UrnerBarry CONSULTING

May 17th, 2023

Surimi Paste Supply Track
Executive Summary, Q4 2022

Prepared by Urner Barry Consulting for the Genuine Alaska Pollock Producers, GAPP

Highlights

- Global surimi production estimates suggest overall volumes declined in 2022 year-over-year by about 3.2 percent.
- Such a decline was led by a reduction in Alaska Pollock surimi production, which contracted 17 percent year-over-year.
- We included Russian pollock surimi production for the first-time using imports declared by receiving countries Figures in 2022 point to about 18 thousand metric tons produced.
- Japanese pollock surimi production estimates suggest a steep decline of 34 percent year-over-year, totaling 30 thousand metric tons.
- Pacific whiting surimi production estimates suggest a 22 percent increase year-over-year.
- Overall, tropical surimi production estimates remained flat in 2022 compared to 2021.
- Itoyori surimi production increased by nearly 9 percent year-over-year; this species is the immediate substitute for Alaska Pollock surimi production.
- Production estimates for ribbon fish suggest a 6 percent increase year-over-year.
- Chinese surimi production estimate (tropical + carp) suggest a very slight increase year-over-year.

The following report is only an executive summary of all the data points analyzed. Because of the many ways the data analyzed can be presented, these summaries only provide a general overview of each data series. However, the data requested by the members is available in many ways in the excel files provided. All data can be easily manipulated to fit each member's presentation preference, whether in tables, charts, or raw data.

The nuances for many calculations are many, as these vary widely from species to species, origins, destinations, etc. The methodologies for many species are relatively simple since trade data can be assumed to be a function of its production in many cases. However, this is not always the case for specific countries and species. Also, some calculations with limited data and rudimentary methods had to be used to arrive at a "best estimate." Don't hesitate to contact the analyst directly to make changes, suggestions, or corrections for details on each species or market. After exhausting most options available to obtain reliable data, we firmly believe that the estimates presented here are a good approximation of the species, origins, and destinations requested.

Important notice: we added Russian pollock surimi estimates.

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World Production, 2022

Global surimi production estimates in 2022 suggest a decrease of approximately 3.2 percent compared to 2021, registering about 854 thousand metric tons. We must consider that 2021 was a record year and that a slight downward correction is not out of the norm and is in line with pre-pandemic figures. Such a decline was led by a significant contraction in Alaska Pollock surimi from the U.S. of about 17 percent, from 195 to 161 thousand metric tons in 2022. Japanese pollock surimi production also contracted significantly, from 46 to 30.4 thousand metric tons in 2022. Itoyori production estimates suggest a 9 percent increase from 82 to 89 thousand metric tons in 2022.

Tropical surimi production contracted remained flat at roughly ~522 thousand metric tons in 2022. Estimates of Pacific whiting surimi suggest an increase of 22 percent, although we must mention that the margin of error for these estimates is large. *(continued on page 2)*

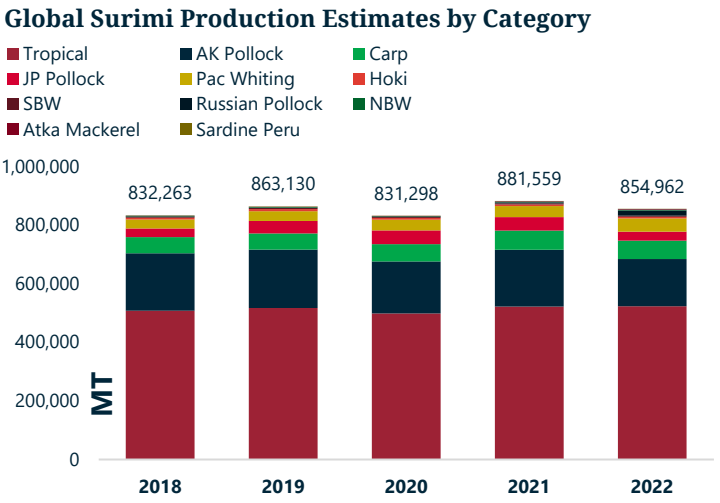

Figure 0. Overall surimi production estimates by species' category. Source: Customs, Urner Barry Consulting, GAPP.

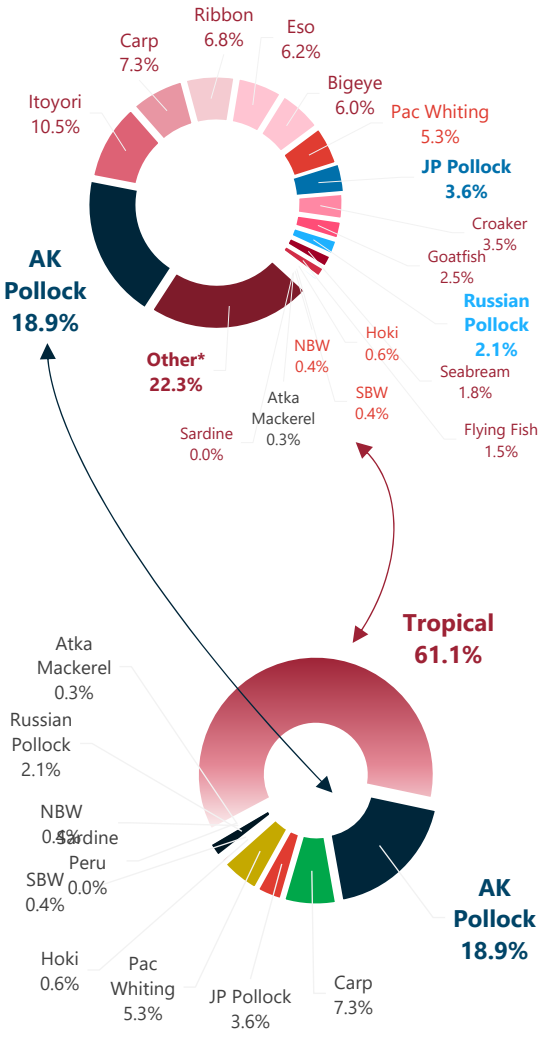

Figure 1 and 2. Pie chart of world surimi production by species and category. Source Urner Barry Consulting, GAPP.

	2018	2019	Y-o-Y % Chg	2020	Y-o-Y % Chg	2021	Y-o-Y % Chg	2022	Y-o-Y % Chg
AK Pollock	196,218	199,451	+1.6%	177,520	- 11.0%	193,688	+9.1%	161,297	- 16.7%
Itoyori	65,014	65,454	+0.7%	63,021	- 3.7%	82,343	+30.7%	89,656	+8.9%
Carp	54,903	55,042	+0.3%	58,797	+6.8%	65,539	+11.5%	62,492	- 4.6%
Ribbon	58,636	57,198	- 2.5%	59,945	+4.8%	54,401	- 9.2%	57,898	+6.4%
Eso	60,052	65,578	+9.2%	56,350	- 14.1%	56,471	+0.2%	53,075	- 6.0%
Bigeye	43,790	40,310	- 7.9%	38,827	- 3.7%	45,209	+16.4%	51,245	+13.4%
Pac Whiting	30,415	33,341	+9.6%	36,354	+9.0%	37,349	+2.7%	45,594	+22.1%
JP Pollock	29,602	42,620	+44.0%	46,981	+10.2%	46,274	- 1.5%	30,469	- 34.2%
Croaker	28,094	31,996	+13.9%	34,055	+6.4%	32,299	- 5.2%	30,313	- 6.1%
Goatfish	18,145	18,207	+0.3%	18,618	+2.3%	30,779	+65.3%	21,567	- 29.9%
Russian Pollock	78	27	- 65.5%	54	+100.6%	3,474	+6343.1%	17,784	+411.9%
Seabream	16,788	18,113	+7.9%	16,398	- 9.5%	16,909	+3.1%	15,147	- 10.4%
Flying Fish	13,011	14,005	+7.6%	12,732	- 9.1%	15,774	+23.9%	12,689	- 19.6%
Hoki	6,300	7,252	+15.1%	6,379	- 12.0%	5,612	- 12.0%	5,280	- 5.9%
SBW	4,043	4,414	+9.2%	3,609	- 18.3%	3,484	- 3.5%	3,755	+7.8%
NBW	2,665	2,745	+3.0%	1,852	- 32.5%	2,973	+60.5%	3,130	+5.3%
Atka Mackerel	758	817	+7.8%	1,110	+35.9%	1,163	+4.8%	2,312	+98.8%
Sardine	224	1,080	+382.1%	640	- 40.7%	719	+12.3%	408	- 43.3%
Other*	*203,527*	*205,482*	*+1.0%*	*198,056*	*- 3.6%*	*187,100*	*- 5.5%*	*190,851*	*+2.0%*
Total	**832,263**	**863,130**	**+3.7%**	**831,298**	**- 3.7%**	**881,559**	**+6.0%**	**854,962**	**- 3.0%**

Other includes all tropical surimi produced in China, as well as sardine and other species not listed mainly for tropical surimi*

Table 1. World surimi production estimates by species. Source: Urner Barry Consulting, GAPP.

	2018	2019	Y-o-Y % Chg	2020	Y-o-Y % Chg	2021	Y-o-Y % Chg	2022	Y-o-Y % Chg
Tropical	507,056	516,343	+1.8%	498,003	- 3.6%	521,285	+4.7%	522,441	+0.2%
AK Pollock	196,218	199,451	+1.6%	177,520	- 11.0%	193,688	+9.1%	161,297	- 16.7%
Carp	54,903	55,042	+0.3%	58,797	+6.8%	65,539	+11.5%	62,492	- 4.6%
JP Pollock	29,602	42,620	+44.0%	46,981	+10.2%	46,274	- 1.5%	30,469	- 34.2%
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Atka Mackerel	758	817	+7.8%	1,110	+35.9%	1,163	+4.8%	2,312	+98.8%
Sardine Peru	224	1,080	+382.1%	640	- 40.7%	719	+12.3%	408	- 43.3%
Total	**832,263**	**863,130**	**+3.7%**	**831,298**	**- 3.7%**	**881,559**	**+6.0%**	**854,962**	**- 3.0%**

Table 2. World surimi production estimates by species' category. Source: Urner Barry Consulting, GAPP.

Alaska Pollock Surimi Production

Continued from page 1 ... Finally, we added Russian pollock surimi to the mix, which assumes that volumes imported by declaring countries from this origin should add to total production. As such, Russian pollock surimi production estimates suggest 2022 ended at about 17.7 thousand metric tons in 2022.

Alaska Pollock Surimi

We presented preliminary year-end production figures for Alaska pollock surimi in our last report, and the final figures point out a significant decrease of 17 percent from the previous year. Preliminary figures for 2023 indicate a considerable increase in Q1 compared to the previous three years.

US Production, Alaska Pollock Surimi (MT)									
	2018	2020	'20 vs. '18	2021	'21 vs. '20	2022	'22 vs. '21	2023	'23 vs. '22
Q1	78,451	73,647	-6.1%	59,033	-19.8%	65,191	+ 10.4%	75,954	+ 16.5%
Q2	26,448	14,890	-43.7%	32,804	+ 120.3%	15,211	-53.6%		
Q3	86,666	69,935	-19.3%	95,932	+ 37.2%	78,865	-17.8%		
Q4	4,653	19,048	+ 309.4%	5,919	-68.9%	2,030	-65.7%		
Total	196,218	177,520	-9.5%	193,688	+ 9.1%	161,297	-16.7%		
YTD	78,451	73,647	-6.1%	59,033	-19.8%	65,191	+ 10.4%	75,954	+ 16.5%

Table 3. Alaska Pollock Surimi Production by Quarter. Source: NOAA Fisheries, Urner Barry. Q4 2021 data is complete.

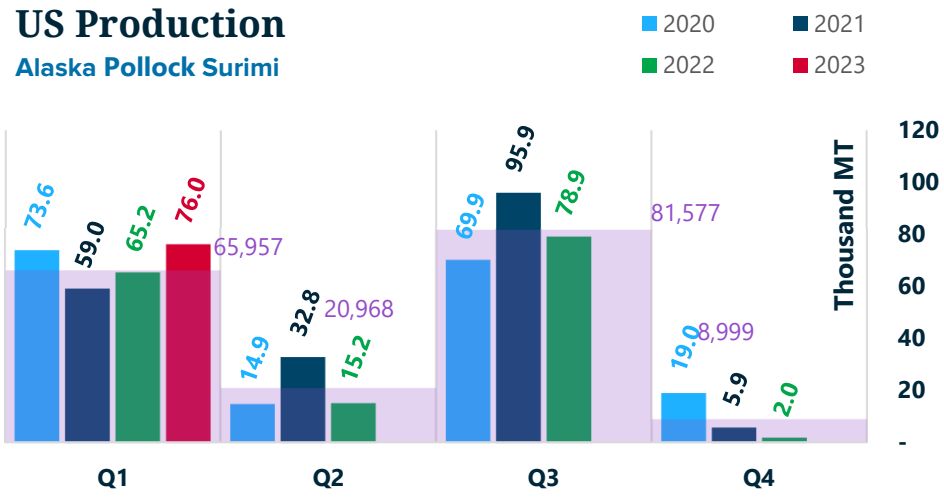

Figure 3. Alaska Pollock Surimi Production by Quarter. Source: NOAA, Urner Barry. Q4 2021 data is complete.

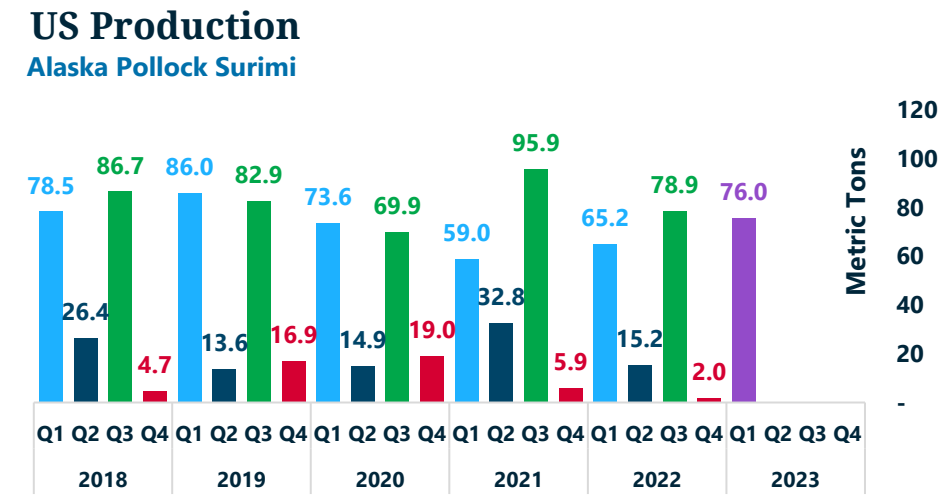

Figure 5. Alaska Pollock Surimi Production by Quarter, linear. Source: NOAA Fisheries, Urner Barry. *Q2 2023 data is incomplete.

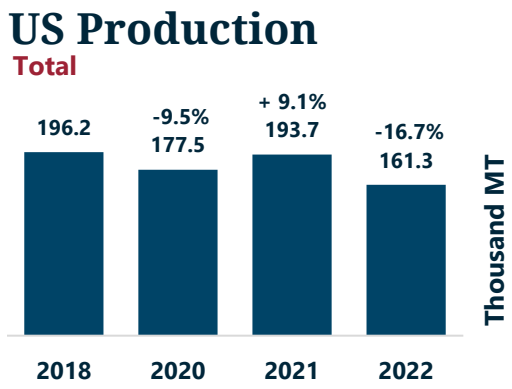

Figure 4. Total Alaska Pollock Surimi Production Source: NOAA Fisheries, Urner Barry Consulting.

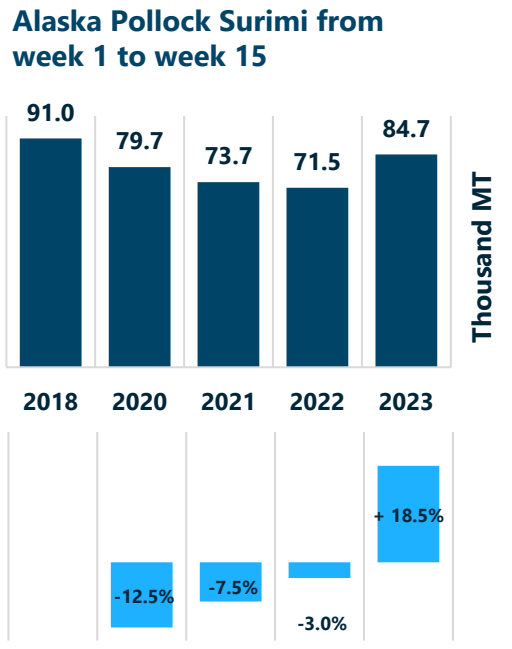

Figure 4.1 Alaska Pollock Surimi Production and YTD through week 15. Source: NOAA Fisheries, Urner Barry Consulting.

Alaska Pollock Surimi Trade (Imports)

Through week 15, current production figures point to an 18.5 percent increase compared to a year ago. Preliminary figures through Q1 registered 75.9 thousand metric tons, up 16.5 percent year-over-year.

Countries declaring imports of AKP surimi contracted by about the same amount, from 153.8 to 130.4 thousand metric tons in 2022. Because trade is a production function, most importing countries would have seen a volume contraction in 2022. Furthermore, except Thailand, all major destination markets saw a contraction compared to 2021.

