

10.1 Investigation of trophic interaction

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Background and aim

The trophic investigations under the BESS survey is part of an ongoing activity aiming at improve our understanding of the trophic interactions, food web structure and function, and energy flow in the Barents Sea ecosystem. TIBIA (Trophic interactions in the Barents Sea-steps towards an Integrated Ecosystem Assessment) is a strategic institutes program. The aim of these investigations has been to examine how the benthic and pelagic systems are coupled by analyzing fish stomach analyses.

Samplings procedure

Biological samples (fish) were taken with a pelagic trawl with “Harstad” trawl with opening 20*20m opening and bottom “Campelen 1800” trawl with 15m horisontal and 4 m vertical trawl opening.

Length (down to nearest ½ cm), weight (down to nearest 1 g) and sex were recorded for maximum 30 individuals of all fish species from each trawl sample. In addition individual measures of age, special maturation stadium, stomach was taken from 10 selected individuals. Stomach content of fish larger than 10 cm were analyzed onboard, smaller fish was frozen for diet analyses, which will take place at the institute later. Stomach content was weighed, analysed to highest possible taxonomic level and percentage of each prey was given. Stomach of 62 fish species were collected and analysed on board from 144 stations (Figure 10.1.1).

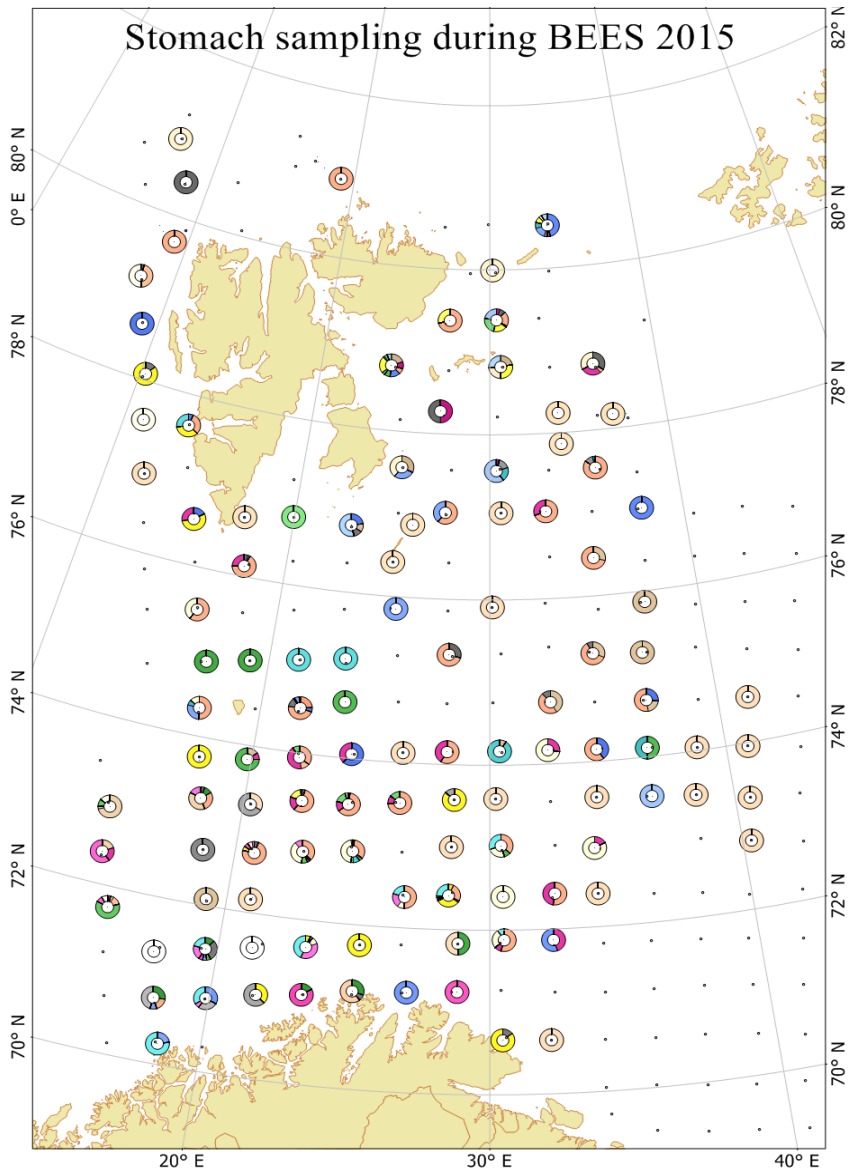


Figure 10.1.1. Stations where stomach samples were collected and analysed on board during the joint Norwegian-Russian Barents Sea Survey (BEES), August-October 2015.

Results

62 fish species from 11 families were taken by pelagic and bottom trawl and analysed on board during the survey (Table 10.1.1.).

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Table 10.1.1. Fish stomach content was analysed onboard during the BESS survey 2015.

