

NFI Partial Cost Analysis of U.S. Seafood Import Monitoring Program

NOAA estimated that the seafood import monitoring program would cost industry \$338,130. NFI's conservative estimate of the program cost is \$53,714,374, about 159 times NOAA's estimated cost as published in the February 5 Federal Register. This difference is not a rounding error. It demonstrates NOAA's lack of understanding of the business impacts of the proposed rule, making it questionable as to their understanding of the seafood supply chain it seeks to regulate.

Species	Country and Harvest Technique ¹	Cost Per Container (Simple) ²	Cost Per Container (Complex) ³	2015 Total Containers ⁴	Cost Per Year (Simple)	Cost Per Year (Complex)	2015 Total Importers ⁵	Supply Chain Audit Costs ⁶	Total Cost (Simple)	Total Cost (Complex) ⁷
Swordfish	Singapore, Longline/Harpooning	\$47	\$1,725	750	\$34,892	\$1,293,945	20	\$200,000	\$234,892	\$1,493,945
King Crab (red)	Russia, Pot	\$6	\$73	3,991	\$23,946	\$289,427	3	\$30,000	\$53,946	\$319,427
Farmed Shrimp	Thailand, Aquaculture	\$12	\$186	39,116	\$469,392	\$7,275,576	446	4,460,000	\$4,929,392	11,735,576

¹ These are representative harvest techniques utilized by major suppliers of these species to U.S. markets.

² Simple case: one form of the species in a container. For instance, a container of Atlantic cod would comprise of solely 4 oz. loins caught using a single harvest method.

³ Complex case: multiple forms of the species in a container, which is closer to supply chain reality. For instance: a container of Atlantic cod would comprise of 4 oz. loins, 6 oz. fillet, 8 oz. head and gutted, and caught using in shore boats and trawls, form various suppliers, etc.

⁴ The number of annual containers per species = the total number of import volume to the U.S. per species / the industry standard volume per container per species.

⁵ Not every importer will pursue audits, especially if they are relatively small players in that specific species market. That is why NFI placed a cut off of shipping at or above 5 shipments to pursue audits for the 3 top seafood markets, shrimp, tuna and cod, and a cut off of 2 shipments or more for the relatively smaller markets.

⁶ NFI acquired an industry estimate of \$8,000-12,000 for audit costs from an accredited seafood supply chain auditor, with an average of \$10,000. Because we simplified the assumptions that each importer would only audit a single country's supply chain, this led to a gross underestimation of the number of audits that would be performed. Most major importers have 20 to 30 processors and suppliers throughout Asia, Europe, South America etc. that would be audited individually.

⁷ Seafood industry experts have noted that 99% of shipments will be complex shipments (i.e., include more than one product form). If we were to calculate the ratio of these costs, it would amount to a total of \$53,714,374 (.99 x Total Cost (Complex) + .01 x Total Cost (Simple)). This is logical as a product form is distinct in size, fillet, cut etc. Containers of 40,000 kg of seafood are highly unlikely to contain just one species let alone identical cuts and sizes. For example, a cod exporter will likely send 4 oz., 6 oz., 8 oz. loins of Atlantic cod in one single container.

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Species	Country and Harvest Technique	Cost Per Container (Simple)	Cost Per Container (Complex)	2015 Total Containers	Cost Per Year (Simple)	Cost Per Year (Complex)	2015 Total Importers	Supply Chain Audit Costs	Total Cost (Simple)	Total Cost (Complex)
Atlantic Cod Trawl ⁸	Norway, Iceland, Russia	\$135	\$274	1,868	\$251,283	\$512,206	84	\$840,000	\$1,091,283	\$1,352,206
Atlantic Cod In Shore Boats	See above	\$8,952	\$18,225	467	\$4,180,589	\$8,511,257	N/A	N/A	\$4,180,589	\$8,511,257
Pacific Cod	US, Jig	\$854	\$2,135	877	\$749,107	\$1,872,395	N/A	N/A	\$749,107	\$1,872,395
Mahi-Mahi	Ecuador, Panga Boat	\$165	\$14,881	1,309	\$216,430	\$19,479,229	77	\$770,000	\$986,430	\$20,249,229
Blue Crab ⁹	Mexico, Small Day Boats	\$3,308	\$23,158	54	\$178,650	\$1,250,550	4	\$40,000	\$218,650	\$1,290,550
Grouper	Indonesia, Small Boats	\$1,386	\$5,541	763	\$1,057,404	\$4,228,096	29	\$290,000	\$1,347,404	\$4,518,096
Red Snapper	Mexico and Brazil, longline fishing	\$115	\$562	1,131	\$130,054	\$635,814	15	\$150,000	\$280,054	\$785,814

⁸ From NOAA and U.S. Department of Commerce data, cod is listed generally, making it impossible to differentiate between total Pacific cod containers vs. Atlantic cod containers. This distinction does not affect the accuracy of the audit analysis as each audit costs \$10,000 on average regardless of species. However, in terms of the paperwork costs specific to species we derived the ratio of global catch of Pacific cod vs. Atlantic cod from FAO data and the Ground Fish Forum and applied it to the total containers of cod.

