

Trap me if you can

A study of catch strategies and market opportunities on roughhead grenadier (*Macrourus berglax*)



Introduction

Roughhead grenadier is a deep-sea fish (200-2000 m) with a broad North Atlantic distribution (fig. 1). At present, roughhead grenadier is the most common bycatch species in a highly regulated Greenland halibut (*Reinhardtius hippoglossoides*) fishery. The proportion brought ashore is low compared to catches as fishermen often discard it. Findings however show that roughhead grenadier is an appreciated fish of high quality. Increased fishing activity, and thus larger sales, are dependent on regular access to raw material, prompting a capture strategy

highly selective to the species. Fish pots are regarded as a selective and gentle fishing method, capable of catching high-quality fish. Modifications of deep-sea fish pots aiming to shut Greenland halibut out might turn the fishery for roughhead grenadier into a profitable year-round activity supplying the market on a regular basis.



Figure 1 – Distribution map roughhead grenadier

Materials and methods

A survey of restaurants has been conducted for the evaluation of roughhead grenadier in terms of quality and market potential. Restaurants received samples of filets for trial. Modified pots were tested by two vessels on four occasions. The first vessel placed five unmodified (fig. 2) and 15 modified pots (fig. 3) at depths of 660 m. Modified pots were equipped with a more narrow entrance funnel, aiming to prevent Greenland halibut from entering. The second vessel carried out three trials, placing six unmodified (fig. 2) and six modified pots (fig. 4) at depths of 520-650 m. The modification consisted of a narrow escape gap on both sides of the pot.

