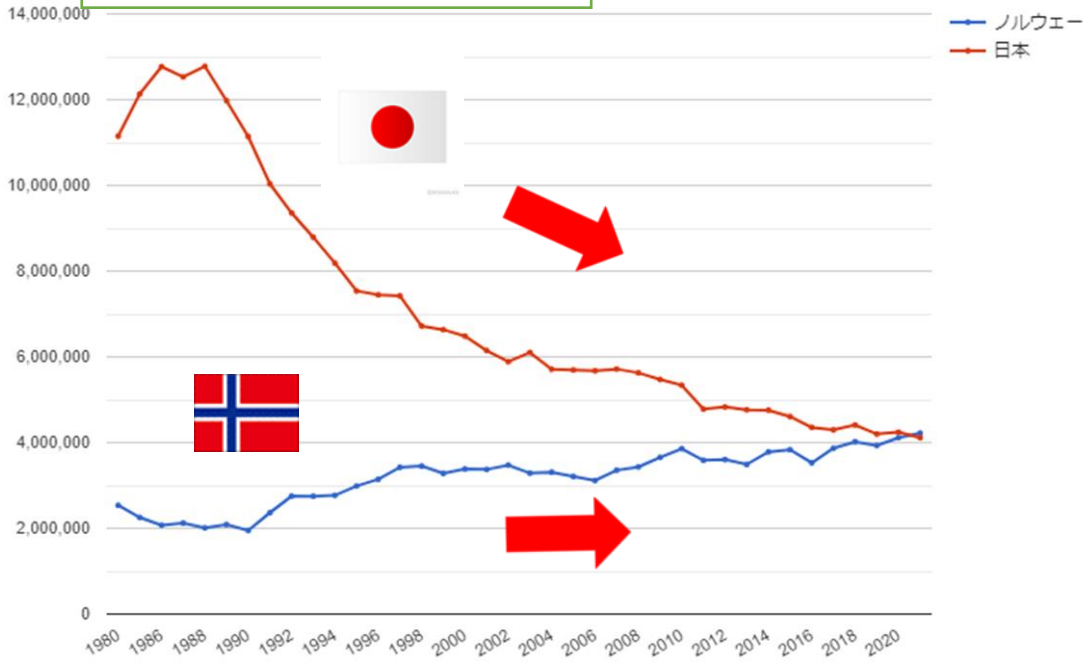
Even for the same species of fish, the stock condition in the waters near Japan is significantly worse than that in the North Atlantic Ocean.
There is a big difference between whether resource management is based on scientific evidence or not. ◎○△X is an image





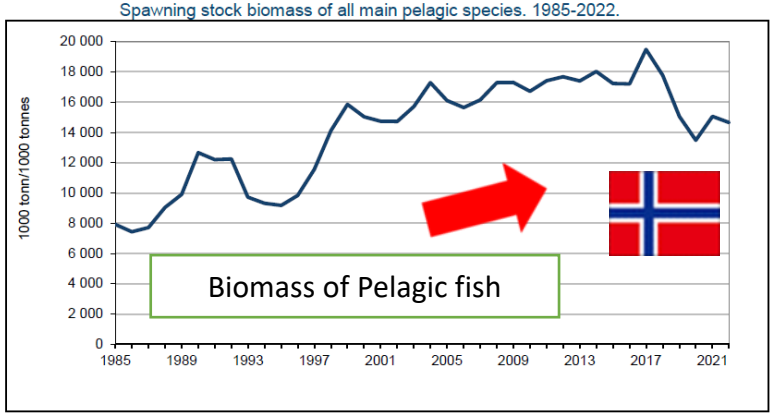
Changes in production volume (fishery + aquaculture) and resources in Norway and Japan