⁹ NFI derived the number of blue crab containers by multiplying the market ratio 1:10 of blue crab to blue swimming crab with the tonnage of blue swimming crab. This ratio is based on the historical import data and further verified by industry crab council executives, as well as 2015 Department of Commerce and Census Bureau data.

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Species	Country and Harvest Technique	Cost Per Container (Simple)	Cost Per Container (Complex)	2015 Total Containers	Cost Per Year (Simple)	Cost Per Year (Complex)	2015 Total Importers	Supply Chain Audit Costs	Total Cost (Simple)	Total Cost (Complex)
Sea Cucumber	Canada, Divers	\$1,772	\$8,723	167	\$295,924	\$1,456,729	11	\$110,000	\$405,924	\$1,566,729
Shark	Thailand, Otter Trawlers	\$47	\$237	5	\$237	\$1,183	4	\$40,000	\$40,237	\$41,183
Abalone	Australia, Divers	\$32	\$270	38	\$1,202	\$10,241	36	\$360,000	\$361,202	\$370,241
Sub Total	N/A	N/A	N/A	50,536	\$7,589,108	\$46,816,649	729	\$7,290,000	\$14,879,108	\$54,106,649
Total	N/A	N/A	N/A	50,536	\$7,589,108	\$46,816,649	729	\$7,290,000	\$14,879,108	\$54,106,649

NFI's total costs in both simple and complex cases are underestimated.

- All harvesting events are calculated by harvest trips not by harvest days. For instance, some mahi-mahi is caught by day boats, creating separate harvest events for each day. Other mahi-mahi fishing trip takes about 40 to 70 days. Based on industry reality, NFI accounted all those separate harvesting days as one event although NMFS does not provide clear instruction on how to report the harvesting event(s) in the proposed rule.
- The costs do not include data transformation from processors to exporters, or to importers, who will need to verify the accuracy of the data.
- In terms of auditing costs, importers usually purchase products from multiple suppliers, and NFI only accounts for one supplier in the audit analysis. For instance, importer A will purchase shrimp from six different suppliers. NFI only calculated the cost for one supply chain audit.
- These cost estimates do not include insurance to protect the liability of U.S. importers.
- These cost estimates do not include subsequent training costs for the programs.
- These cost estimates do not account for the premium to source the same species or the increasing prices of alternatives due to the loss of supply. For instance, as suppliers who are not willing to record this data leave the U.S. market, there will be a loss in supply of those species and a subsequent rise in prices of the fish. This rise in prices will have to be suffered by both U.S. importers and the average consumer. Furthermore, this could lead to a negative job impact on US seafood industry.

	Trawl Caught Atlantic Cod Mince			
	Atlantic Cod Mince Simple Lower Bound	Atlantic Cod Mince Simple Upper Bound	Atlantic Cod Mince Complex Lower Bound	Atlantic Cod Mince Complex Upper Bound
Volume per vessel per trip (kg)	18,000	18,000	18,000	18,000
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	9,000	9,000	9,000	9,000
Yield	0.03	0.03	0.03	0.03
Volume of finished product per vessel per trip (kg)	225	225	225	225
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	104.44	104.44	104.44	104.44
Product types per container	1.00	1.00		
Harvest Events	104.44	104.44	0.00	0.00
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	626.67	626.67	0.00	0.00
Time to complete forms for container in hours	10.44	10.44	0.00	0.00
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25

	Trawl Caught Atlantic Cod Mince			
	Atlantic Cod Mince Simple Lower Bound	Atlantic Cod Mince Simple Upper Bound	Atlantic Cod Mince Complex Lower Bound	Atlantic Cod Mince Complex Upper Bound
Cost of completing forms per container	\$326.39	\$326.39	\$0.00	\$0.00

	Trawl Caught Atlantic Cod Fillet			
	Atlantic Cod Fillet Simple Lower Bound	Atlantic Cod Fillet Simple Upper Bound	Atlantic Cod Fillet Complex Lower Bound	Atlantic Cod Fillet Complex Upper Bound
Volume per vessel per trip (kg)	18,000	18,000	18,000	18,000
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	9,000	9,000	9,000	9,000
Yield	0.37	0.37	0.37	0.37
Volume of finished product per vessel per trip (kg)	3,330	3,330	3,330	3,330
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	7.06	7.06	7.06	7.06
Product types per container	1	1	5	5
Harvest Events	7.06	7.06	35.29	35.29
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	42.34	42.34	211.71	211.71
Time to complete forms for container in hours	0.71	0.71	3.53	3.53
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25

Trawl Caught Atlantic Cod Fillet				
	Atlantic Cod Fillet Simple Lower Bound	Atlantic Cod Fillet Simple Upper Bound	Atlantic Cod Fillet Complex Lower Bound	Atlantic Cod Fillet Complex Upper Bound
Cost of completing forms per container	\$22.05	\$22.05	\$110.27	\$110.27