Alaska Pollock Surimi Imports	*YTD from (Q1 to Q4)						
All Countries							
	2019	2020	'19 vs. '20	2021	'20 vs. '21	2022	'21 vs. '22
Q1	18,726	15,333	-18.1%	17,201	+ 12.2%	21,060	+ 22.4%
Q2	57,757	53,638	-7.1%	49,340	-8.0%	39,260	-20.4%
Q3	34,814	30,683	-11.9%	34,694	+ 13.1%	38,309	+ 10.4%
Q4	47,683	46,338	-2.8%	52,598	+ 13.5%	31,748	-39.6%
Total	158,980	145,992	-8.2%	153,833	+ 5.4%	130,377	-15.2%
*YTD	158,980	145,992	-8.2%	153,833	+ 5.4%	130,377	-15.2%

Table 4. Alaska Pollock Surimi Imports. Aggregate by declaring countries' customs.

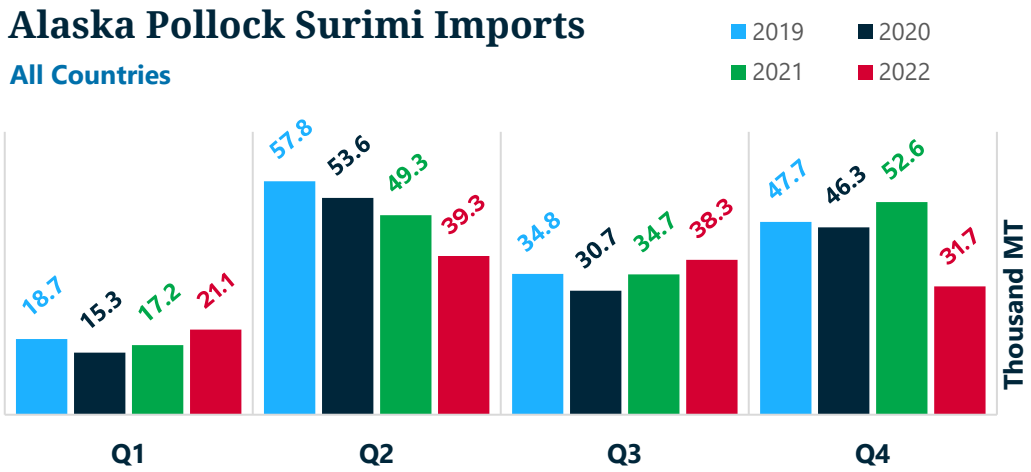

Figure 6. Alaska Pollock Surimi Imports. Aggregate of declaring countries by quarter.

Alaska Pollock Surimi Imports	(Q1 to Q4)						
By Declaring Country through Q4							
	2019	2020	'19 vs. '20	2021	'20 vs. '21	2022	'21 vs. '22
Japan	106,260	83,719	-21.2%	92,104	+ 10.0%	76,114	-17.4%
S. Korea	21,781	22,730	+ 4.4%	24,006	+ 5.6%	21,627	-9.9%
France	14,749	17,954	+ 21.7%	17,650	-1.7%	17,515	-0.8%
Lithuania	2,990	5,941	+ 98.7%	6,840	+ 15.1%	5,489	-19.8%
Thailand	4,309	4,816	+ 11.8%	3,187	-33.8%	3,922	+ 23.1%
Spain	4,541	6,040	+ 33.0%	5,731	-5.1%	3,126	-45.5%
Taiwan	1,522	2,126	+ 39.7%	1,732	-18.5%	1,230	-29.0%
Poland	974	897	-7.9%	1,184	+ 32.0%	819	-30.8%
Belarus	1,011	1,315	+ 30.1%	1,063	-19.2%	297	-72.1%
Norway	328	176	-46.3%	276	+ 56.8%	158	-42.8%
Ukraine	515	278	-46.0%	60	-78.4%	80	+ 33.3%
Total	158,980	145,992	-8.2%	153,833	+ 5.4%	130,377	-15.2%

Table 5. Alaska Pollock Surimi Imports by declaring country.

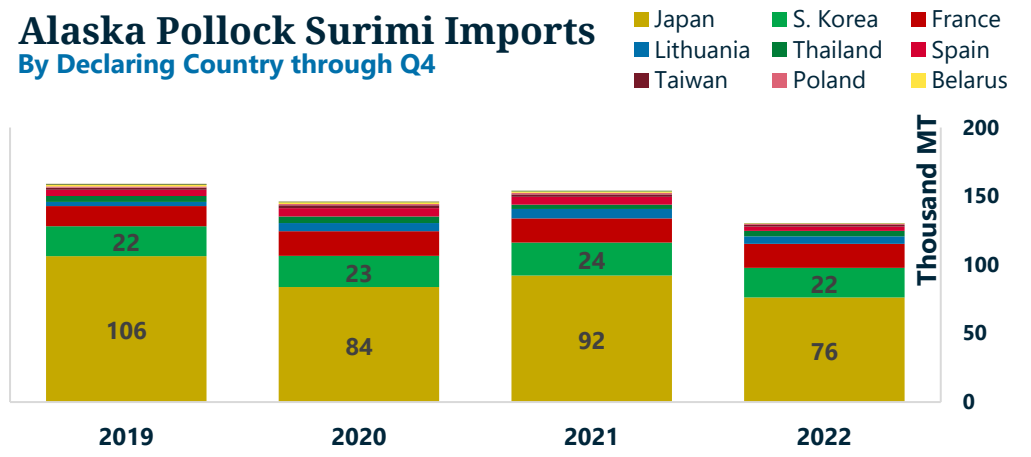

Figure 7. Alaska Pollock Surimi Imports by declaring country.

Alaska Pollock Surimi Trade (Imports), cont.

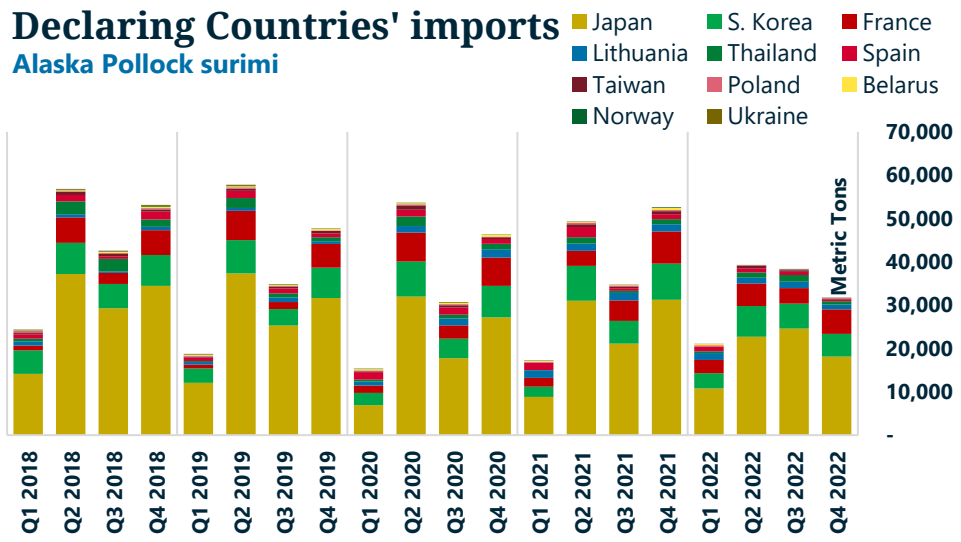

Figure 8. Alaska Pollock Surimi Imports. Linear imports by declaring countries.

Figure 9. Alaska Pollock Surimi Imports vs. U.S. Alaska Pollock Surimi Exports. Smoothed average.

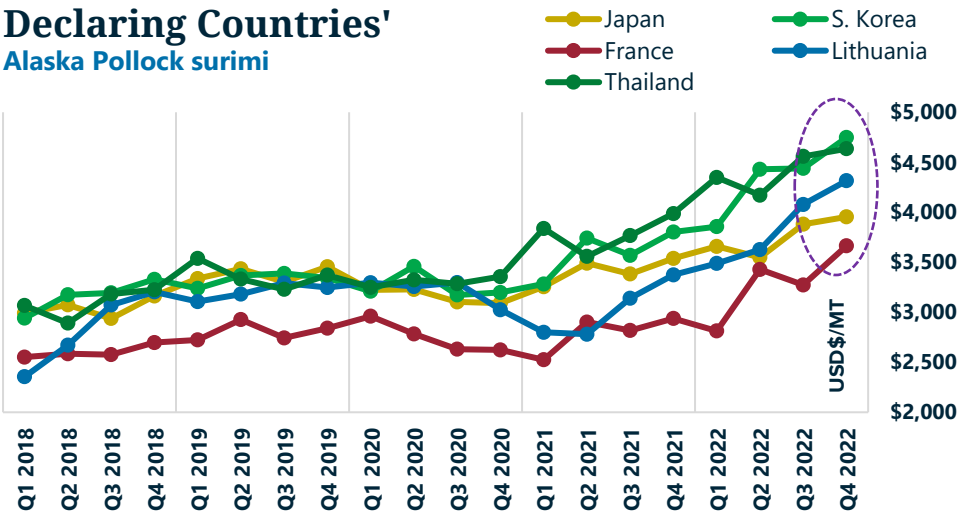

Figure 10. Alaska Pollock Surimi Import Price per MT by declaring country.

Given the production and shipping lag time, declared imports and registered exports must be adjusted accordingly.

Therefore, given the production contraction into Q3 and Q4 of last year, we can expect imports to contract into Q1 of 2023. Furthermore, the continuous trend of imports and production relative to price is inverse, as expected. As a result, one can notice record high prices into Q4 of 2022.

Alaska Pollock Surimi Trade (U.S. Exports)

Looking at U.S. customs figures, we notice a significant contraction in export figures during Q4 relative to the same time in previous years. Such a decrease stemmed from lower production figures in the year's second half. The figures were similar to imports at about 15 percent of those registered a year ago.

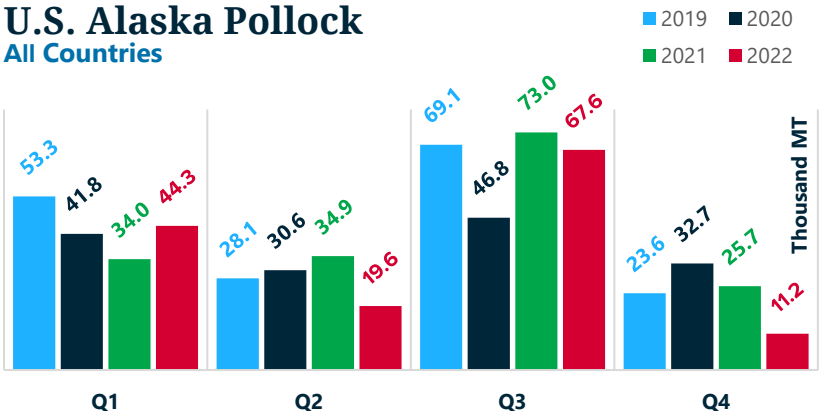

Figure 11. Alaska Pollock Surimi Exports. Aggregate of destination countries by quarter.

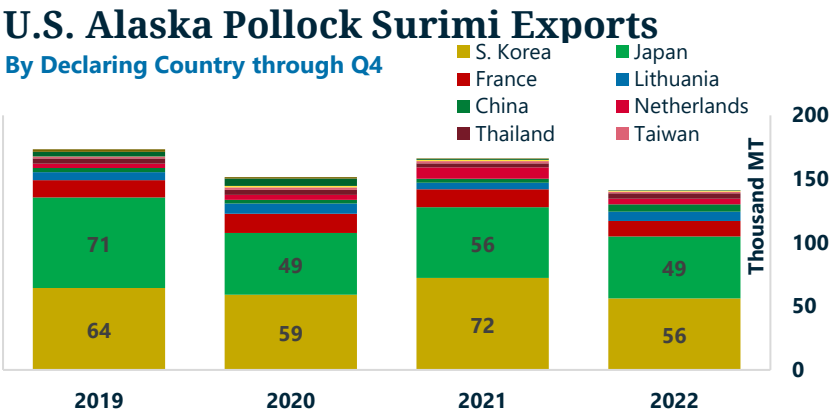

Figure 12. Alaska Pollock Surimi Exports by destination country.

U.S. Alaska Pollock Surimi Exports *YTD from (Q1 to Q4) All Countries	2019	2020	'19 vs. '20	2021	'20 vs. '21	2022	'21 vs. '22
Q1	53,299	41,806	-21.6%	34,010	-18.6%	44,268	+ 30.2%
Q2	28,123	30,634	+ 8.9%	34,944	+ 14.1%	19,632	-43.8%
Q3	69,145	46,755	-32.4%	72,953	+ 56.0%	67,581	-7.4%
Q4	23,564	32,705	+ 38.8%	25,723	-21.3%	11,161	-56.6%
Total	174,131	151,900	-12.8%	167,630	+ 10.4%	142,642	-14.9%
*YTD	174,131	151,900	-12.8%	167,630	+ 10.4%	142,642	-14.9%

Table 6. Alaska Pollock Surimi Exports (U.S.) by quarter. U.S. Customs, Urner Barry.

U.S. Alaska Pollock Surimi Exports (Q1 to Q4) By Declaring Country through Q4	2019	2020	'19 vs. '20	2021	'20 vs. '21	2022	'21 vs. '22
S. Korea	64,308	59,000	-8.3%	72,199	+ 22.4%	56,087	-22.3%
Japan	71,111	48,547	-31.7%	55,546	+ 14.4%	48,718	-12.3%
France	13,557	15,007	+ 10.7%	14,088	-6.1%	12,139	-13.8%
Lithuania	6,354	8,141	+ 28.1%	5,211	-36.0%	7,350	+ 41.0%
China	3,215	2,791	-13.2%	3,035	+ 8.7%	5,771	+ 90.1%
Netherlands	3,437	3,966	+ 15.4%	9,007	+ 127.1%	4,392	-51.2%
Thailand	4,069	3,907	-4.0%	3,074	-21.3%	4,184	+ 36.1%
Taiwan	1,433	2,013	+ 40.5%	1,837	-8.7%	1,355	-26.2%
India	113	1,049	+ 828.3%	941	-10.3%	630	-33.0%
Spain	3,618	5,794	+ 60.1%	790	-86.4%	346	-56.2%
Germany	1,984	1,174	-40.8%	400	-65.9%	95	-76.3%
Total	174,131	151,900	-12.8%	167,630	+ 10.4%	142,642	-14.9%

Table 7. Alaska Pollock Surimi Exports (U.S.) by destination declared.

Japanese Pollock

Japanese pollock surimi production estimates contracted significantly in 2022, down by about 35 percent or roughly 16 thousand metric tons. Estimates indicate that production decreases every quarter of the year compared to the previous two years. It is puzzling that as production and imports contracted in 2022, inventory levels surged to their highest levels since at least 2018.

Atka Mackerel

According to our estimates, although nearly insignificant compared to Japanese pollock volumes, Atka mackerel surimi production has increased considerably over the last few years, more noticeably into Q2 of 2022 at about 1,634 metric tons. Such an increase is consistent with production numbers for Hokkaido, which ended 2022 around 10 percent above last year's.

2022 Japanese Surimi Market

by Tom Asakawa

Japanese Pollock Catch and TAC
Total Pollock TAC remained at around 250,000 MT in JFY 2019-2022, except for 224,700 MT in JFY 2020. The recommendation for JFY 2023 is 258,300 MT.

Annual Pollock catch has gradually increased since the recent bottom at 127,497 MT in 2018 to 174,300 MT in 2021. Still, it is about 25% below 2008-13, when the catch was above 200,000 MT.

Japan and Russia have had a bilateral agreement to allow the Japanese fleet to access the waters of the four Russian-occupied northern islands (Kunashiri, Etorofu, Shikotan, and Habomai). Russia suspended it this year, claiming...

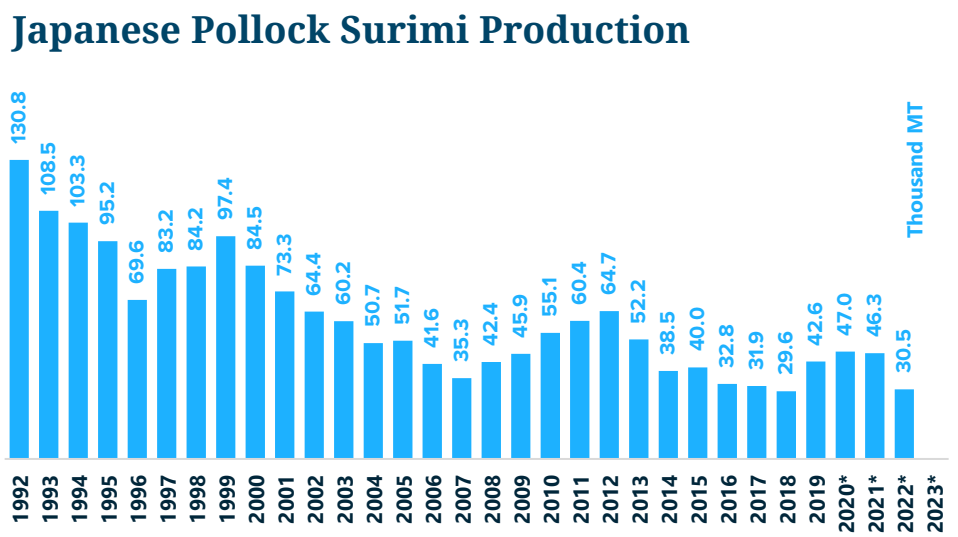

Figure 13. Japanese surimi production estimates. FAO, Japan MOF, Tom Asakawa, TA Pacific Co., and Kambako News, Urner Barry Consulting.

