



# NOVA SCOTIA SPECIES SPOTLIGHT: HADDOCK (*Melanogrammus aeglefinus*)

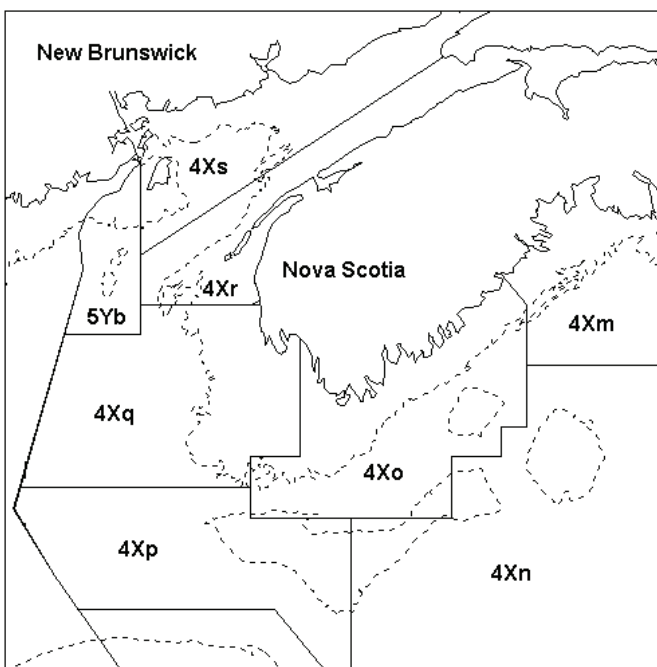
## FISHERY

A directed haddock fishery takes place in Northwest Atlantic Fisheries Organization (NAFO) area 4X5Y (Scotia-Fundy), while a moratorium on haddock fishing is in place in 4TVW.

Haddock is targeted by inshore, and offshore vessels using fixed gear methods including longline, handlines and gillnets, and mobile gear methods primarily as otter trawl.

The total allowable catch in 2022-2023 for 4X5Y was 6198 mt.

The landed value of haddock in 2021 was \$19M, whereas the export value in 2021 was \$12.7M.



**Figure.** Haddock fishing areas in the western Scotian Shelf

## BIOLOGY

Haddock is a demersal (bottom-dwelling) species, and a member of the Gadidae family, known as the codfishes. They are found at depths of 40 to 300 m, prefer water temperatures from 4 to 8 °C, and ocean bottoms with rocky, gravel, sandy or muddy substrate.

They have a large, distinctive black spot over their pectoral fins, termed the 'Devil's Thumbprint'.

Haddock can live over 10 years, grow up to 100 cm in length, and weigh up to 4 kilograms.

They feed on juvenile groundfish and smaller fish like herring, as well as molluscs, worms, crustaceans, sea stars, and sea urchins. As juveniles, they are preyed on by spiny dogfish, skates and other groundfish, and grey seals as adults.

## LIFE CYCLE

Haddock reaches sexual maturity from 3 to 5 years of age. Spawning starts in late February and peak spawning occurs between April and May.

Females produce from 150,000 to 3 M eggs annually, depending on their age and stock. They lay their eggs on the ocean floor, and males fertilize them.

Fertilized eggs rise to the surface, and hatch after nearly 2 weeks. Haddock larvae survive at the surface for months feeding on plankton before settling back to the bottom as juveniles.

Haddock grows at a rate of about 5 to 10 cm per year.

## MANAGEMENT AND CONSERVATION

The 4X5Y unit is managed by Fisheries and Oceans Canada. The total allowable catch is set annually based on the outcomes of research surveys, and is evaluated against stock reference points established using the precautionary approach to fisheries management.

General management strategies focus on areas of fishery productivity, impact on biodiversity and habitat, access for traditional culture and sustenance, and overall prosperity.

Management tactics include setting an annual TAC, implementing small fish area closures, size selectivity through gear modifications and restriction, bycatch limits, permitted and mandatory release of designated species, retention limits for fixed gear, marine protected areas, and fleet sector quota allocations.

Compliance with management objectives include inspections by fishery officers, observer coverage on vessel, dockside



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(*Melanogrammus aeglefinus*)

monitoring programs, vessel monitoring systems, hail in/out requirements, and maintaining logbooks.