Production Japan and Norway

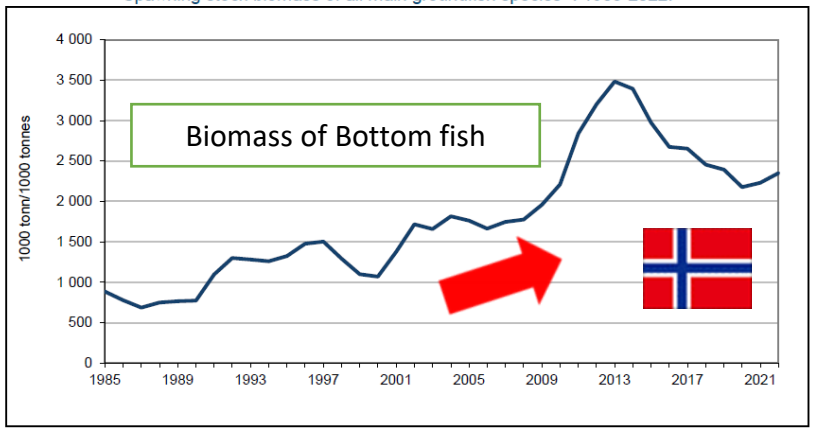


(Global note)

Figur 1A Gytebestand. Alle sentrale pelagiske fiskeartar. 1985-2022.
Spawning stock biomass of all main pelagic species. 1985-2022.



Figur 2A Gytebestand. Alle sentrale botnfiskartar[1]. 1985-2022.
Spawning stock biomass of all main groundfish species[1]. 1985-2022.



Japanese production volume is declining due to a decrease in resources. In Norway, stocks are increasing, but catches are not increasing so much.
The difference is "resource management based on scientific evidence". Production reversed in 2021.

Importance of individual allocation system IQ ITQ IVQ

(Recommendation 2) Improve the quality and quantity of data and set TACs that minimize uncertainties based on scientific evidence.

(Recommendation 6) Balance stocks and fisheries management and introduce new ITQ.

TAC is set based on scientific grounds. Since this alone will result in an "early catch competition," it is essential to allocate catch quotas to each fisherman or fishing boat.
Under the revised Fisheries Act, non-transferable IQ applies.
Australia applies ITQ, which is transferable, and Norway applies IVQ, which is a set of fishing vessels and quotas. Consideration for coastal fisheries is essential.

There are also allocations by grouping, as in the case of Alaska pollock in the United States.

Importance of national resource management

■ In Japan, fisheries resources are not common property of the nation , Unlike Europe/Australia /Norway

In the United States, it is administered by the government with trust from the people.

Except for Japan, The fisheries industry has become a growth industry in these countries.