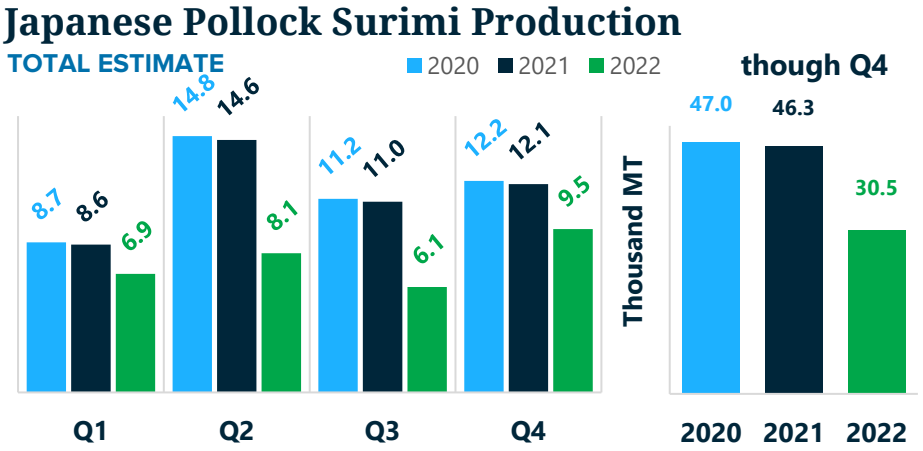

Figure 14. Japanese pollock surimi production estimates. Source: UB Consulting, Tom Asakawa, TA Pacific Co., and Kambako News.

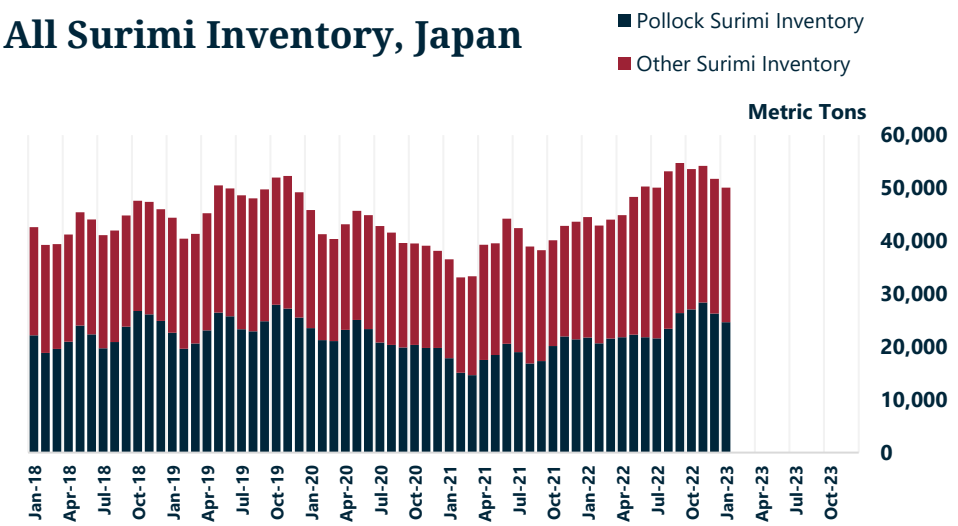

Figure 15. All surimi inventory in Japan. Tom Asakawa, TA Pacific Co., Japan MOF. Urner Barry. Monthly through January 2023.

Japanese Atka Mackerel Surimi, Tom Asakawa

"The anti-Russian measures taken by the Japanese government (due to the Ukraine incident) are contrary to the spirit and language of the 1998 (intergovernmental) agreement." The Japanese fleet used to harvest 955 MT of Pollock and 777 MT of Atka mackerel every year and paid a sum of JPY 42.2 million ($315,456).

The catch of Atka mackerel shows a similar path to Pollock. It dropped sharply from 169,807 MT in 2008 to slightly above 17,000 MT in 2015-16. It rebounded above 33,000 MT in 2018-19 and 45,500 MT in 2021. A TAC for Atka mackerel has been discussed, but the fishers' voluntary management is respected.

Surimi paste imports

In 2022, surimi imported was 226,470 tons, up 5% from the previous year. While the United States, the most significant supplier, did not perform well, imports from Asian countries such as India and Russia, a new producer, contributed to the increase, according to Minato Shimbun.

Imports from the United States decreased by 14% to 82,137 tons, the lowest level in 12 years. Imports of Alaska pollack surimi slumped to 76,115 tons, down 17% from 2021, the lowest level in 12 years, due to the decrease in TAC.

On the other hand, imports from India, the second largest supplier, increased by 20% to a record 47,278 tons. Among them, the volume of itoyori surimi was 7,688 tons, 1.6 times more than the previous year, a significant volume for the first time in eight years. Imports from China, the third largest, increased by 8% to 21,130 tons, the highest in 11 years. Vietnam, the fourth largest importer, increased 6% to 19,972 tons, the highest level in 12 years.

Thailand decreased by 13% to 18,037 tons, the lowest in recent years, less than one-fifth of the 2002 peak of 100,680 tons

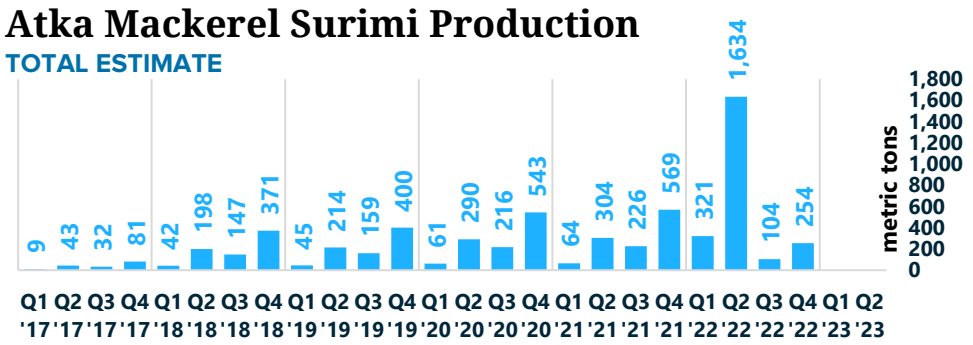

Figure 16. Japanese Atka Mackerel Harvest. FAO, Japan MOF, Tom Asakawa, TA Pacific Co., and Kambako News, Urner Barry.

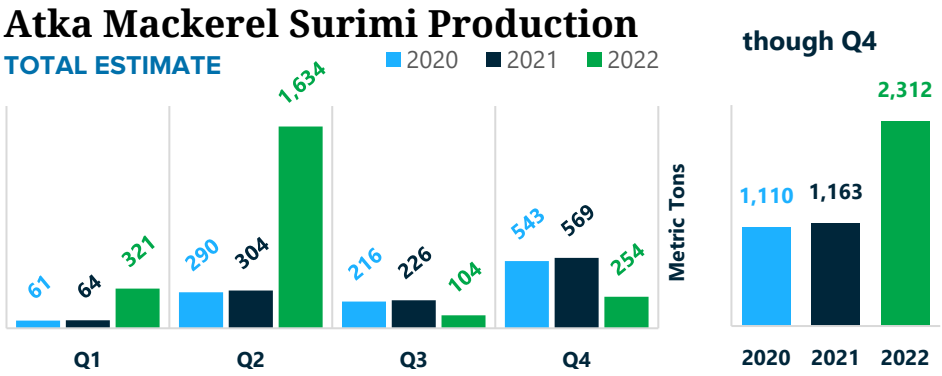

Figure 17. Hokkaido, Atka Mackerel surimi production, Tom Asakawa, TA Pacific Co., and Kambako News, Urner Barry.

Also noteworthy is the dramatic increase in Russian surimi, ranked 6th. Alaska pollack surimi accounted for the entire amount, increasing 5.2 times to 16,116 tons. The presence of the country is increasing as a new surimi producer.

According to a Hokkaido Trawl Fisheries Cooperative Federation report, Russia's Alaska Pollack fishery has adopted a high-level processing strategy. By 2022, the production of frozen surimi, used as a raw material for crab sticks, will increase three to four times the previous year's level. Until mid-November 2021, it produced 24,000 tons of frozen Alaska pollack surimi, four times that of the same period a year ago, of which 14,000 tons was offshore production. It was expected to reach a maximum of 28,000 in 2021, up from 8,000 tons a year ago.

In 2021, the super trawler Vladimir Limanov, belonging to the Russian Fishing Company, began production of offshore surimi, and the Shikotan Island Krabozavodsk plant, which is affiliated with Gidrostroy, a Sakhalin fishery group, began production of onshore surimi.

Gidrostroy also remodeled the trawler Aleksandr Kosarev and Pavel Kutakhov to install a production line and started offshore surimi production. In October 2022, the super trawler Kapitan Budvichenko, owned by the Russian Fishing Company, began trial fishing in the North Kuril waters.

..... ***(continued on page 23)***

Pacific Whiting Surimi

Production estimates of Pacific whiting surimi suggest a significant increase in 2022 of about 22 percent year-over-year, despite a considerable decrease during Q4. We must disclose that since public data is no longer available, our estimate's margin of error has increased considerably.

Another round of changes in how regional offices of the NMFS report this information complicated this process further. As a result, we recurred to even more rudimentary methods to calculate surimi production by category. Please refer to the disclaimer for further information.

Pacific Whiting Surimi Production Estimates

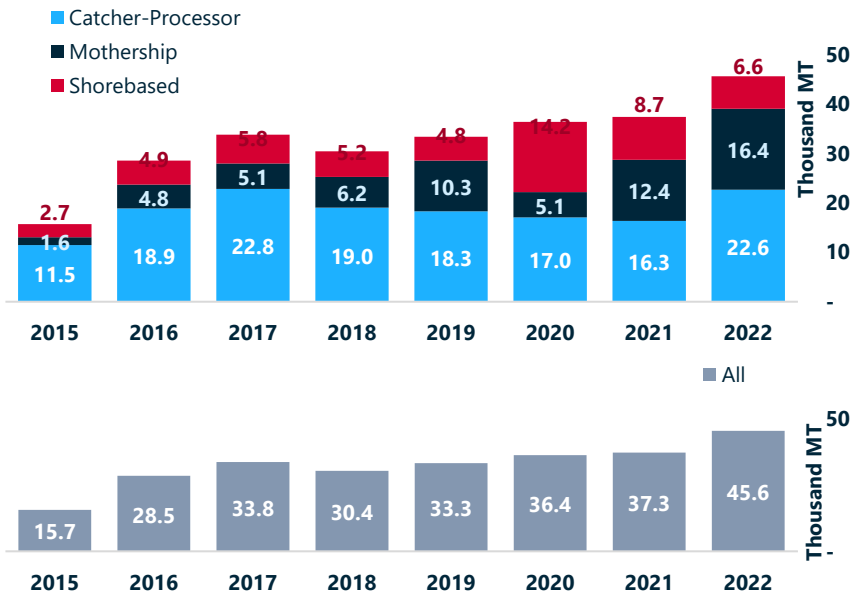

Figure 18. Pacific Whiting Surimi Production. NOAA Fisheries, Northwest Fisheries Science Center, and UB Consulting estimates for *2020, *2021 and *2022.

PW Surimi Production Estimate

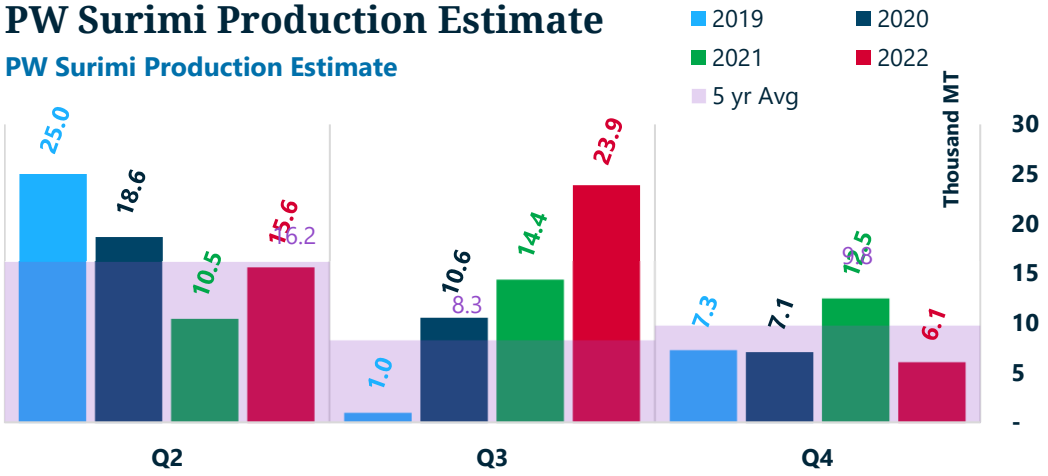

Figure 19. PW Surimi Production Estimate. NOAA, Northwest Fisheries Science Center, Urner Barry Consulting. *Q4 2022 is incomplete.

UB Estimated Production, Pacific Whiting Surimi						**YTD (Q1 to Q4)			
	2018	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1								3	
Q2	14,589	24,989	+ 71.3%	18,648	-25.4%	10,458	-43.9%	15,620	+ 49.4%
Q3	4,899	1,038	-78.8%	10,573	+ 918.4%	14,395	+ 36.2%	23,872	+ 65.8%
Q4	10,928	7,314	-33.1%	7,133	-2.5%	12,495	+ 75.2%	6,099	
Total (UB Est.)	30,415	33,341	+ 9.6%	36,354	+ 9.0%	37,349	+ 2.7%	45,594	+ 22.1%
*Official thru '18	37,010	33,341	-9.9%	36,354	+ 9.0%	37,349	+ 2.7%	45,594	
**YTD	30,415	33,341	+ 9.6%	36,354	+ 9.0%	37,349	+ 2.7%	45,594	+ 22.1%

* UB Estimates

Table 8. Estimated Production from Pacific Whiting Monthly Landings. NOAA Fisheries, Northwest Fisheries Science Center, Urner Barry Consulting.

Disclaimer: There have been no updates on NOAA's Northwest Fisheries Science Center data beyond 2020. As a refresher, although shore-based production figures were suppressed before the most recent update that included 2020 production figures, total production figures were available, making it easy to calculate the remaining variable. However, "All" was also suppressed in the update mentioned above, making it difficult to approximate the missing values. As a result, we had to estimate the remaining figures by using a previously used method. Although this method is relatively rudimentary due to the lack of available data, we feel this approximation is a decent "best estimate" given the limitations. As of August 2021, the FISHEYE app is no longer being regularly updated. Data were last updated on August 4, 2021. Therefore, our estimate method changed again.

Pacific Whiting Surimi Trade (Imports)

Imports (countries declaring imports of Pacific whiting Surimi)

Countries declaring imports of Pacific whiting surimi in 2022 increased by a similar percent change to our production estimates, or around 20 percent year-over-year. Imports in Q4 registered increases compared to the same period over the last two years.

Spain, France, and Japan declared year-over-year increases, while Lithuania, the second-largest market over the last few years, continued to decline.
Prices in Q4 reached a new record high.

Pacific Whiting Surimi Imports *YTD from (Q1 to Q4) All Countries	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1	8,340	4,883	-41.5%	3,379	-30.8%	3,299	-2.4%
Q2	5,101	3,794	-25.6%	3,291	-13.3%	4,737	+ 43.9%
Q3	7,766	7,095	-8.6%	5,214	-26.5%	6,230	+ 19.5%
Q4	7,011	5,622	-19.8%	6,373	+ 13.4%	6,781	+ 6.4%
Total	28,218	21,394	-24.2%	18,257	-14.7%	21,047	+ 15.3%
*YTD	28,218	21,394	-24.2%	18,257	-14.7%	21,047	+ 15.3%

Table 9. Pacific Whiting Surimi Imports, all declaring countries, from the U.S.—each country's customs, Urner Barry Consulting.

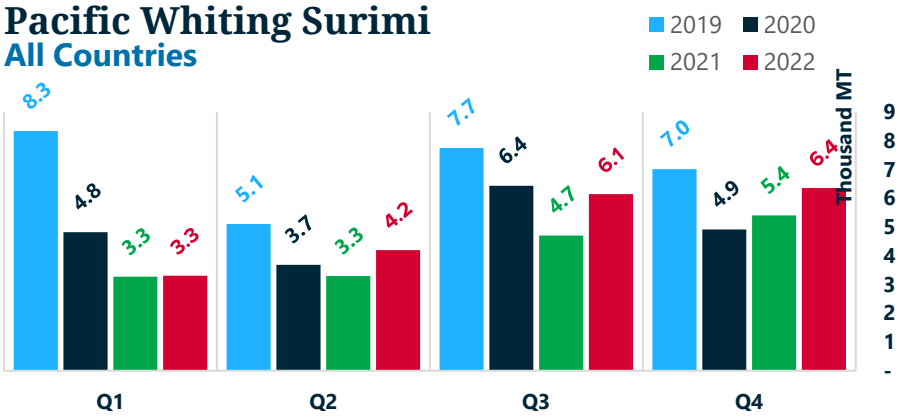

Figure 20. PW surimi imports, all countries by quarter from the U.S. —each country's customs, Urner Barry Consulting.

Pacific Whiting Surimi Imports *(Q1 to Q4) By Declaring Country	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Spain	10,400	8,383	-19.4%	7,633	-8.9%	7,459	-2.3%
Lithuania	7,267	6,133	-15.6%	5,668	-7.6%	4,827	-14.8%
Japan	5,706	2,823	-50.5%	2,392	-15.3%	4,349	+ 81.8%
France	1,241	1,743	+ 40.5%	872	-50.0%	1,989	+ 128.1%
Poland	2,010	1,337	-33.5%	1,060	-20.7%	1,404	+ 32.5%
S. Korea	740	391	-47.2%			116	
Canada	433	343	-20.8%	396	+ 15.5%	544	+ 37.4%
Latvia	68	133	+ 95.6%	7	-94.7%	150	+ 2042.9%
Taiwan	342	103	-69.9%	229	+ 122.3%	208	-9.2%
*Total	28,218	21,394	-24.2%	18,257	-14.7%	21,047	+ 15.3%

Table 10. Pacific Whiting Surimi Imports, by declaring country, from the U.S.—each country's customs, Urner Barry Consulting.