	Terminology	Description
<b>Common Name</b>	<b>English:</b> Haddock <b>French:</b> Aiglefin, églefin	Accepted name(s) to refer to products of <i>Melanogrammus aeglefinus</i>
<b>Production Method</b>	Wild	Harvested from the ocean
<b>Product Forms</b>	Round	Unprocessed
	Dressed	Eviscerated only
	Fillets	Strips of flesh cut parallel to the central bone of the fish
	PBI/PBO	Pin Bone In/Out
	Boned	Has gone through a boning process, but bones may remain
	Boneless	Has been boned, and any remaining bones are removed

<b>Process Description</b>	Fresh	<b>Post-harvest Primary Processing</b> Receiving » Washing » De-scaling » Butchering (eviscerating, de-heading, filleting, fresh storage) » Packaging » Freezing » Storage » Transportation. Refers to number of times the product has been frozen in its production.
	Refreshed/Previously Frozen	
	Single Frozen / Twice Frozen	

**By-Products**  
Heads, Viscera, Frame

## PROCESSING/HANDLING

### Process Yields

Dressed: **78 – 90%**

Fillet (Skin-On): **43 – 47%**

Fillet (Skin-Off): **40 – 42%**

Smoked Fillets: **25 – 30%**

### Primary Products

Whole, Dressed, Fillets, Bits, Smoked, Salted, Breaded

	Proportion (g / 100 g)		
	Raw	Cooked	Smoked
<b>Moisture</b>	83.40	79.60	71.50
<b>Protein</b>	16.30	20.00	25.20
<b>Fat</b>	0.45	0.55	0.96





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<b>Carbohydrate</b>	0.00	0.00	0.00
<b>Ash</b>	1.28	1.56	1.62

USDA Nutritional Database ID, 15033 (Raw), 15034 (Cooked), 15035 (Smoked)

Haddock is considered a lean fish. Fat storage occurs primarily in the liver.

Bleeding, gutting, and proper chilling are critical processes to maximize the intrinsic quality of haddock products. If properly gutted, and quickly chilled on ice, haddock will keep in optimal condition for up to 5 days and spoil after 15 days. If ungutted and properly chilled, haddock will keep in optimal condition for only 3 days, and will spoil after only 8 days.

Whole haddock intended to be frozen whole and processed later should not be kept on ice for more than 2 days prior to freezing. For whole ungutted haddock intended to be filleted and sold as fresh fillets, whole fish should not be held on ice for more than 3 to 4 days before processing. If fillets were to be sold frozen, 5 to 6 days on ice may be adequate.

The frozen shelf life of haddock products is greatly influenced by the cold storage temperature. Temperatures below -30 °C are ideal for cold storage of haddock, and will provide twice the shelf life compared to storage at -20 °C.

Haddock begins to spoil immediately upon harvest like pollock, silver hake, and cod. Tissue softening and microbial growth during iced storage, and tissue toughening during frozen storage are the primary mechanisms of deterioration.

Rapid cooling during harvesting, especially during summer months, is essential to maintaining the intrinsic quality of the tissues.

Haddock may contain small round worms, also called nematodes, or parasites. The occurrence of nematodes in fish is a natural phenomenon which cannot be prevented and is not indicative of mishandling or spoilage (CFIA, 2019). Candling should be performed to detect worms in fresh fillets, though freezing and storing to a temperature of -20 °C or below for at least 7 days, or to -35 °C or below for at least 15

## REFERENCES

CFIA. 2019. Seal worms in fish. Canadian Food Inspection Agency. <https://inspection.canada.ca/food-safety-for-consumers/fact-sheets/specific-products-and-risks/fish-and-seafood/seal-worms/eng/1332272536555/1332272603915>

DFO. 2017. Haddock. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/species-especes/profiles-profil/haddock-aiglefin-eng.html>

DFO. 2018. 4VWX5 groundfish – Maritimes Region. Integrated Fisheries Management Plan. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-4vwx5-eng.html>

DFO. 2022. Seafisheries landed value by province, 2021. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/sea-maritimes/s2021pv-eng.htm>

DFO. 2022. Stock Status Update of Haddock (*Melanogrammus aeglefinus*) in NAFO Divisions 4X5Y for 2021. DFO Can. Sci. Advis. Sec. Sci. Resp. 2022/018. [https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41057776.pdf?gl=1\\*5hr21w\\*\\_ga\\*ODYxNzQ3NTE1LjE2NTE1MTM4NDY.\\*](https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41057776.pdf?gl=1*5hr21w*_ga*ODYxNzQ3NTE1LjE2NTE1MTM4NDY.*)

Finley, M., Wang, Y., and Stone, H.H. 2018. Assessment of 4X5Y Haddock (*Melanogrammus aeglefinus*) in 2016. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/041. iv + 54 p. <https://waves-vagues.dfo-mpo.gc.ca/Library/40722697.pdf>

NOAA. 2023. Haddock. National Oceanic and Atmospheric Administration. <https://www.fisheries.noaa.gov/species/haddock>

Waterman, J.J. 2001. The Haddock. Torry Advisory Note No. 67. Food and Agriculture Organization. <https://www.fao.org/3/x5939e/x5939e00.htm>