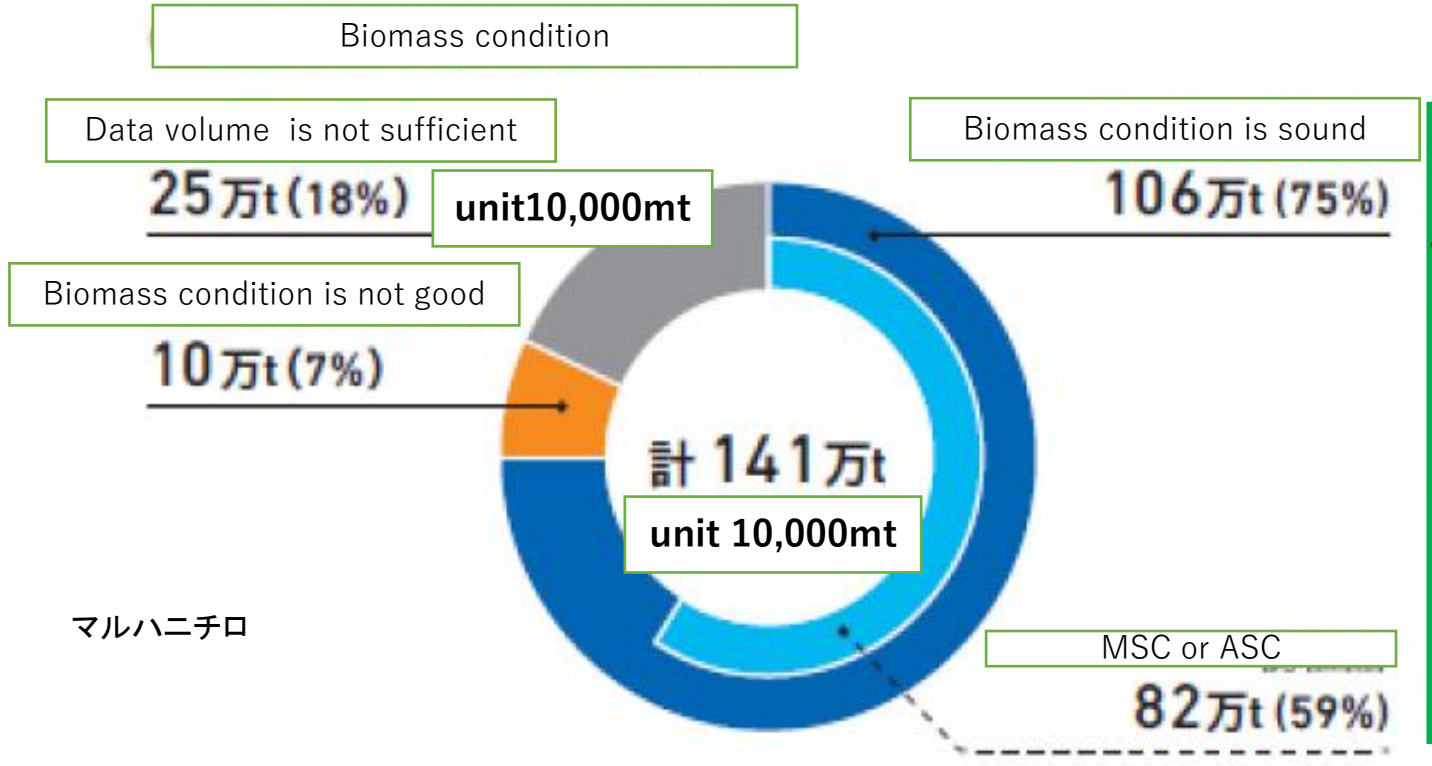
■ Although it should be a common property of the people, the hurdle for legislation is not low.

■ Isn't it important that the "national government" manages the fisheries, not the "fishermen"?

Stock condition of natural resource

Figures come form seafood traded by Maruha Nichiro

※「FishSource」：各国行政機関の水産資源情報等をもとに開発された国際的な資源評価データベース



According to the first resource survey in this form (2021), about 25% of the natural marine products handled have insufficient data and concerns about resource conditions.

The second time is currently underway.

Sustaining marine resources

Maruha Nichiro Group has enjoyed the blessings of nature since its foundation.

Not only improve productivity and profitability we also need to protect the limited marine resources and the global environment by sustaining.

Creating a connected future is our responsibility.

Purpose and Background of Action

【the purpose】

(1) Restoration of marine resources based on scientific evidence

(2) Making Japanese fisheries industry a growth industry

(3) Aiming for the soundness of the fisheries industry, working together with stakeholders and following other companies in the industry. We encourage them to do so.

[Background of action]

① SDGs14 (Let's protect the abundance of the sea) SDGs17 (Let's achieve the goals through partnerships)

(2) Japan Economic Research Council (Nikkei Survey) Participated in formulating proposals for the 3rd Fisheries Association Reform Committee.

③ Commitment at SeaBOS

SeaBOS

・Improve our own operations and encourage others in the industry to follow suit… Ensuring the ocean as a whole. We will also provide support to regulators so that they are managed in a sustainable manner.

・Actively work with governments to improve existing regulations on fisheries, aquaculture and the ocean.

SeaBOS will form alliances with the private sector and scientists to solve fisheries issues

What is SeaBOS？

SeaBOS

What is SeaBOS (Seafood Business Ocean Stewardship)?

For sustainability scientists to lead evidence-based strategies and actions A global initiative founded in 2016. From Japan, three companies (Maruha nichiro, Nissui, and Kyokuyo) Participate.

MARUHA NICHIRO
海といのちの未来をつくる

ニッスイ

キョクヨー

Dongwon

Thai Union

SKRETTING
a Nutreco company

Cargill

CERMAQ

CPF

Thank You!