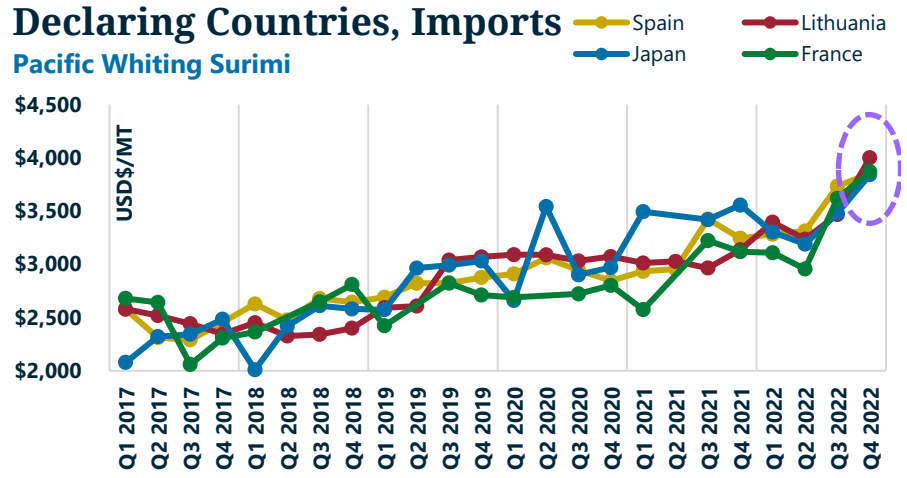

Figure 21. PW surimi import $/MT—each country's customs, Urner Barry Consulting.

Pacific Whiting Surimi Trade (Exports)

U.S. export data shows a very different picture from countries declaring imports. In 2022, export data showed a 30 percent decrease year-over-year. At these levels, volumes exported in 2022 are similar to those shipped in 2019.

Pacific Whiting Surimi Exports *YTD from (Q1 to Q4)							
All Countries							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1	782	495	-36.7%	1,778	+ 259.2%	238	-86.6%
Q2	2,350	1,779	-24.3%	3,218	+ 80.9%	1,499	-53.4%
Q3	4,016	859	-78.6%	741	-13.7%	3,085	+ 316.3%
Q4	1,115	2,383	+ 113.7%	6,810	+ 185.8%	3,876	-43.1%
Total	8,263	5,516	-33.2%	12,547	+ 127.5%	8,698	-30.7%
*YTD	8,263	5,516	-33.2%	12,547	+ 127.5%	8,698	-30.7%

Tables 11. Pacific Whiting surimi Exports. All countries. U.S. Customs, Urner Barry Consulting.

Pacific Whiting Surimi Exports							
Spain							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1				716			
Q2	1,360	781	-42.6%	1,821	+ 133.2%	668	-63.3%
Q3	916					2,424	
Q4	120	1,228	+ 923.3%	2,696	+ 119.5%	1,059	-60.7%
Total	2,396	2,009	-16.2%	5,233	+ 160.5%	4,151	-20.7%
YTD	2,396	2,009	-16.2%	5,233	+ 160.5%	4,151	-20.7%

Table 12. Pacific Whiting surimi exports to Spain. Source: U.S. Customs, Urner Barry Consulting.

Pacific Whiting Surimi Exports *(Q1 to Q4)							
By Reported Destination Country through Q4							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Spain	2,396	2,009	-16.2%	5,233	+ 160.5%	4,151	-20.7%
Netherlands	819	1,276	+ 55.8%	4,649	+ 264.3%	1,278	-72.5%
Lithuania	1,655	977	-41.0%	32	-96.7%	1,248	+ 3800.0%
S. Korea	1,845	440	-76.2%	1,254	+ 185.0%	653	-47.9%
Canada	834	482	-42.2%	709	+ 47.1%	628	-11.4%
Japan	279	134	-52.0%	211	+ 57.5%	334	+ 58.3%
Portugal						204	
Thailand	22	129	+ 486.4%	331	+ 156.6%	137	-58.6%
China		48				29	
*Total	8,263	5,516	-33.2%	12,547	+ 127.5%	8,698	-30.7%

Table 13. Pacific Whiting surimi exports by country U.S. Customs, Urner Barry Consulting.

Such disparity between countries declaring imports and U.S. export data shows a massive disconnect in how these export codes are reported for this species. But it also tells us that compared to surimi, production figures could be overstated, and imports and exports underreported—aside from being misreported. It is not easy to assess this data from a pure analysis perspective.

Still, the relatively decent correlation between landings and surimi production released in the past by the regional offices from the NMFS suggests production figures estimates are likely to be closer to real numbers.

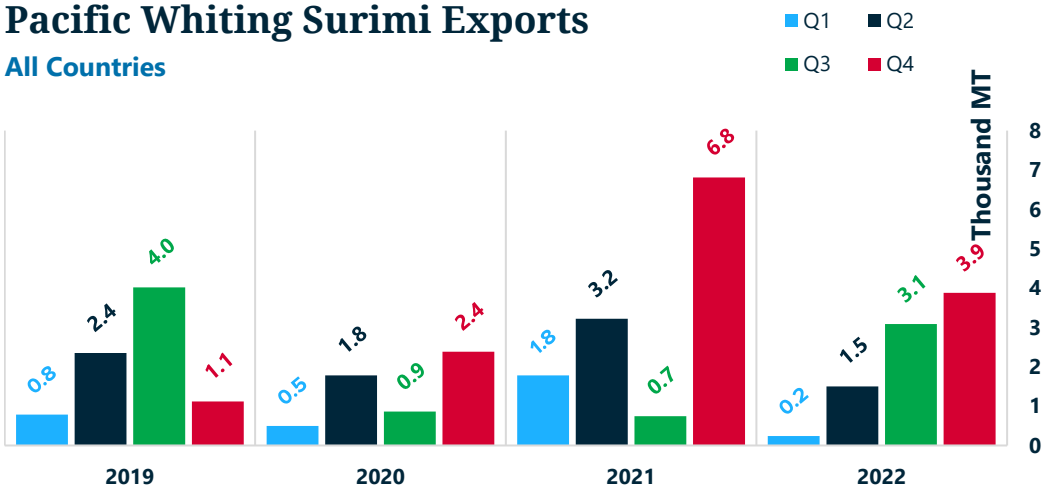

Figure 22. Pacific Whiting surimi exports by quarter. U.S. Customs, Urner Barry Consulting.

Southern Blue Whiting and Hoki Surimi Production

SBW

Production estimates of southern blue whiting surimi decreased increased by nearly 8 percent year-over-year. All three leading producers, Argentina, Chile, and New Zealand, managed to increase compared to last year. Such increase, however, is still below the pre-pandemic levels by roughly 500 metric tons, or 15 percent.

Hoki

On the other hand, Hoki surimi production estimates contracted by about 6 percent in 2022 year-over-year. A contraction out of New Zealand led to such a decrease, while Argentina and Chile managed to increase their production by 8 and 116 percent in 2022 year-over-year.

The overall linear trend since 2017 is downward for both SBW and Hoki surimi production.

Southern Blue Whiting Surimi Production					*YTD from (Q1 to Q4)		
All Countries							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1	952	934	-1.9%	1,199	+ 28.3%	1,233	+ 2.8%
Q2	1,004	865	-13.9%	695	-19.6%	510	-26.6%
Q3	823	690	-16.1%	521	-24.5%	706	+ 35.5%
Q4	1,635	1,119	-31.5%	1,069	-4.5%	1,306	+ 22.2%
Total	4,414	3,609	-18.3%	3,484	-3.5%	3,755	+ 7.8%
*YTD	4,414	3,609	-18.3%	3,484	-3.5%	3,755	+ 7.8%

Table 14. Southern Blue Whiting surimi estimated production.

Southern Blue Whiting Surimi Production					(Q1 to Q4)		
Production by Country							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Argentina	3,235	2,918	-9.8%	2,171	-25.6%	2,353	+ 8.4%
Chile	813	204	-74.9%	999	+ 389.7%	1,028	+ 2.9%
New Zealand	366	487	+ 33.1%	314	-35.5%	374	+ 19.1%
Total	4,414	3,609	-18.3%	3,484	-3.5%	3,755	+ 7.8%

Table 15. Southern Blue Whiting surimi estimated production by country, year-to-date.

Hoki Surimi Production					*YTD from (Q1 to Q4)		
All Countries							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Q1	2,430	1,728	-28.9%	1,383	-19.9%	1,652	+ 19.5%
Q2	1,734	1,681	-3.0%	1,441	-14.3%	984	-31.7%
Q3	1,860	1,571	-15.5%	1,385	-11.9%	1,412	+ 1.9%
Q4	1,228	1,400	+ 14.0%	1,403	+ 0.3%	1,232	-12.2%
Total	7,252	6,379	-12.0%	5,612	-12.0%	5,280	-5.9%
*YTD	7,252	6,379	-12.0%	5,612	-12.0%	5,280	-5.9%

Table 16. Hoki surimi estimated production by country, year-to-date.

Hoki Surimi Production					(Q1 to Q4)		
Production by Country							
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Argentina	4,853	4,376	-9.8%	3,256	-25.6%	3,529	+ 8.4%
Chile	101	135	+ 33.7%	85	-37.0%	184	+ 116.5%
New Zealand	2,298	1,868	-18.7%	2,271	+ 21.6%	1,567	-31.0%
Total	7,252	6,379	-12.0%	5,612	-12.0%	5,280	-5.9%

Table 17 . Hoki surimi estimated production by country. Each country's customs, Urner Barry Consulting.

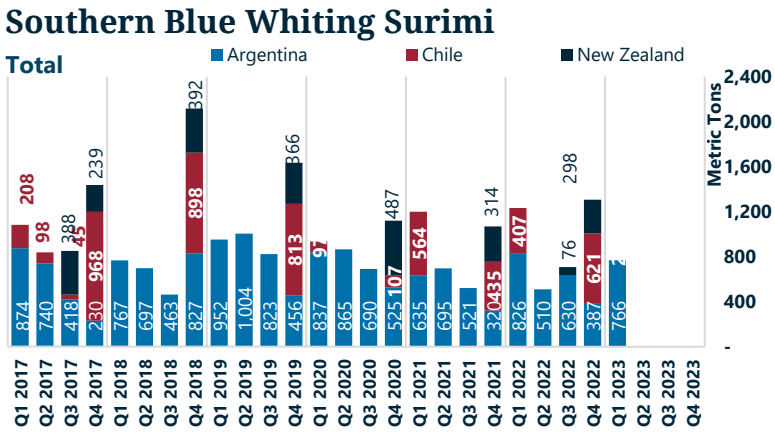

Figure 23. Southern Blue Whiting surimi estimated production by country.

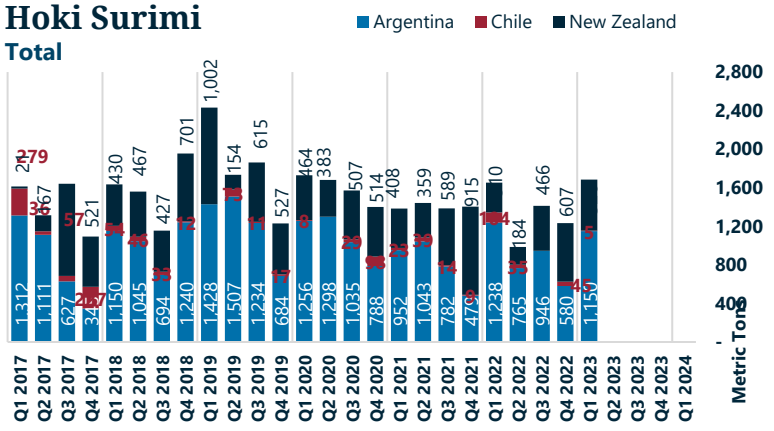

Figure 24. Hoki surimi production estimates. Each country's customs, Urner Barry Consulting.

Disclaimer: Southern blue whiting (SBW) and Hoki surimi production were assumed as a function of trade. There was consensus in which domestic markets for the three leading producers—Argentina, Chile, and New Zealand—were too small to be significant. As such, we utilized the following methodology:

- Use recipient countries' volumes of surimi from Argentina and assume a 60/40 percent split between Hoki and SBW surimi, respectively
- Use Chilean exports as declared, which are divided by species.
- Use New Zealand exports as declared, which are also divided by species.

Southern Blue Whiting and Hoki Surimi Trade

Surimi Imports from Argentina	*(Q1 to Q4)						
Countries Importing from:	Argentina						
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	7,091	6,167	-13.0%	4,795	-22.2%	5,797	+ 20.9%
Russian Federation	900	1,031	+ 14.6%	439	-57.4%	61	-86.1%
Spain							
Belarus	72	96	+ 33.3%	168	+ 75.0%	24	-85.7%
South Africa	25			25			
*Total	8,088	7,294	-9.8%	5,427	-25.6%	5,882	+ 8.4%

Table 18. Surimi imports from Argentina by country.

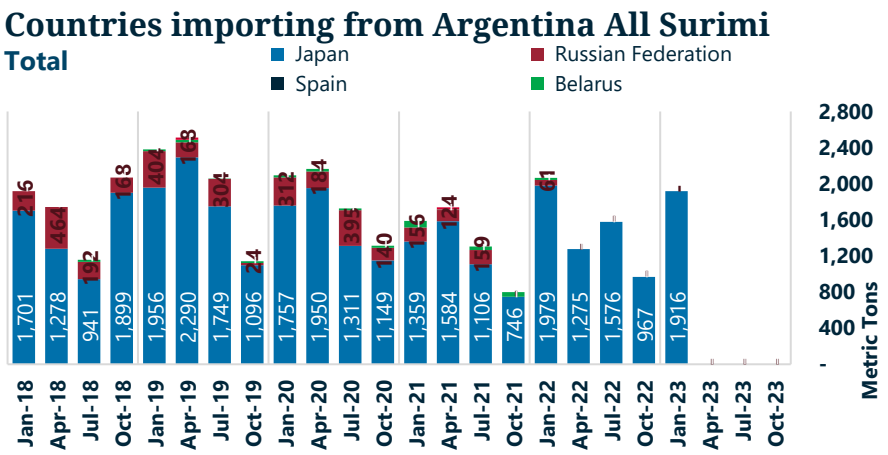

Figure 25. SBW and Hoki Surimi imports from Argentina. *Q2 2021 data is incomplete.

Surimi Imports from Chile	*(Q1 to Q4)						
Countries Importing from:	Chile						
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	2,844	2,040	-28.3%	2,442	+ 19.7%	2,910	+ 19.2%
Russian Federation	163	44	-73.0%	205	+ 365.9%		
Spain						41	
Belarus							
*Total	3,007	2,084	-30.7%	2,647	+ 27.0%	2,951	+ 11.5%

Table 19. Surimi imports from Chile by country.

Surimi Imports from New Zealand	*(Q1 to Q4)						
Countries Importing from:	New Zealand						
	2019	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	781	753	-3.6%	578	-23.2%	827	+ 43.1%
South Africa	40			20			
*Total	821	753	-8.3%	598	-20.6%	827	+ 38.3%

Table 20. Surimi imports from New Zealand by country.

Imports from Argentina:

Japanese imports of Argentinean surimi increased nearly 21 percent in 2022 year-over-year. These trade figures are incomplete, as Russian imports are no longer available since mid-2022 due to the Russia-Ukraine war. Such trade figures could be larger than displayed.

Imports from Chile:

Similarly, Japanese imports from Chile increased by about 20 percent in 2022 year-over-year. Like Argentina, Russian imports of Chilean surimi have not been reported for months, and these figures could be understated

Imports from New Zealand:

Japanese imports of surimi coming from New Zealand increased by 43 percent, from 578 to 827 metric tons in 2022. Historically, Russia has not imported surimi from this country.

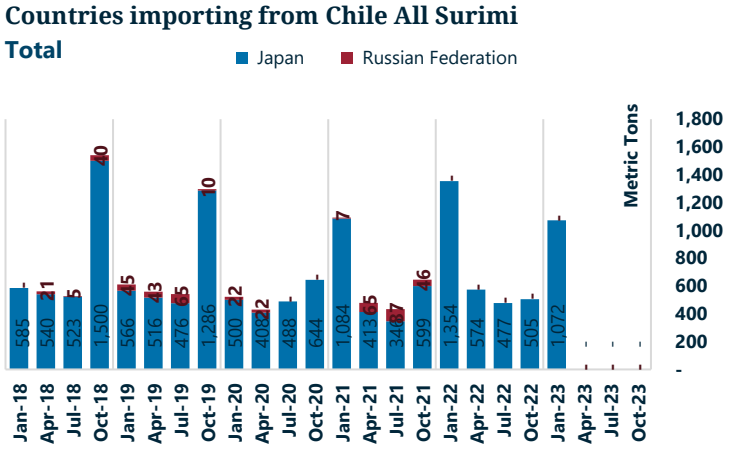

Figure 26. Surimi imports from Chile by country. *Q3 2022 data is incomplete.