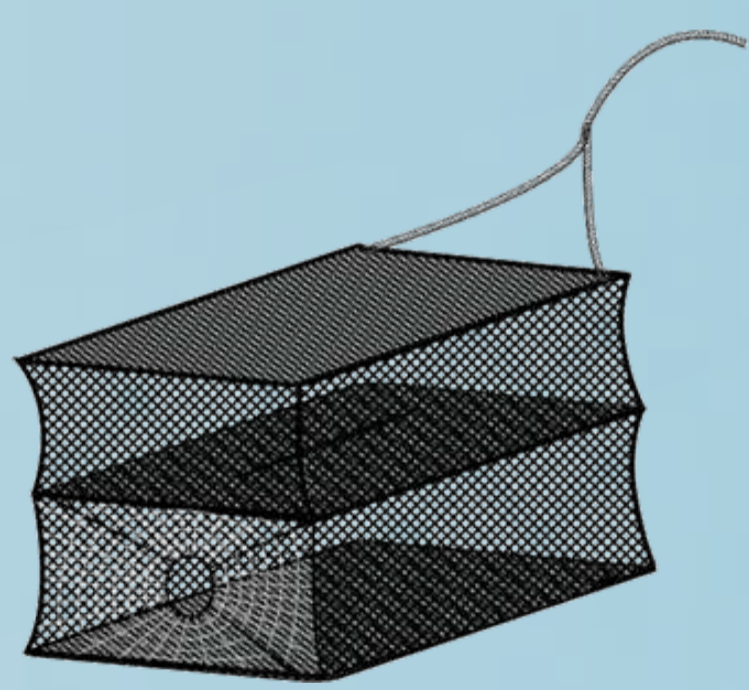


Figure 2 - Unmodified, funnel entrance

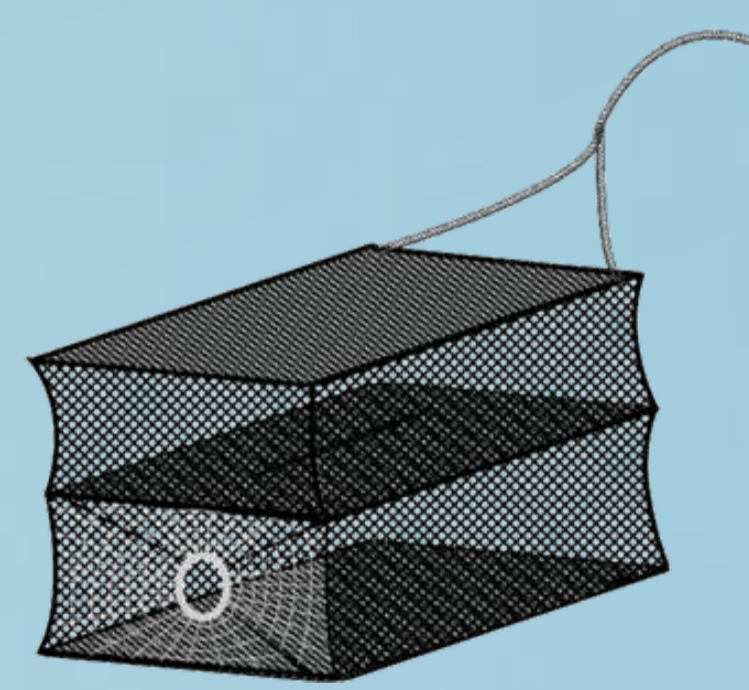


Figure 3 - Modified, narrow ring entrance funnel

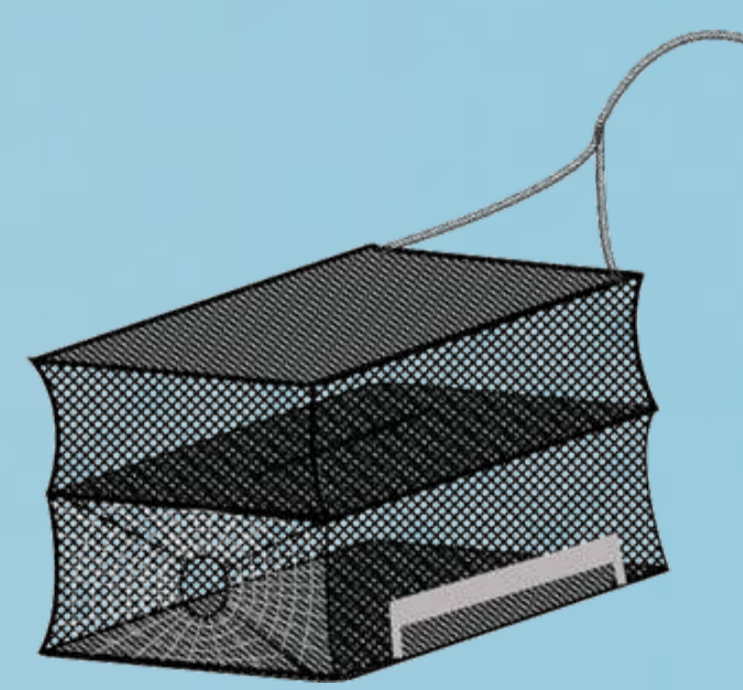


Figure 4 - Modified, escape gap

Evaluation of quality properties of roughhead grenadier

Measuring likes and dislikes among 13 restaurant chefs on smell, taste, appearance and texture shows that the fish is highly appreciated (fig. 5). Frying and baking is considered by many to be the most suitable way to prepare the fish. The overall evaluation of quality properties varies, but the majority concludes that they will consider roughhead grenadier in the future, given that price is right and quality requirements are met. Fishing with pots is perceived superior to other ways of fishing as regards quality of raw material.