	Trawl Caught Atlantic Cod Loin			
	Atlantic Cod Loin Simple Lower Bound	Atlantic Cod Loin Simple Upper Bound	Atlantic Cod Loin Complex Lower Bound	Atlantic Cod Loin Complex Upper Bound
Volume per vessel per trip (kg)	18,000	18,000	18,000	18,000
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	9,000	9,000	9,000	9,000
Yield	0.15	0.15	0.15	0.15
Volume of finished product per vessel per trip (kg)	1,332	1,332	1,332	1,332
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	17.64	17.64	17.64	17.64
Product types per container	1	1	7	7
Harvest Events	17.64	17.64	123.50	123.50
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	105.86	105.86	740.99	740.99
Time to complete forms for container in hours	1.76	1.76	12.35	12.35
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080

Trawl Caught Atlantic Cod Loin				
	Atlantic Cod Loin Simple Lower Bound	Atlantic Cod Loin Simple Upper Bound	Atlantic Cod Loin Complex Lower Bound	Atlantic Cod Loin Complex Upper Bound
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25
Cost of completing forms per container	\$55.13	\$55.13	\$385.93	\$385.93

	In Shore Boat Caught Atlantic Cod Fillet			
	Atlantic Cod Fillet Simple Lower Bound	Atlantic Cod Fillet Simple Upper Bound	Atlantic Cod Fillet Complex Lower Bound	Atlantic Cod Fillet Complex Upper Bound
Volume per vessel per trip (kg)	270	270	270	270
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	135	135	135	135
Yield	0.37	0.37	0.37	0.37
Volume of finished product per vessel per trip (kg)	49.95	49.95	49.95	49.95
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	470.47	470.47	470.47	470.47
Product types per container	1	1	5	5
Harvest Events	470.47	470.47	2,352.35	2,352.35
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	2,822.82	2,822.82	14,114.11	14,114.11
Time to complete forms for container in hours	47.05	47.05	235.24	235.24
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25

In Shore Boat Caught Atlantic Cod Fillet				
	Atlantic Cod Fillet Simple Lower Bound	Atlantic Cod Fillet Simple Upper Bound	Atlantic Cod Fillet Complex Lower Bound	Atlantic Cod Fillet Complex Upper Bound
Cost of completing forms per container	\$1,470.22	\$1,470.22	\$7,351.10	\$7,351.10

In Shore Boat Caught Atlantic Cod Loin				
	Atlantic Cod Loin Simple Lower Bound	Atlantic Cod Loin Simple Upper Bound	Atlantic Cod Loin Complex Lower Bound	Atlantic Cod Loin Complex Upper Bound
Volume per vessel per trip (kg)	270	270	270	270
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	135	135	135	135
Yield	0.15	0.15	0.15	0.15
Volume of finished product per vessel per trip (kg)	20.25	20.25	20.25	20.25
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	1,160.49	1,160.49	1,160.49	1,160.49
Product types per container	1	1	7	7
Harvest Events	1,160.49	1,160.49	8,123.46	8,123.46
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	6,962.96	6,962.96	48,740.74	48,740.74
Time to complete forms for container in hours	116.05	116.05	812.35	812.35
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25

In Shore Boat Caught Atlantic Cod Loin				
	Atlantic Cod Loin Simple Lower Bound	Atlantic Cod Loin Simple Upper Bound	Atlantic Cod Loin Complex Lower Bound	Atlantic Cod Loin Complex Upper Bound
Cost of completing forms per container	\$3,626.54	\$3,626.54	\$25,385.80	\$25,385.80

In Shore Boat Caught Atlantic Cod Mince				
	Atlantic Cod Mince Simple Lower Bound	Atlantic Cod Mince Simple Upper Bound	Atlantic Cod Mince Complex Lower Bound	Atlantic Cod Mince Complex Upper Bound
Volume per vessel per trip (kg)	270	270	270	270
50% of cod goes to Baccalau Market	0.50	0.50	0.50	0.50
Product available for processing	135	135	135	135
Yield	0.03	0.03	0.03	0.03
Volume of finished product per vessel per trip (kg)	3.38	3.38	3.38	3.38
Volume of finished product per container (kg)	23,500	23,500	23,500	23,500
Harvest trips to fill container	6,962.96	6,962.96	6,962.96	6,962.96
Product types per container	1	1		
Harvest Events	6,962.96	6,962.96	0.00	0.00
Time to complete form in minutes	6	6	6	6
Time to complete forms for container in minutes	41,777.78	41,777.78	0.00	0.00
Time to complete forms for container in hours	696.30	696.30	0.00	0.00
Cost of clerk in average annual salary	\$65,000	\$65,000	\$65,000	\$65,000
Work hours per year	2,080	2,080	2,080	2,080
Cost of clerk in hourly wage	\$31.25	\$31.25	\$31.25	\$31.25

In Shore Boat Caught Atlantic Cod Mince				
	Atlantic Cod Mince Simple Lower Bound	Atlantic Cod Mince Simple Upper Bound	Atlantic Cod Mince Complex Lower Bound	Atlantic Cod Mince Complex Upper Bound
Cost of completing forms per container	\$21,759.26	\$21,759.26	\$0.00	\$0.00