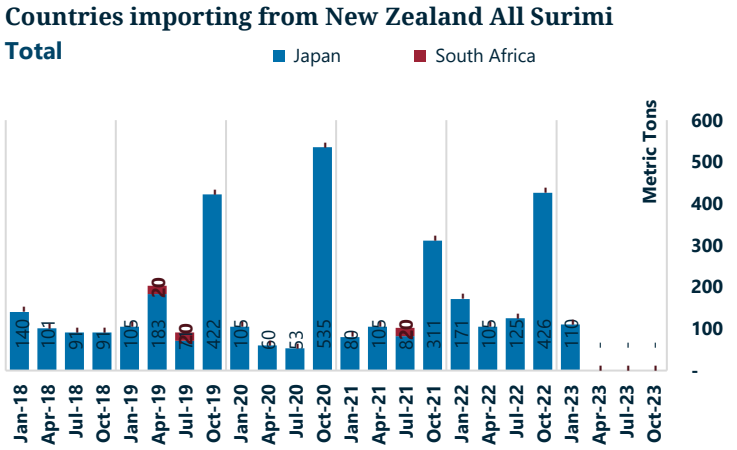

Figure 27. Surimi imports from New Zealand by country. *Q3 2022 data is incomplete.

Northern Blue Whiting Surimi Production, France

Northern blue whiting surimi production estimates from the working group and UBC out of France are shown below. These estimates suggest production in 2022 remained almost on par compared to last year.

In terms of trade, Japanese imports of NBW surimi increased significantly compared to last year, and any other previous year.

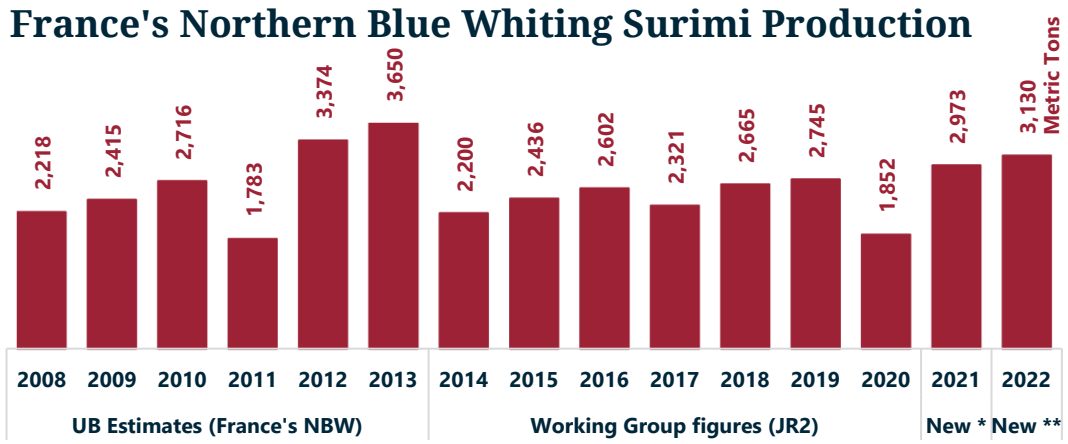

Figure 28. Northern blue whiting surimi production estimates. Source: GAPP, Urner Barry Consulting. *extrapolated + working group feedback, **extrapolated through Q2 only.

Countries importing from France from Q1 to Q4

	Metric Tons	2016	2017	2018	2019	2020	2021	2022
nbw surimi	Japan	670	854	679	958	239	551	1,221
	Belarus	-	-	168	379	293	429	156
	China (People's Republic of)	-	48	166	119	-	24	-
	Spain	-	-	-	87	26	34	69
	Poland	-	-	-	-	-	116	-
	Other	-	-	-	35	2	-	52
	Total	**671**	**903**	**1,014**	**1,577**	**561**	**1,155**	**1,498**

Table 21. Imports by declaring countries of northern blue whiting surimi from France.

Disclaimer: **Production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi

Production of tropical surimi remained flat year-over-year. Itoyori production estimates suggest an increase of 9 percent in 2022 year-over-year. Prices of Itoyori, the main substitute species for AK pollock surimi, remain firm and reached record highs in Q4 in nominal terms and a decrease in Q1 '23, according to incomplete data

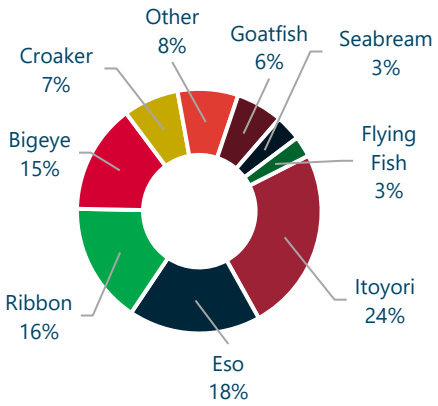

Figure 29. Tropical Surimi estimated breakdown by species. *Does not include China.

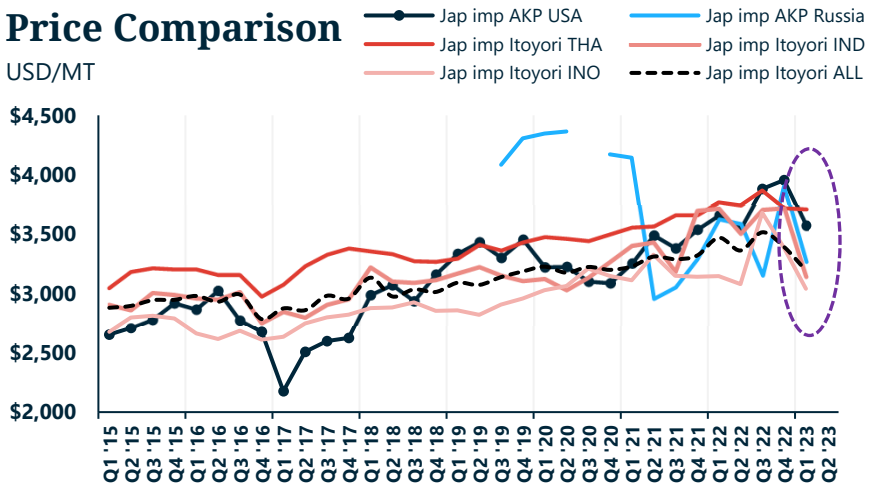

Figure 30. Itoyori vs. AK Pollock of Japan import $/mt comparison. Source: Urner Barry Consulting

Tropical Surimi, Thailand

Thailand's surimi production estimates indicate a decrease of about 20 percent compared to last year, making it the lowest production year on record at about 24 thousand metric tons. Almost all species experienced a decline, particularly Itoyori, which decreased by about 25 percent, or nearly 2 thousand metric tons, compared to last year.

Because production estimates are a function of trade, we adjusted import figures to offset the missed imports from Russia since they stopped publishing their HS figures to non-allies.

Regarding trade, volumes from countries declaring importing surimi from Thailand decreased by about 17 percent year-over-year. Japanese imports of Thai itoyori surimi decreased by 19 percent in 2022, year-over-year. Russian imports of Thai surimi stopped being reported; therefore, numbers could be skewed. When we imputed the values using Thai exports to Russia, aiming to estimate Russian imports of Thai surimi, we still found a considerable decrease year-over-year. As a result of lower production and thus imports of itoyori from Thailand, it makes sense for Japanese buyers to look elsewhere, mainly where the resource appears available, like in India.

Thailand's estimated Production by Species (Imports and Exports) thru Q4

Year	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon Sea Bream	Other	Total
2010	36,444	11,763	9,345	5,468	3,580	3,708	574	4,914	75,795
2011	31,636	10,993	8,734	4,787	3,407	3,485	537	7,258	70,838
2012	23,442	10,385	8,251	7,198	3,155	4,060	3,098	7,331	66,921
2013	21,566	7,885	5,719	4,616	2,446	1,544	2,124	4,906	50,806
2014	22,180	8,451	6,714	3,553	2,624	3,444	2,212	5,276	54,454
2015	18,292	6,874	5,461	4,764	2,129	1,321	1,192	4,261	44,295
2016	15,323	6,330	5,029	3,616	1,926	2,997	2,403	3,164	40,788
2017	12,090	4,870	3,553	2,815	1,482	2,882	810	2,882	31,384
2018	10,734	4,884	3,880	3,336	1,542	2,168	1,483	3,448	31,475
2019	11,878	5,006	3,978	2,870	1,531	1,358	2,109	3,534	32,263
2020	13,546	5,308	4,217	2,238	1,642	3,043	984	3,229	34,207
2021	12,290	4,326	3,688	2,090	1,417	1,694	1,395	3,016	29,917
2022	9,097	6,117	4,108	1,035	1,915	87	205	1,368	23,932

Table 22. Yearly estimates of Thailand's surimi production by species.

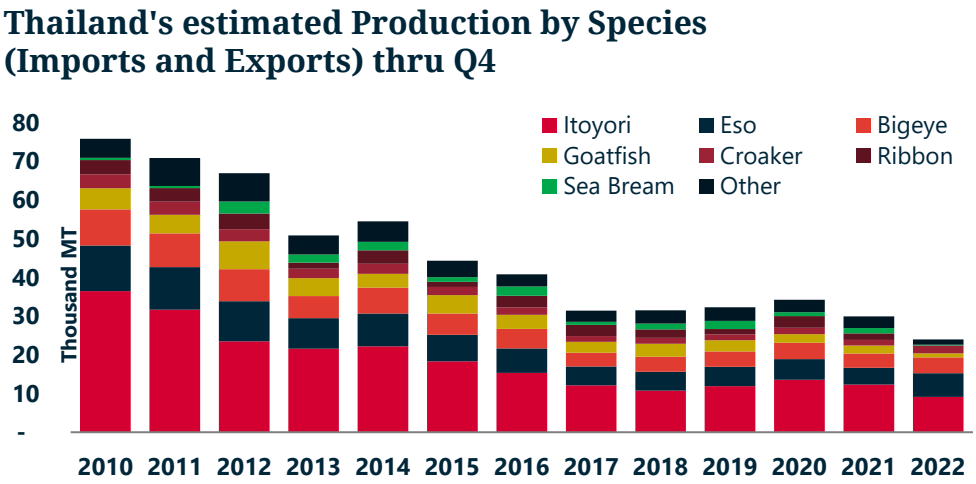

Figure 31. Yearly estimates of Thailand's surimi production by species.

Countries declaring surimi imports from Thailand from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	Barrac, Sea Breams, Kingclip	61	▼ 1.6%	37	▼ 39.3%	25	▼ 32.4%	14	▼ 44.0%	21	▲ 50.0%	37	▲ 76.2%	113	▲ 205.4%
	Itoyori	10,507	▼ 8.7%	8,022	▼ 23.7%	7,242	▼ 9.7%	8,319	▲ 14.9%	8,580	▲ 3.1%	8,634	▲ 0.6%	6,985	▼ 19.1%
	Other	18,790	▼ 0.2%	14,391	▼ 23.4%	14,638	▲ 1.7%	15,037	▲ 2.7%	13,307	▼ 11.5%	12,107	▼ 9.0%	11,054	▼ 8.7%
	Sardine, Other	34		2	▼ 94.1%	3	▲ 50.0%					7		12	▲ 71.4%
S. Korea	All	2,779	▼ 10.5%	1,824	▼ 34.4%	1,464	▼ 19.7%	1,147	▼ 21.7%	1,627	▲ 41.8%	1,248	▼ 23.3%	1,728	▲ 38.5%
Russia	All	2,711	▼ 46.7%	1,406	▼ 48.1%	2,133	▲ 51.7%	2,841	▲ 33.2%	3,541	▲ 24.6%	3,351	▼ 5.4%	388	▼ 88.4%
Malaysia	All	536	▲ 13.1%	529	▼ 1.3%	573	▲ 8.3%	1,021	▲ 78.2%	978	▼ 4.2%	847	▼ 13.4%	380	▼ 55.1%
China	All	532	▼ 13.9%	229	▼ 57.0%	504	▲ 120.1%	348	▼ 31.0%	846	▲ 143.1%	1,063	▲ 25.7%	791	▼ 25.6%
Taiwan	All	227	▼ 38.1%	96	▼ 57.7%	91	▼ 5.2%	306	▲ 236.3%	702	▲ 129.4%	825	▲ 17.5%	587	▼ 28.8%
Hong Kong	All	163	▼ 29.1%	146	▼ 10.4%	174	▲ 19.2%	344	▲ 97.7%	487	▲ 41.6%	595	▲ 22.2%	599	▲ 0.7%
Canada	All	128	▲ 481.8%			104		250	▲ 140.4%	222	▼ 11.2%	278	▲ 25.2%	946	▲ 240.3%
Philippines	All					378		348	▼ 7.9%	122	▼ 64.9%	235	▲ 92.6%	224	▼ 4.7%
New Zealand	All	278	▼ 71.9%	79	▼ 71.6%	61	▼ 22.8%	82	▲ 34.4%	68	▼ 17.1%	39	▼ 42.6%	25	▼ 35.9%
France	All	380	▼ 29.4%	520	▲ 36.8%	470	▼ 9.6%	307	▼ 34.7%						
Lithuania	All			54		379	▲ 601.9%	442	▲ 16.6%	256	▼ 42.1%	215	▼ 16.0%	92	▼ 57.2%
Other		494	▲ 20.8%	238	▼ 51.8%	218	▼ 8.4%	289	▲ 32.6%	308	▲ 6.6%	34	▼ 89.0%	529	▲ 1455.9%
Total		**37,620**	**▼ 10.9%**	**27,573**	**▼ 26.7%**	**28,457**	**▲ 3.2%**	**31,095**	**▲ 9.3%**	**31,065**	**▼ 0.1%**	**29,515**	**▼ 5.0%**	**24,453**	**▼ 17.2%**

Table 23. Countries declaring surimi imports from Thailand. Source: each country's customs, authority, UB Consulting.

**UB Consulting developed a model to estimate total production figures. Thereafter, production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, India

According to our surimi production estimates, volumes out of India increased by about 13 percent in 2022 year-over-year, reaching record-high volumes at about 117.5 thousand metric tons.

Production estimates of itoyori surimi jumped from about 12 thousand metric tons in 2021 to over 20 thousand metric tons in 2022. This increase is significant given the production decrease seen out of Thailand. As a result, it makes sense that prices for Itoyori in Japan remain strong.

Aside from resource availability, it is not unreasonable to suggest that these high prices incentivize efforts to increase the production of itoyori surimi relative to other species.

India's Production by Species (est.) thru Q4

Year	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon	Other	Total
2015	11,254	14,780	7,591	2,724	-	24,874	4,692	**65,915**
2016	8,920	16,212	8,277	2,988	-	28,867	7,199	**72,463**
2017	14,321	25,621	11,769	4,246	-	39,485	7,517	**102,958**
2018	18,140	20,772	11,403	4,245	-	40,713	8,674	**103,947**
2019	8,936	23,786	10,628	3,901	-	38,379	9,514	**95,145**
2020	3,881	22,659	12,347	5,278	-	39,757	8,406	**92,328**
2021	12,372	20,611	15,020	8,584	-	36,333	11,157	**104,078**
2022	20,958	20,611	16,543	9,082	-	40,025	10,327	**117,547**

Table 24. Yearly estimated surimi production from India by species.