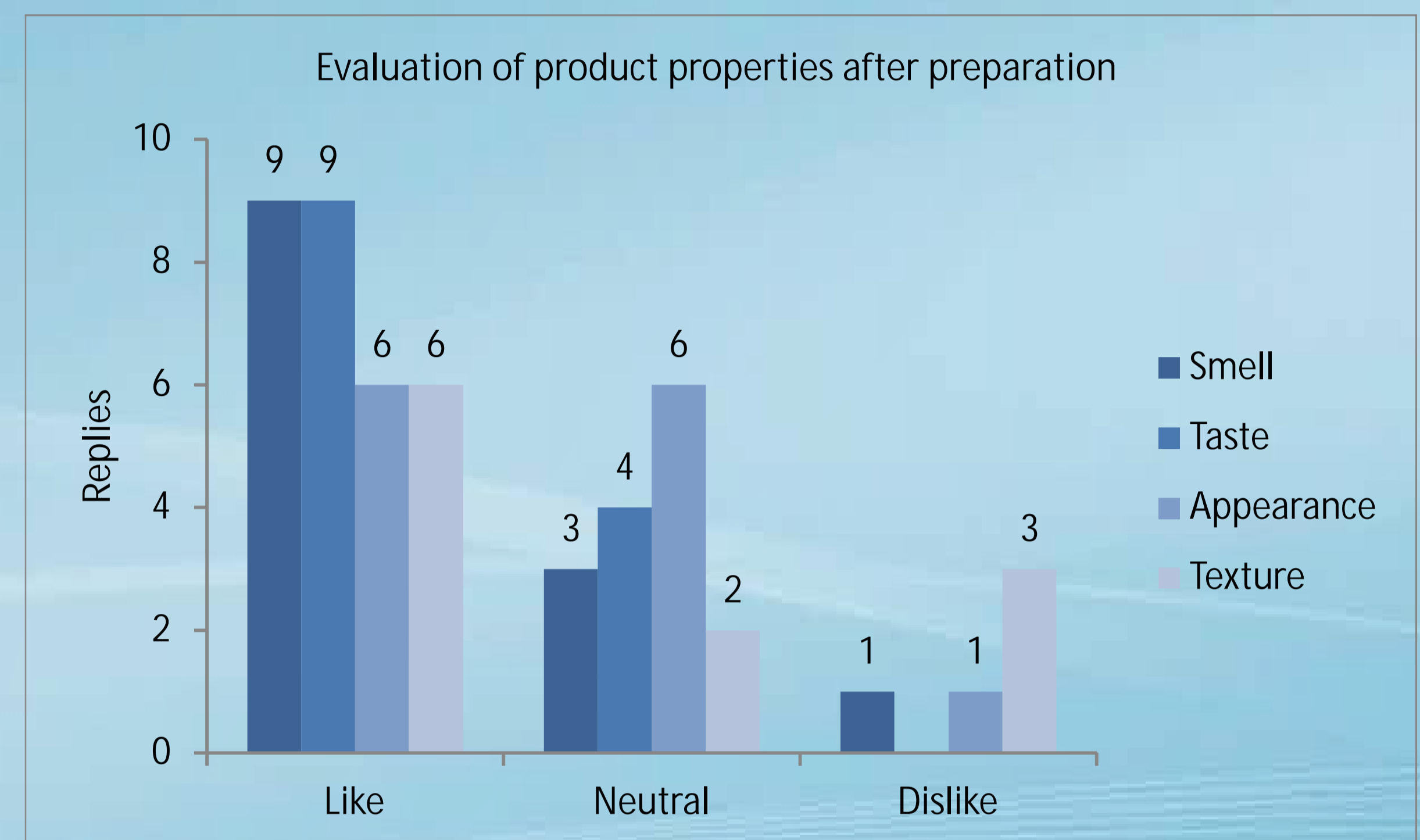


Figure 5 - Evaluation of roughhead grenadier on sensory attributes smell, taste, appearance and texture



Foil baked grenadier w/ fried leek and potato salad



Stir-fried grenadier



Pan-fried grenadier on a bed of saffron risotto



Breaded grenadier w/ chanterelle fricassee and creamy farfalle



Steamed grenadier on a meadow of green asparagus

Trials with modified fish pots

Table 1 reports results from the pot trials. Catching roughhead grenadier with pots has proven to be challenging. The first trial was discontinued after 14 hours due to strong currents and risk of losing equipment. Fishermen explain that the pots perhaps were not dimensioned for such depths where strong currents prevail. Results also indicate that a narrow entrance funnel does not necessarily hinder Greenland halibut from entering. All pots did however catch fish as up to 24 tusk (*Brosme brosme*) were found in individual pots.

Table 1 - Results from pot trial

Haul date	Soak-time	Position	Depth	Pot type	Average no. of individuals per pot		
					grenadier	halibut	Tusk
04.05.2010	14 hours	62°50N	660 m	1	0	0.60	4.30
		4°08E		2	0	0.20	0.53
27.06.2011	3 days	63°38N	650 m	1	0	0	1.00
		5°39E		3	0	0	0.33
30.06.2011	3 days	63°39N	590 m	1	0	0	5.17
		5°42E		3	0	0	2.17
04.07.2011	3 days	63°35N	520 m	1	0	0	7.83
		5°46E		3	0	0	6.00

Future studies

Future experiments with pots to catch roughhead grenadier should include upscaling size of pots, trials with different baits and video surveillance to observe fish behavior.

Acknowledgements

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