India's Production by Species (est.) thru Q4

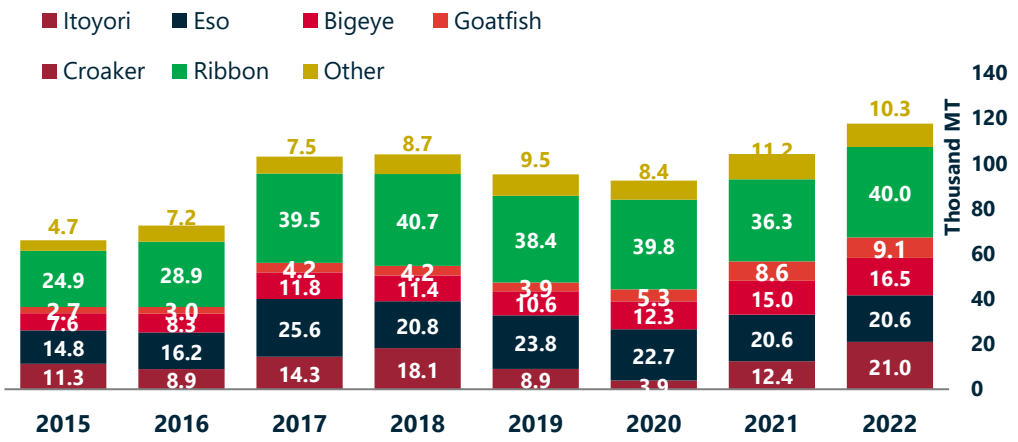

Figure 32. Yearly estimated surimi production from India by species

Countries declaring surimi imports from India from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	Itoyori	4,058	▼ 37.9%	5,410	▲ 33.3%	6,837	▲ 26.4%	3,600	▼ 47.3%	1,442	▼ 59.9%	4,763	▲ 230.3%	7,691	▲ 61.5%
	Other	29,266	▼ 7.5%	32,999	▲ 12.8%	32,589	▼ 1.2%	35,938	▲ 10.3%	31,217	▼ 13.1%	34,705	▲ 11.2%	39,590	▲ 14.1%
	Sardine, Other					10		67	▲ 570.0%						
Taiwan	All	13,018	▲ 10.9%	14,890	▲ 14.4%	17,432	▲ 17.1%	15,476	▼ 11.2%	14,881	▼ 3.8%	13,906	▼ 6.6%	15,062	▲ 8.3%
Thailand	All	627	▲ 187.6%	5,099	▲ 713.2%	5,277	▲ 3.5%	6,896	▲ 30.7%	8,173	▲ 18.5%	14,613	▲ 78.8%	16,798	▲ 15.0%
	Other	520	▲ 24.1%	455	▼ 12.5%	273	▼ 40.0%	157	▼ 42.5%	416	▲ 165.0%	75	▼ 82.0%		
S. Korea	All	3,328	▼ 21.4%	6,249	▲ 87.8%	7,021	▲ 12.4%	6,306	▼ 10.2%	5,894	▼ 6.5%	5,422	▼ 8.0%	6,383	▲ 17.7%
Russia	All	6,885	▲ 194.2%	8,383	▲ 21.8%	9,695	▲ 15.7%	6,695	▼ 30.9%	3,802	▼ 43.2%	5,754	▲ 51.3%	225	▼ 96.1%
Belarus	All	3,134	▲ 12.7%	4,304	▲ 37.3%	4,839	▲ 12.4%	4,713	▼ 2.6%	5,085	▲ 7.9%	4,532	▼ 10.9%	2,475	▼ 45.4%
Malaysia	All	1,061	▲ 68.4%	5,336	▲ 402.9%	4,963	▼ 7.0%	2,769	▼ 44.2%	4,104	▲ 48.2%	3,642	▼ 11.3%	2,129	▼ 41.5%
China	All	1,532	▼ 10.8%	4,541	▲ 196.4%	4,038	▼ 11.1%	3,643	▼ 9.8%	2,934	▼ 19.5%	2,119	▼ 27.8%	2,860	▲ 35.0%
Lithuania	All	2,538		1,774	▼ 30.1%	1,478	▼ 16.7%	1,286	▼ 13.0%	658	▼ 48.8%	980	▲ 48.9%	2,944	▲ 200.4%
Singapore	All	75	▲ 200.0%	1,303	########	1,732	▲ 32.9%	3,014	▲ 74.0%	2,905	▼ 3.6%	2,250	▼ 22.5%	205	▼ 90.9%
Spain	All	1,242	▲ 657.3%	1,100	▼ 11.4%	655	▼ 40.5%	535	▼ 18.3%	492	▼ 8.0%	367	▼ 25.4%	868	▲ 136.5%
Poland	All					1		144	########	840	▲ 483.3%	1,344	▲ 60.0%	1,273	▼ 5.3%
Other		696	▲ 23.4%	1,718	▲ 146.8%	875	▼ 49.1%	725	▼ 17.1%	833	▲ 14.9%	1,236	▲ 48.4%	2,227	▲ 80.2%
Total		**67,980**	**▲ 7.9%**	**93,561**	**▲ 37.6%**	**97,715**	**▲ 4.4%**	**91,964**	**▼ 5.9%**	**83,676**	**▼ 9.0%**	**95,708**	**▲ 14.4%**	**100,730**	**▲ 5.2%**

Table 25. Countries declaring surimi imports form India. Source: each country's customs, authority, UB Consulting

**UB Consulting developed a model to estimate total production figures. Thereafter, production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, Vietnam

Vietnam's **production estimates suggest a decrease of about 2.6 percent compared to 2021 at about 188 thousand metric tons. We must mention that we had to impute the values based on Russian declared imports, which accounted for roughly 12 thousand metric tons last year. Still, after this calculation, production estimates suggest a slight contraction compared to 2021.

Because Vietnam's export figures are unavailable, we imputed Russian declared imports to account for production—and as such, we included that in the trade figures. However, we did not do this for other producing countries regarding trade, only for Vietnam.

Vietnam's Production by Species (est.) thru Q4

	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon Seabream	Flying Fish	Other	Total
2015	30,793	18,384	22,885	17,459	20,204	8,960	13,591	9,278	7,787	149,340
2016	21,591	23,785	17,356	16,968	16,568	12,815	12,725	10,851	10,165	142,825
2017	24,588	25,034	19,448	15,087	17,971	10,430	10,430	8,807	9,907	141,702
2018	25,240	30,501	25,519	8,202	22,950	13,871	13,871	11,799	12,088	164,040
2019	30,980	31,387	21,149	8,635	25,788	14,823	14,823	12,619	12,489	172,693
2020	32,386	22,952	18,975	8,601	27,178	14,177	14,177	11,344	11,831	161,622
2021	44,116	27,290	23,783	18,148	26,616	14,334	14,415	14,482	10,651	193,835
2022	49,430	22,060	27,476	9,761	24,769	16,379	14,059	11,940	12,962	188,836

Table 26. Yearly estimated surimi production from India by species.

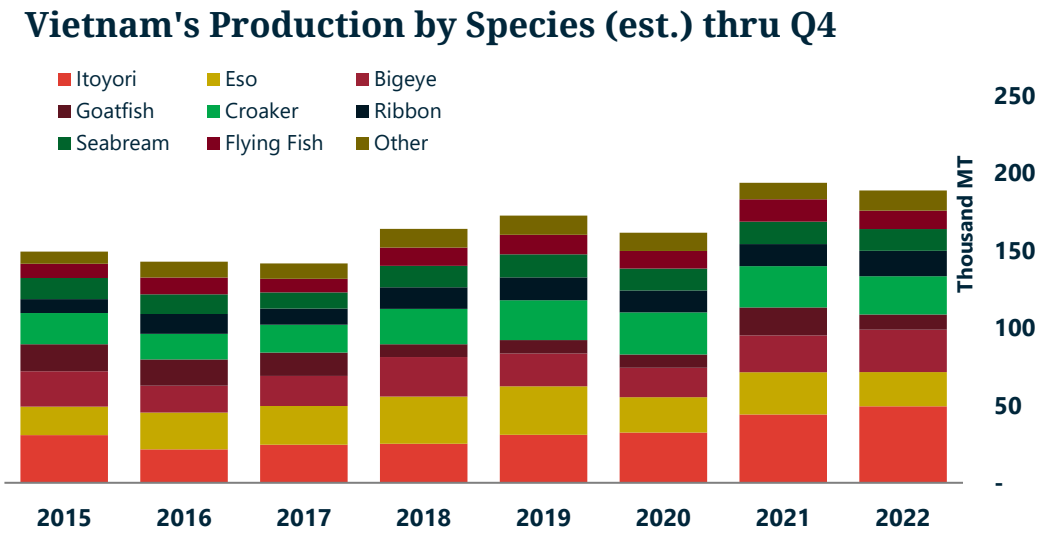

Figure 33. Yearly estimates of Vietnam's surimi production by species.

Countries declaring surimi imports from Viet-Nam from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '14	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
S. Korea	All	53,020	▼ 5.8%	52,191	▼ 1.6%	62,954	▲ 20.6%	57,246	▼ 9.1%	53,115	▼ 7.2%	55,555	▲ 4.6%	52,832	▼ 4.9%
Thailand	All	24,828	▼ 3.2%	28,221	▲ 13.7%	35,193	▲ 24.7%	31,064	▼ 11.7%	31,086	▲ 0.1%	38,652	▲ 24.3%	41,134	▲ 6.4%
	Other	2,875	▼ 10.5%	2,880	▲ 0.2%	1,804	▼ 37.4%	438	▼ 75.7%	119	▼ 72.8%	50	▼ 58.0%		
China	All	11,542	▼ 19.6%	14,610	▲ 26.6%	18,871	▲ 29.2%	25,183	▲ 33.4%	27,963	▲ 11.0%	28,872	▲ 3.3%	25,815	▼ 10.6%
Japan	Barrac, Sea Breams, Kingclip	535	▼ 40.8%	434	▼ 18.9%	771	▲ 77.6%	366	▼ 52.5%	392	▲ 7.1%	377	▼ 3.8%	651	▲ 72.7%
	Itoyori	2,388	▼ 29.1%	2,640	▲ 10.6%	2,604	▼ 1.4%	3,075	▲ 18.1%	2,864	▼ 6.9%	4,274	▲ 49.2%	5,251	▲ 22.9%
	Other	13,496	▲ 4.1%	12,716	▼ 5.8%	14,309	▲ 12.5%	14,380	▲ 0.5%	11,237	▼ 21.9%	14,526	▲ 29.3%	14,720	▲ 1.3%
	Sardine, Other	82	▼ 79.3%	20	▼ 75.6%	4	▼ 80.0%	20	▲ 400.0%	30	▲ 50.0%	7	▼ 76.7%	6	▼ 14.3%
Russia	All	8,059	▲ 16.2%	6,740	▼ 16.4%	6,308	▼ 6.4%	9,612	▲ 52.4%	7,427	▼ 22.7%	12,771	▲ 72.0%	326	▼ 97.4%
Malaysia	All	5,441	▼ 11.7%	6,810	▲ 25.2%	7,311	▲ 7.4%	8,916	▲ 22.0%	8,788	▼ 1.4%	13,391	▲ 52.4%	6,381	▼ 52.3%
Taiwan	All	5,340	▼ 16.5%	3,698	▼ 30.7%	4,567	▲ 23.5%	5,712	▲ 25.1%	5,945	▲ 4.1%	7,490	▲ 26.0%	9,546	▲ 27.4%
Lithuania	All	1,819		2,060	▲ 13.2%	713	▼ 65.4%	2,140	▲ 200.1%	1,534	▼ 28.3%	2,293	▲ 49.5%	1,697	▼ 26.0%
Indonesia	All	3,323	▲ 77.8%	2,298	▼ 30.8%	968	▼ 57.9%	1,948	▲ 101.2%	1,373	▼ 29.5%	2,687	▲ 95.7%	12,603	▲ 369.0%
	Other													125	
Ukraine	All	1,218	▲ 38.4%	1,544	▲ 26.8%	1,742	▲ 12.8%	2,550	▲ 46.4%	2,275	▼ 10.8%	2,599	▲ 14.2%	945	▼ 63.6%
Other		8,859	▲ 335.5%	4,840	▼ 45.4%	5,921	▲ 22.3%	10,043	▲ 69.6%	7,474	▼ 25.6%	10,291	▲ 37.7%	6,552	▼ 36.3%
Total		142,825	▲ 1.0%	141,702	▼ 0.8%	164,040	▲ 15.8%	172,693	▲ 5.3%	161,622	▼ 6.4%	193,835	▲ 19.9%	178,584	▼ 7.9%

Table 27. Countries declaring surimi imports from Vietnam. Source: each country's customs, authority, UB Consulting

**UB Consulting developed a model to estimate total production figures. Thereafter, production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, Indonesia

Surimi **production estimates from Indonesia suggest a steep decline of about 35 percent in 2022 compared to 2021, decreasing nearly 7 thousand metric tons. At about 11 thousand metric tons, these levels are lower than those registered in 2017, which were the lowest estimates since we started to calculate production. Further, according to our estimates, surimi production of all species experienced a decline except bigeye.

Regarding trade, volumes from countries declaring imports declined by about 41 percent compared to last year. Although minimal in volume, it is interesting that Japanese imports of itoyori from this country increased by about 31 percent or roughly 400 metric tons. Most of the decline came from lower imports from Malaysia, which saw volumes decline by 66 percent year-over-year.

Indonesia's Production by Species (est.) thru Q4

	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon Seabream	Flying Fish	Other	Total
2015	6,891	2,232	1,712	583	2,044	2,149	743	1,618	2,315	20,286
2016	6,642	2,386	1,991	1,087	1,958	2,100	843	864	1,704	19,575
2017	4,434	1,667	1,891	260	1,467	1,172	511	260	1,355	13,018
2018	4,837	1,698	1,846	490	1,427	1,444	757	632	1,142	14,272
2019	7,046	2,645	3,125	397	1,987	1,971	397	713	1,590	19,873
2020	7,357	3,160	2,072	459	2,946	2,545	459	837	3,121	22,955
2021	6,955	2,081	1,407	352	2,049	1,583	352	781	2,052	17,610
2022	3,741	1,860	1,715	233	1,327	1,047	233	233	946	11,333

Table 28. Yearly estimates of Indonesia's surimi production by species.

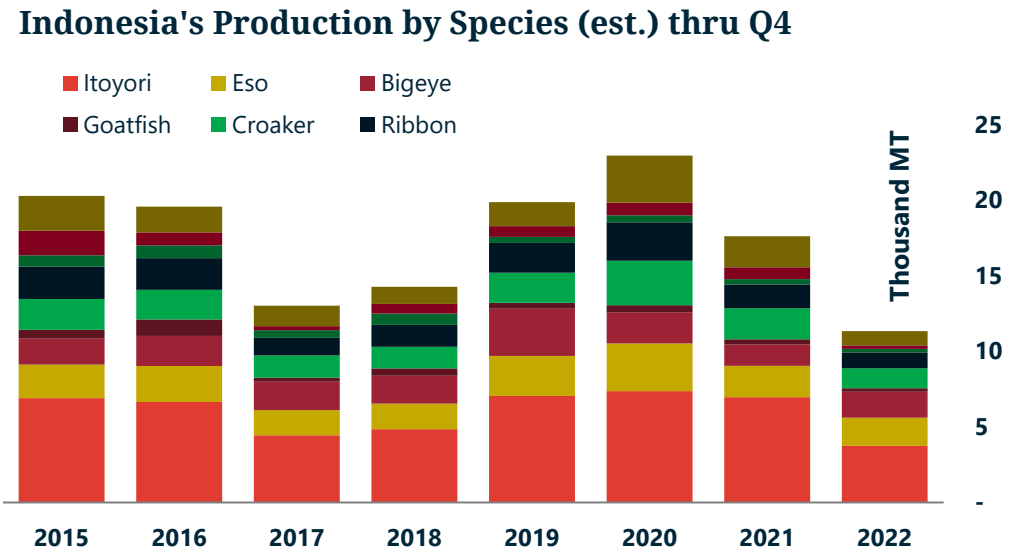

Figure 34. Yearly estimates of Indonesia's surimi production by species.

Countries declaring surimi imports from Indonesia from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Malaysia	All	6,701	▼ 0.2%	3,431	▼ 48.8%	4,223	▲ 23.1%	5,263	▲ 24.6%	8,198	▲ 55.8%	7,868	▼ 4.0%	2,635	▼ 66.5%
S. Korea	All	6,391	▲ 1.3%	4,459	▼ 30.2%	3,810	▼ 14.6%	5,005	▲ 31.4%	5,647	▲ 12.8%	4,311	▼ 23.7%	3,923	▼ 9.0%
Japan	Itoyori	2,472	▼ 34.1%	2,760	▲ 11.7%	1,766	▼ 36.0%	1,425	▼ 19.3%	1,217	▼ 14.6%	1,626	▲ 33.6%	1,105	▼ 32.0%
	Other	4,885	▼ 1.7%	3,372	▼ 31.0%	3,988	▲ 18.3%	2,963	▼ 25.7%	1,830	▼ 38.2%	1,481	▼ 19.1%	1,211	▼ 18.2%
	Sardine, Other	16	▲ 220.0%	45	▲ 181.3%	29	▼ 35.6%	4	▼ 86.2%						
Taiwan	All	2,901	▼ 24.6%	1,986	▼ 31.5%	2,437	▲ 22.7%	2,574	▲ 5.6%	2,629	▲ 2.1%	1,764	▼ 32.9%	1,236	▼ 29.9%
China	All	2,426	▲ 22.8%	2,179	▼ 10.2%	3,479	▲ 59.7%	5,791	▲ 66.5%	7,255	▲ 25.3%	3,253	▼ 55.2%	2,112	▼ 35.1%
Thailand	All	2,522	▲ 47.3%	644	▼ 74.5%	1,233	▲ 91.5%	3,745	▲ 203.7%	2,703	▼ 27.8%	2,163	▼ 20.0%	445	▼ 79.4%
	Other	152	▼ 53.9%	61	▼ 59.9%	16	▼ 73.8%	49	▲ 206.3%	12	▼ 75.5%	4	▼ 66.7%	15	▲ 275.0%
Hong Kong	All	288	▲ 56.5%	132	▼ 54.2%	178	▲ 34.8%	268	▲ 50.6%	288	▲ 7.5%	329	▲ 14.2%	299	▼ 9.1%
Australia	All	227	▼ 18.1%	87	▼ 61.7%	108	▲ 24.1%	89	▼ 17.6%	92	▲ 3.4%	165	▲ 79.3%	101	▼ 38.8%
Philippines	All					249		264	▲ 6.0%	198	▼ 25.0%	207	▲ 4.5%	219	▲ 5.8%
USA	All													204	
Singapore	All	64	▼ 67.7%	227	▲ 254.7%			76		104	▲ 36.8%			200	
Other		159	▲ 123.9%	121	▼ 23.9%	108	▼ 10.7%	30	▼ 72.2%	9	▼ 70.0%	25	▲ 177.8%	27	▲ 8.0%
Total		**29,204**	**▼ 3.8%**	**19,504**	**▼ 33.2%**	**21,624**	**▲ 10.9%**	**27,546**	**▲ 27.4%**	**30,182**	**▲ 9.6%**	**23,196**	**▼ 23.1%**	**13,732**	**▼ 40.8%**

Table 29. Countries declaring surimi imports from Indonesia. Source: each country's customs, authority, UB Consulting

**UB Consulting developed a model to estimate total production figures. Thereafter, production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, Malaysia

Surimi **production estimates for Malaysia suggest levels remained similar to those from last year.

Although production estimates from this country suggest a steadily declining trend since 2015, 2022 registered no change from 2021. In terms of trade, volumes from countries declaring imports from Malaysia in 2022 suggest an increase of about 9 percent year-over-year. Conversely, Malaysian export figures suggest a contraction of 12 percent year-over-year. Such discrepancy leads us to believe there might be some misrepresentation in the data, and as such, one must account for a potential error.

Malaysia's Estimated Production by Species thru Q4

	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon Seabream	Flying Fish	Other	Total
2015	1,689	1,778	926	1,778	883	649	324	178	686	8,891
2016	1,573	1,656	862	1,656	822	604	302	166	639	8,280
2017	1,226	1,291	672	1,291	641	471	235	129	498	6,453
2018	1,295	1,363	710	1,363	677	497	248	136	526	6,816
2019	1,731	1,822	948	1,822	905	665	332	182	703	9,110
2020	1,380	1,452	756	1,452	721	530	265	145	560	7,262
2021	823	867	451	867	430	316	158	87	334	4,333
2022	821	864	450	864	429	315	157	86	333	4,321

Table 30. Yearly estimates of Malaysia's surimi production by species.

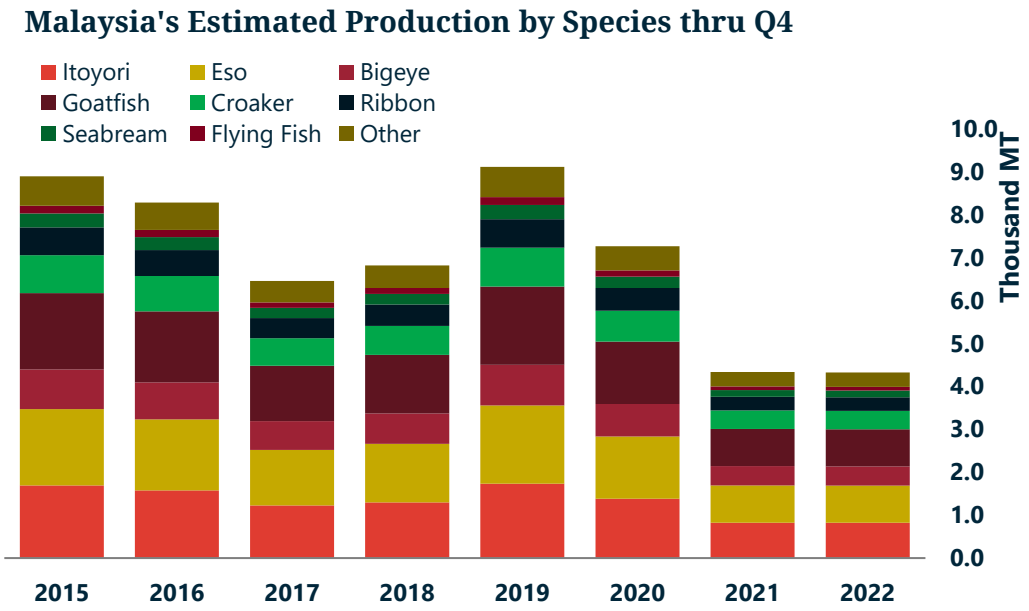

Figure 35. Yearly estimates of Malaysia's surimi production by species.

Countries declaring surimi imports from Malaysia from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	Itoyori			48						36				214	
	Other	6,485	▼ 21.4%	5,489	▼ 15.4%	4,546	▼ 17.2%	4,734	▲ 4.1%	4,661	▼ 1.5%	2,586	▼ 44.5%	2,815	▲ 8.9%
	Sardine, Other							44		57	▲ 29.5%	32	▼ 43.9%	71	▲ 121.9%
Hong Kong	All	29	▼ 63.8%			10		127	▲ 1170.0%	315	▲ 148.0%	365	▲ 15.9%	210	▼ 42.5%
China	All	915	▼ 4.2%	897	▼ 2.0%	971	▲ 8.2%	933	▼ 3.9%	929	▼ 0.4%	623	▼ 32.9%	399	▼ 36.0%
Canada	All			34		34	▲ 0.0%	60	▲ 76.5%	34	▼ 43.3%	34	▲ 0.0%	68	▲ 100.0%
Australia	All	4	▲ 300.0%					5						108	
Singapore	All	92	▲ 41.5%	66	▼ 28.3%	114	▲ 72.7%	48	▼ 57.9%	40	▼ 16.7%	36	▼ 10.0%	11	▼ 69.4%
Thailand	All	96	▼ 65.6%			24		574	▲ 2291.7%	25	▼ 95.6%				
	Other	19													
Taiwan	All	122	▼ 39.6%	164	▲ 34.4%	25	▼ 84.8%	91	▲ 264.0%	78	▼ 14.3%	66	▼ 15.4%		
Malaysia	All					11									
Philippines	All					33								23	
S. Korea	All	456	▲ 62.9%	268	▼ 41.2%	300	▲ 11.9%	251	▼ 16.3%	1,106	▲ 340.6%	330	▼ 70.2%	48	▼ 85.5%
Other		52								75		175	▲ 133.3%	665	▲ 280.0%
Total		**8,270**	**▼ 18.4%**	**6,966**	**▼ 15.8%**	**6,068**	**▼ 12.9%**	**6,867**	**▲ 13.2%**	**7,356**	**▲ 7.1%**	**4,247**	**▼ 42.3%**	**4,632**	**▲ 9.1%**

Table 31. Countries declaring surimi imports from Malaysia. Source: each country's customs, authority, UB Consulting

Disclaimer: Trade data for Malaysia seems to match at times between countries declaring imports and official domestic data exports. We used total export figures as a function for **production and use countries declaring imports mainly for trade—although both sets of data are included for all analyzed countries.

**Production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, Pakistan

Pakistan's surimi production estimates suggest a 1 percent increase in 2022 compared to 2021. At roughly 7.6 thousand metric tons, Pakistan remains a steady source of itoyori and other tropical surimi species. Production estimates of Itoyori surimi remained hovered around 4 thousand metric tons.

In terms of trade, volumes from countries declaring imports from Pakistan showed an increase of about 2.8 percent year-over-year. Notably is a 7 percent increase from Thailand and a 16 percent increase in Japanese imports of itoyori.

Pakistan's Estimated Production by Species thru Q4

	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon Seabream	Flying Fish	Other	Total
2015	2,637	527	264	264	527	-	264	264	527	5,274
2016	1,949	362	181	181	221	-	181	181	362	3,616
2017	3,335	651	325	325	469	-	325	325	752	6,508
2018	4,398	800	400	400	400	-	400	400	800	7,997
2019	4,550	890	445	445	652	-	445	445	1,030	8,902
2020	3,948	723	362	362	393	-	362	362	723	7,234
2021	4,028	755	378	378	418	-	418	378	800	7,551
2022	4,075	765	382	382	423	-	423	382	814	7,645

Table 32. Yearly estimates of Pakistan's surimi production by species.

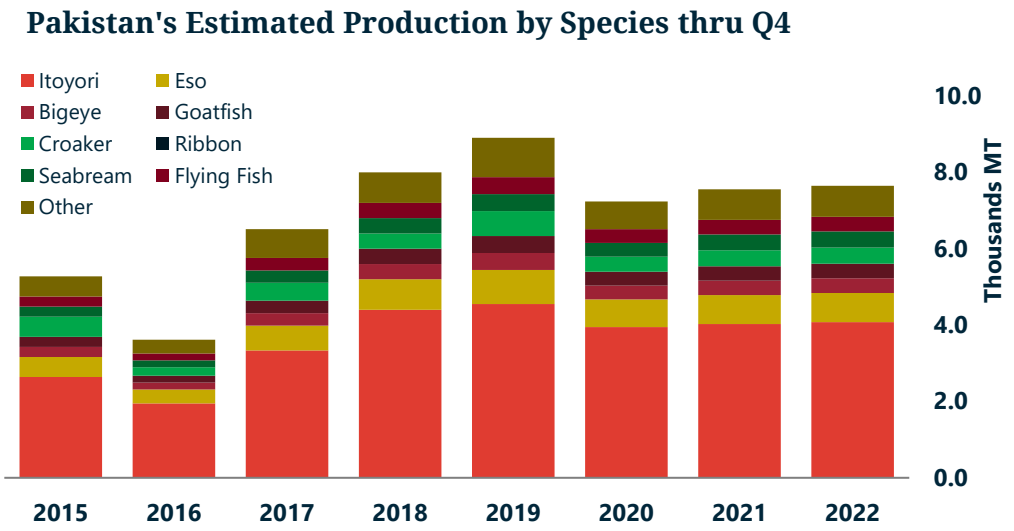

Figure 36. Yearly estimates of Pakistan's surimi production by species.

Countries declaring surimi imports from Pakistan from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Thailand	All	142	▼ 64.3%	1,175	▲ 727.5%	3,074	▲ 161.6%	3,647	▲ 18.6%	2,748	▼ 24.7%	3,487	▲ 26.9%	3,735	▲ 7.1%
	Other	33	▼ 31.3%	19	▼ 42.4%					10		167	▲ 1570.0%	50	▼ 70.1%
S. Korea	All	3,228	▼ 31.0%	4,040	▲ 25.2%	3,449	▼ 14.6%	2,371	▼ 31.3%	1,955	▼ 17.5%	2,421	▲ 23.8%	2,123	▼ 12.3%
Japan	Itoyori	472	▼ 49.7%	1,347	▲ 185.4%	1,336	▼ 0.8%	979	▼ 26.7%	559	▼ 42.9%	1,414	▲ 153.0%	1,640	▲ 16.0%
	Other	16	▼ 52.9%			122		444	▲ 263.9%	305	▼ 31.3%	312	▲ 2.3%	370	▲ 18.6%
China	All	34		983	▲ 2791.2%	1,102	▲ 12.1%	2,440	▲ 121.4%	2,169	▼ 11.1%	1,038	▼ 52.1%	1,528	▲ 47.2%
Malaysia	All	212	▲ 39.5%	260	▲ 22.6%	348	▲ 33.8%	374	▲ 7.5%	247	▼ 34.0%	473	▲ 91.5%	120	▼ 74.6%
Hong Kong	All			25				46		90	▲ 95.7%	132	▲ 46.7%	113	▼ 14.4%
Indonesia	All														
Taiwan	All					24		24	▲ 0.0%						
Philippines	All													26	
Other				25						25					
Total		4,137	▼ 34.3%	7,874	▲ 90.3%	9,455	▲ 20.1%	10,325	▲ 9.2%	8,108	▼ 21.5%	9,444	▲ 16.5%	9,705	▲ 2.8%

Table 33. Pakistan exports by species. Source: Pakistan's customs, authority, UB Consulting

Disclaimer: For Pakistan, we included the table that includes Pakistan exports by destination and the production table. Again, exports are a function of production. Still, since we are assuming that nearly 100 percent of production is exported out of this country, we could not cross-examine countries reporting imports and this country's exports before 2020. Still, they are a decent indicator to see, but we only included exports in this report.

**Production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2020.

Tropical Surimi, Myanmar

Myanmar's surimi production estimates show an increase of 2 percent year-over-year. Such an increase was modest but still hovering around 2,400 metric tons annually. We notice a large discrepancy between Myanmar's export figures and countries declaring imports from this country. Myanmar exports suggest an increase of 75 percent, while imports from declaring countries point to a 2 percent increase.

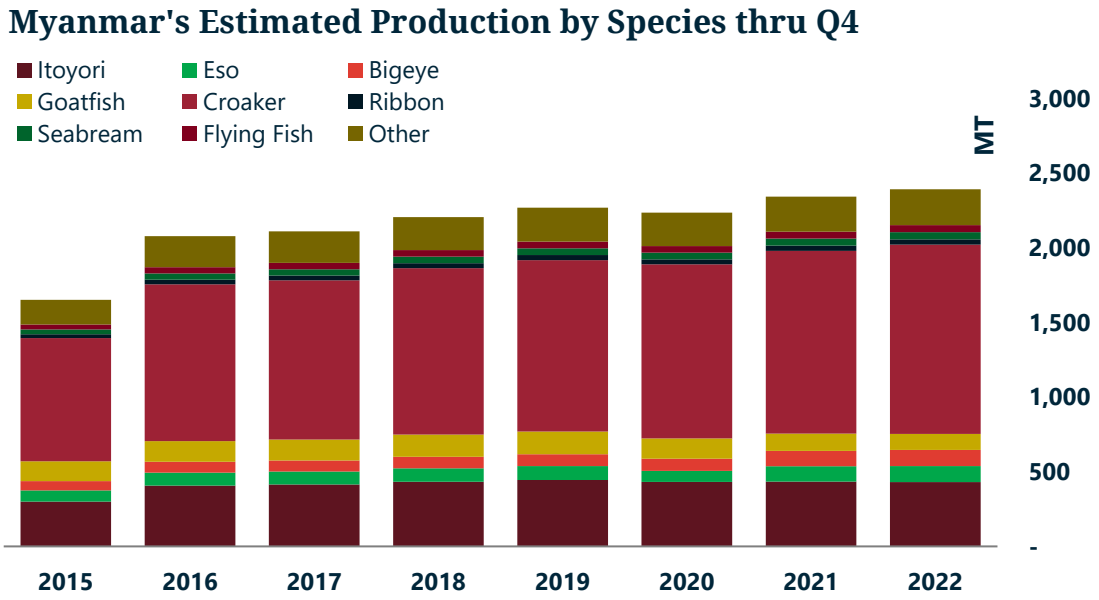

Figure 37. Yearly estimates of Myanmar's surimi production by species.

Myanmar's Estimated Production by Species thru Q4

	Itoyori	Eso	Bigeye	Goatfish	Croaker	Ribbon	Seabream	Flying Fish	Other	Total
2015	299	75	63	133	826	25	33	33	165	1,652
2016	408	87	73	138	1,051	31	42	42	208	2,078
2017	415	87	74	140	1,067	32	42	42	211	2,110
2018	432	90	77	149	1,115	33	44	44	221	2,206
2019	444	94	79	153	1,147	34	45	45	227	2,269
2020	432	74	82	137	1,166	34	45	45	224	2,236
2021	434	103	103	116	1,224	35	47	47	234	2,343
2022	431	108	108	108	1,268	36	48	48	239	2,392

Disclaimer: Myanmar's production is calculated using import data from declaring countries as Myanmar does not publish trade data until the end of the year

Table 34. Yearly estimates of Myanmar's surimi production by species.

Countries declaring surimi imports from Myanmar from Q1 to Q4

Reporter Name	Species	2016	'16 vs. '15	2017	'17 vs. '16	2018	'18 vs. '17	2019	'19 vs. '18	2020	'20 vs. '19	2021	'21 vs. '20	2022	'22 vs. '21
Japan	Barrac, Sea Breams, Kingclip			32		65	▲ 103.1%	54	▼ 16.9%	50	▼ 7.4%	22	▼ 56.0%	39	▲ 77.3%
	Itoyori	584	▲ 13.4%	604	▲ 3.4%	582	▼ 3.6%	575	▼ 1.2%	529	▼ 8.0%	434	▼ 18.0%	530	▲ 22.1%
	Other	400	▲ 10.8%	489	▲ 22.3%	664	▲ 35.8%	625	▼ 5.9%	494	▼ 21.0%	500	▲ 1.2%	535	▲ 7.0%
S. Korea	All	863	▲ 85.2%	675	▼ 21.8%	573	▼ 15.1%	511	▼ 10.8%	506	▼ 1.0%	330	▼ 34.8%	173	▼ 47.6%
Thailand	All	131		111	▼ 15.3%	176	▲ 58.6%	277	▲ 57.4%	57	▼ 79.4%	38	▼ 33.3%	522	▲ 1273.7%
	Other									257		498	▲ 93.8%		
Taiwan	All					63		157	▲ 149.2%	247	▲ 57.3%	456	▲ 84.6%	492	▲ 7.9%
China	All			55		63	▲ 14.5%	50	▼ 20.6%	19	▼ 62.0%	19	▲ 0.0%	69	▲ 263.2%
Malaysia	All	78	▲ 69.6%	112	▲ 43.6%			9		64	▲ 611.1%	9	▼ 85.9%		
Other		22	▲ 175.0%	32	▲ 45.5%	20	▼ 37.5%	11	▼ 45.0%	13	▲ 18.2%	37	▲ 184.6%	32	▼ 13.5%
Total		2,078	▲ 25.8%	2,110	▲ 1.5%	2,206	▲ 4.5%	2,269	▲ 2.9%	2,236	▼ 1.5%	2,343	▲ 4.8%	2,392	▲ 2.1%

Table 35. Countries declaring surimi imports from Myanmar. Source: each country's customs, authority, UB Consulting

Disclaimer: Myanmar's production is calculated using import data from declaring countries as Myanmar does not publish trade data

**Production estimates by species use an internal working group approximation that was then calculated using an in-house non-linear model. The estimates provided by the working group were collected in 2021.

Peru to Japan

Since it is assumed that all Peruvian exports of Peruvian sardine surimi are a production function, we will refer to them interchangeably.
We notice that Japanese imports of Peruvian sardine surimi declined from 719 to 408 metric tons in 2022. Japanese surimi imports from Peru all decreased considerably every quarter throughout 2022. As a result, total Japanese imports from all origins decreased by nearly 60 percent year-over-year.

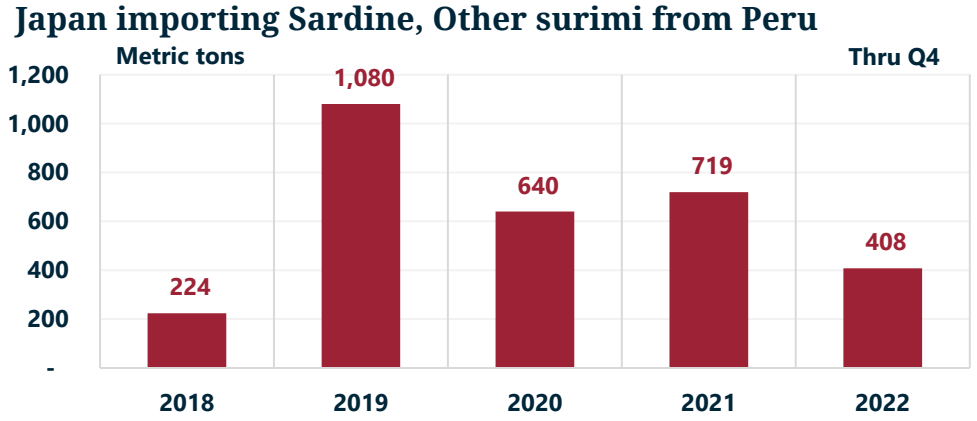

Figure 38. Japanese imports of sardine surimi from Peru. Source: Japan's customs, UB Consulting

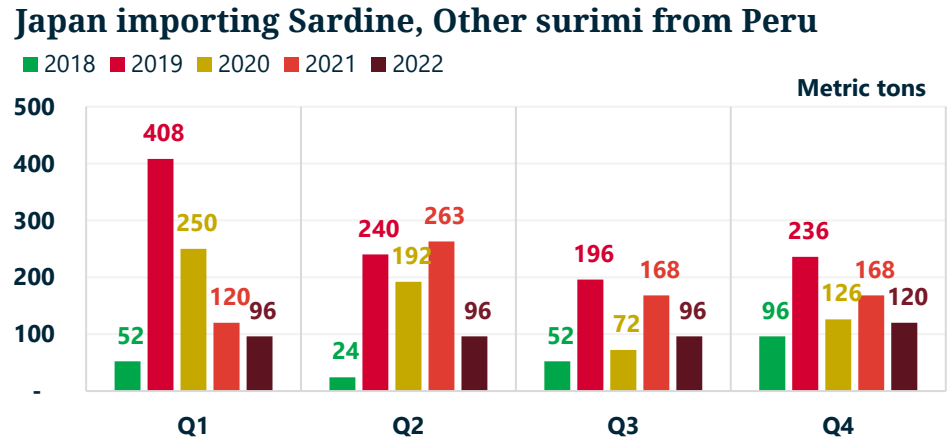

Table 39. Japanese imports of sardine surimi from Peru. Source: Japan's customs, UB Consulting

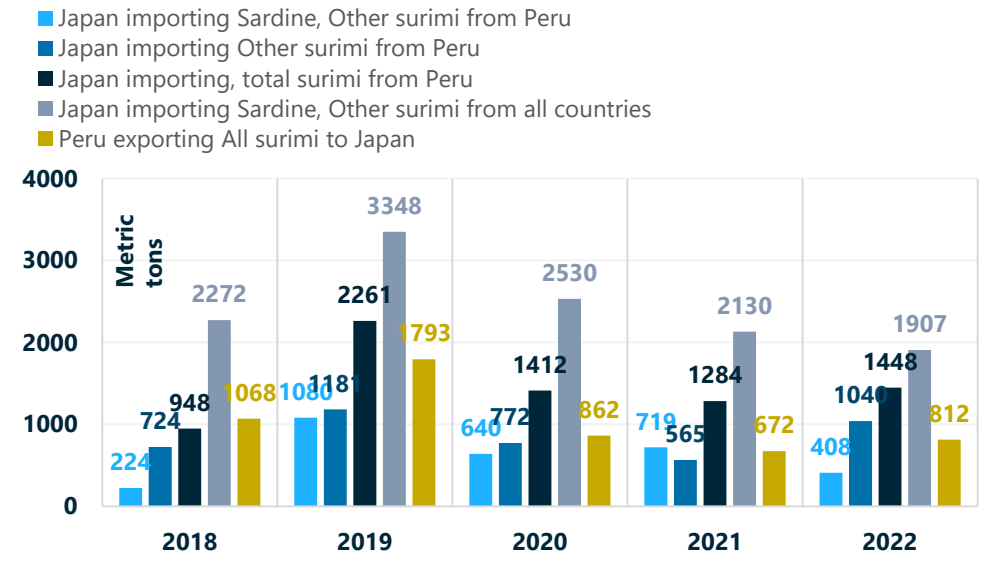

Figure 40. Japanese imports of sardine surimi from Peru, and Peruvian exports of surimi to Japan Source: Japan's customs, Peru's customs, UB Consulting

China, Surimi Production Estimates and Trade

Although we were able to make some estimates for China's production, we could not break them down by species for tropical surimi. For carp, we made some assumptions based on price.

These estimates suggest that surimi production from China increased slightly year-over-year. Tropical surimi production estimates suggest an increase of roughly 3 percent, while production estimates of carp surimi point to a 7.5 percent decrease.

In terms of trade, all main markets registered increases compared to 2021, with imports from the largest market, South Korea, increasing roughly 45 percent year-over-year.

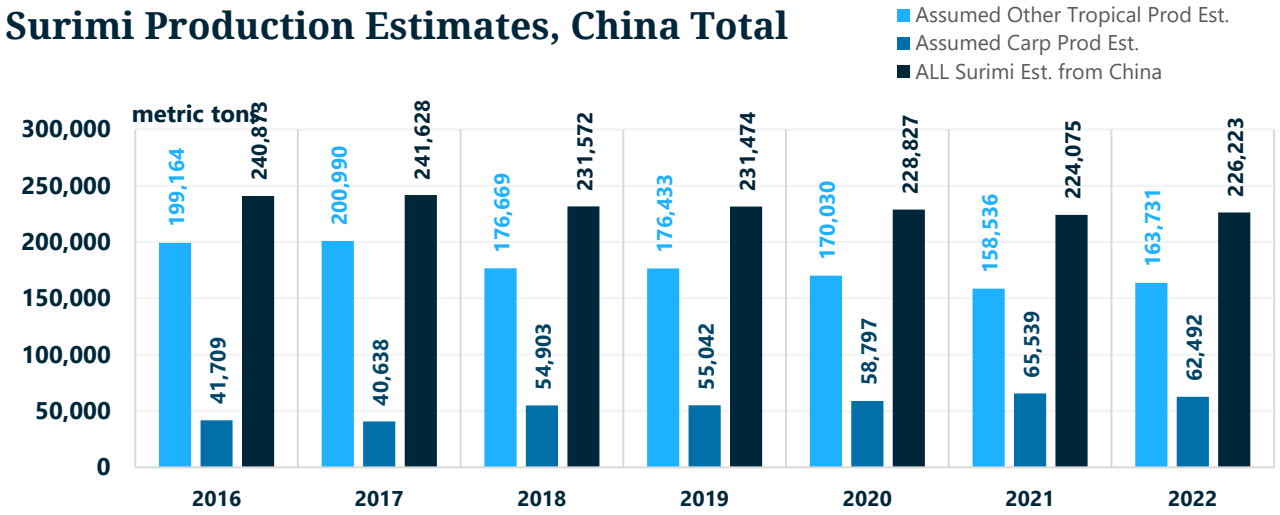

Figure 41. Production estimates of Chinese surimi. Source: Customs, UB Consulting.

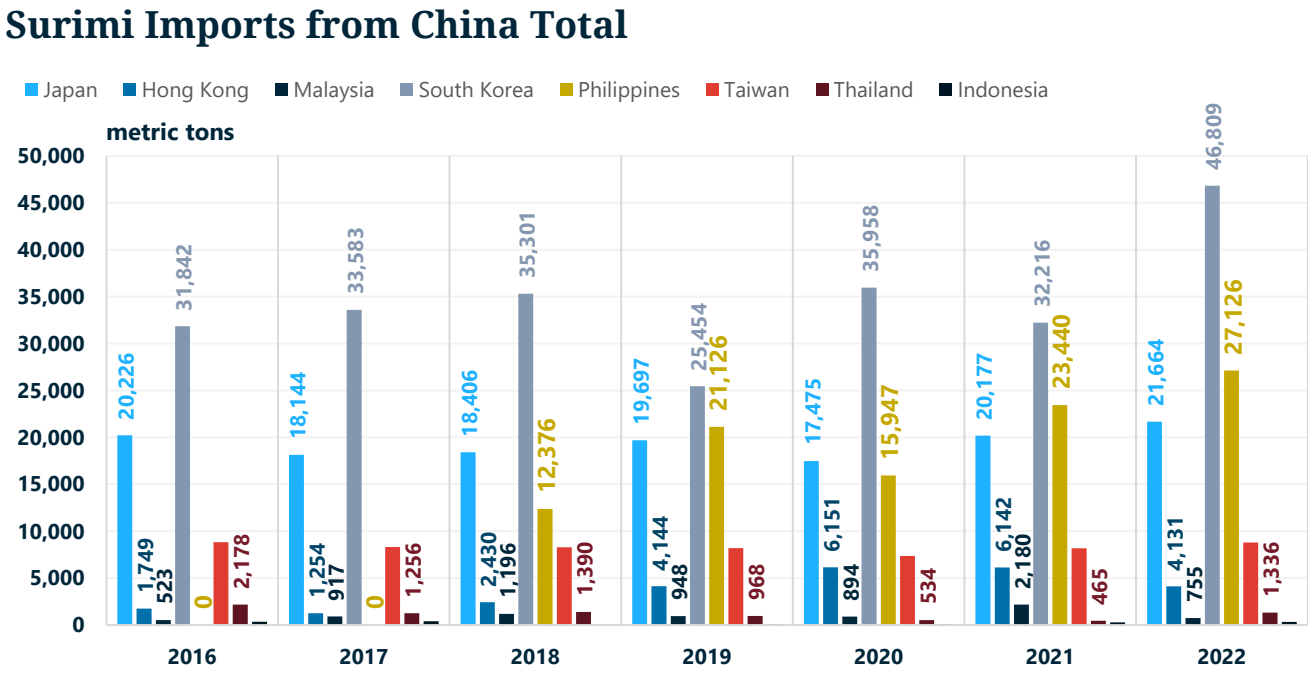

Figure 42. Countries declaring imports of Chinese surimi. Source: Customs, UB Consulting.

Russian Surimi, Japanese and other imports

Using countries declaring imports from Russia—since Russia is not making their trade data available—we noticed considerable increases in pollock surimi production over the last several quarters.

In 2022, production—as a function of trade—suggests Russia produced nearly 18 thousand metric tons of pollock surimi. About 16 thousand went to Japan, while ~1,450 metric tons went to South Korea.
We will continue to follow these figures closely.

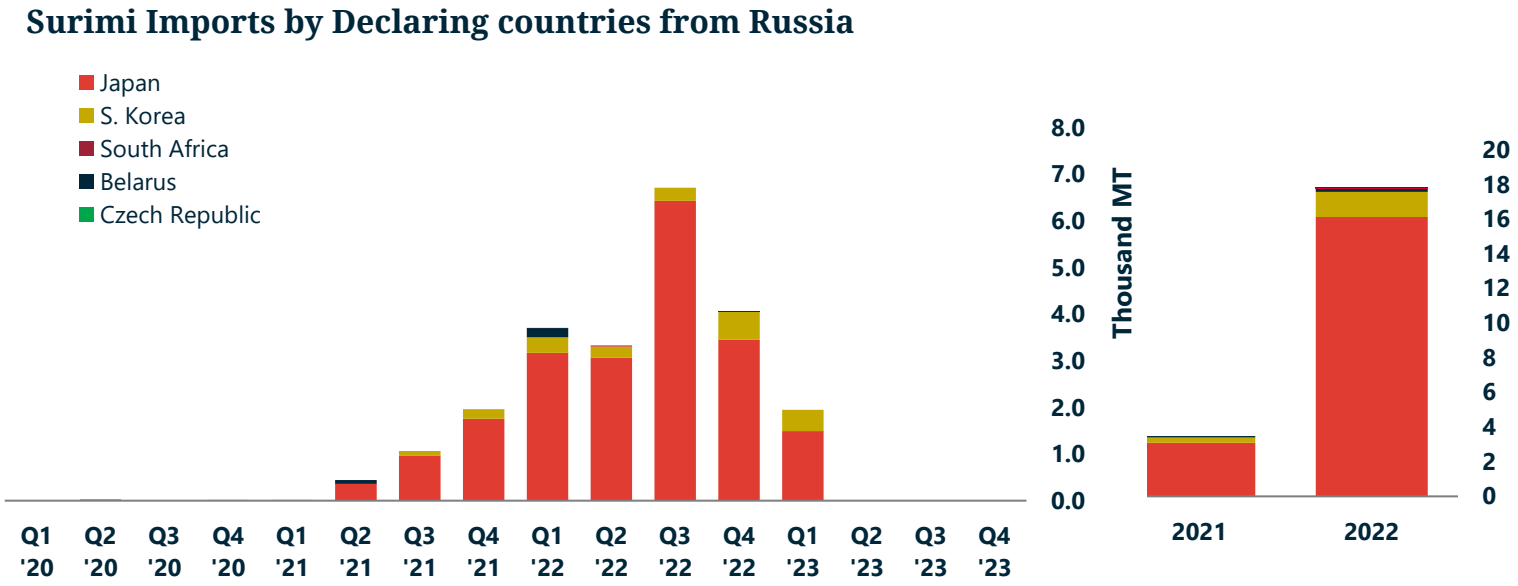

Figure 43. Production estimates of Russian pollock surimi and countries declaring imports. Source: Customs, UB Consulting.

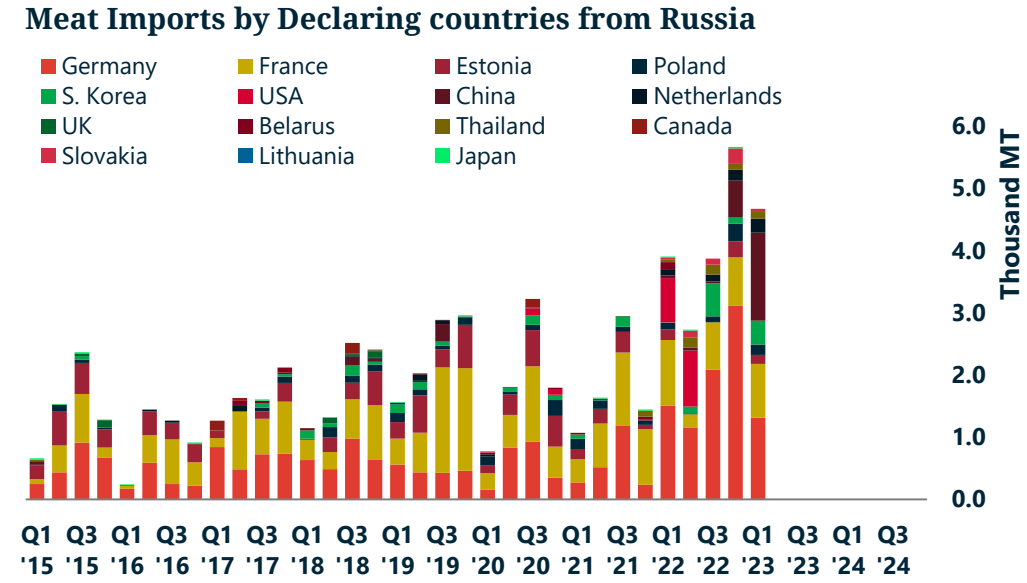

Figure 44. Countries declaring imports of Russian pollock meat (minced or not). Source: Customs, UB Consulting.

Continued from page 7 – Tom Asakawa

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People concerned point out that Russian fisheries must compete with the United States for the Japanese market. The current production of 28,000 tons is enough to meet the demand of Russian surimi product manufacturers and to export the surplus abroad. The production could reach 50,000 tons in the next three years.

The trend of decreasing surimi production in the United States over the past few years created an excellent opportunity for Russia to enter the Japanese market. Experts analyze that the Japanese market is experiencing a decline in consumption of surimi products due to rising product prices associated with the yen's depreciation against the dollar.

Surimi products

The Food Supply and Demand Research Center announced the 2022 production volume of surimi products. It was 510,167 tons, an increase of 11.2% compared to the same period of the previous year.
Kamaboko News reported that the surimi product industry has been doing well for the last four years, but the voices heard from the bottom line are no longer valid. Instead, the harsh voice is overwhelming. There is a gap between the statistics and the realities of business.

The 50th anniversary of crab sticks

While this year is the 50th anniversary of crab sticks, the technological development of crab sticks is intensifying. Among the surimi products that continue to suffer from sluggish sales due to the COVID pandemic, a 10-30% retail price increase due to the cost increases impacted by the Russian invasion of Ukraine. The only one with good prospects is crab sticks. It is consistently ranked at the top of sales rankings and is supported by a wide range of age groups, reports Kamaboko News.

This year marks the 50th anniversary of the development of crab sticks, which are currently popular worldwide, and the boom continues to grow. Crab stick production grew by 20% to 30%, sales did not decline even as time passed, and sales continued to increase. Moreover, its popularity continues today.

Demand is expanding overseas, especially in Europe, the United States, and Southeast Asia. The market is now firmly established in food services and ordinary households worldwide. Kamaboko News reporter says, ironically, its popularity is one of the reasons why the surimi price is soaring.

Technological development has been further advanced, and it has been subdivided into types such as king crab, hairy crab, and Hanasaki crab, and parts such as claws and legs. Breaking away from the conventional style, a substitute product as crab meat imitations, they are now increasing their presence to the point that they have established a genre called "Kanikama."

With increased interest in fish meat protein, expectations for crab sticks that appeal to various age groups are high. In the future, competition will accelerate toward developing products with high added value, such as products with long expiration dates and reduced salt content.

About Urner Barry Consulting

Urner Barry Consulting provides tailored solutions to identify growth opportunities within the fast-paced protein commodity sectors. Combining the expertise of our analytical team, our warehouse of proprietary and trusted data, and unparalleled insight into market forecasting.

Contact Urner Barry

Please contact, Senior Vice President, Chris Ashley (cashley@urnerbarry.com or 732-240-5330) for additional product or subscription related services in the surimi or associated seafood markets and industries.

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