English name	Norwegian name	Order	Family	Scientific name	Author
Ribbed sculpin	ARKTISK KNURRULKE	Scorpaeniformes	Cottidae	<i>Triglops pingelii</i>	Reinhardt, 1937
Slender eelblenny	ARKTISK LANGEBARN	Perciformes	Stichaeidae	<i>Lumpenus fabricii</i>	Reinhardt, 1836
Pale eelpout	BLEK ÅLEBROSME	Perciformes	Zoarcidae	<i>Lycodes pallidus</i>	Collett, 1878
Greenland halibut	BLÅKVEITE	Pleuronectiformes	Pleuronectidae	<i>Reinhardtius hippoglossoides</i>	(Walbaum, 1792)
Northern wolffish	BLÅSTEINBIT	Perciformes	Anarhichadidae	<i>Anarhichas denticulatus</i>	Krøyer, 1845
Anglerfish	BREIFLABB	Lophiiformes	Lophiidae	<i>Lophius piscatorius</i>	Linnaeus, 1758
Tusk	BROSME	Gadiformes	Lotidae	<i>Brosme brosme</i>	(Ascanius, 1772)
Fourbeard rockling	FIRETRÅDET TANGBROSME	Gadiformes	Lotidae	<i>Enchelyopus cimbrius</i>	(Linnaeus, 1766)
Spotted wolffish	FLEKKSTEINBIT	Perciformes	Anarhichadidae	<i>Anarhichas minor</i>	Olafsen, 1772
Long rough dab	GAPEFLYNDRE	Pleuronectiformes	Pleuronectidae	<i>Hippoglossoides platessoides</i>	(Fabricius, 1780)
Spinetail ray	GRÅSKATE	Rajiformes	Rajidae	<i>Bathyraja spinicauda</i>	(Jensen, 1914)
Atlantic wolffish	GRÅSTEINBIT	Perciformes	Anarhichadidae	<i>Anarhichas lupus</i>	Linnaeus, 1758
Bigeye sculpin	GRØNLANDSKNURR ULKE	Scorpaeniformes	Cottidae	<i>Triglops nybelini</i>	Jensen, 1944
Fish doctor	HALVNAKEN ÅLEBROSME	Perciformes	Zoarcidae	<i>Gymnelus viridis</i>	(Fabricius, 1780)
Lesser sandeel	HAVSIL	Perciformes	Ammodytidae	<i>Ammodytes marinus</i>	Raitt, 1934
Whiting	HVITTING	Gadiformes	Gadidae	<i>Merlangius merlangus</i>	(Linnaeus, 1758)
Haddock	HYSE	Gadiformes	Gadidae	<i>Melanogrammus aeglefinus</i>	(Linnaeus, 1758)
Rough-head grenadier (ICES), onion-eye grenadier (Fish-base)	ISGALT	Gadiformes	Macrouridae	<i>Macrourus berglax</i>	
Arctic skate	ISSKATE	Rajiformes	Rajidae	<i>Amblyraja hyperborea</i>	(Collett, 1879)
Thorny skate	KLOSKATE	Rajiformes	Rajidae	<i>Amblyraja radiata</i>	(Donovan, 1808)
Grey gurnard	KNURR	Scorpaeniformes	Triglidae	<i>Eutrigla gurnardus</i>	(Linnaeus, 1758)
Blue whiting	KOLMULE	Gadiformes	Gadidae	<i>Micromesistius poutassou</i>	(Risso, 1826)
Atlantic hooker sculpin	KROKULKE	Scorpaeniformes	Cottidae	<i>Artediellus atlanticus</i>	Jordan & Evermann, 1898
Pearlsides	LAKSESILD	Stomiiformes	Sternoptychidae	<i>Maurolicus muelleri</i>	(Gmelin, 1789)
Snakeblenny	LANGHALET LAGEBARN	Perciformes	Stichaeidae	<i>Lumpenus lampretaeformis</i>	(Walbaum, 1792) (Bonaparte, 1840)
White barracudina	LITEN LAKSETOBIS	Aulopiformes	Paralepididae	<i>Arctozenus risso</i>	(Müller, 1776)
Capelin	LODDE	Osmeriformes	Osmeridae	<i>Mallotus villosus</i>	(Walbaum, 1792)
Lemon sole	LOMRE	Pleuronectiformes	Pleuronectidae	<i>Microstomus kitt</i>	(Walbaum, 1792)
Norway redfish	LUSUER	Scorpaeniformes	Sebastidae	<i>Sebastes viviparus</i>	Krøyer, 1844
Arctic eelpout	NETTÅLEBROSME	Perciformes	Zoarcidae	<i>Lycodes reticulatus</i>	Reinhardt, 1935
Moustache sculpin	NORDLIG KNURRULKE	Scorpaeniformes	Cottidae	<i>Triglops murrayi</i>	Günther, 1888
Moustache sculpin	NORDLIG KNUR	Scorpaeniformes	Cottidae	<i>Triglops murrayi</i>	Günther, 1888
Glacier lanternfish	NORDLIG LYSPIKFISK	Myctophiformes	Myctophidae	<i>Benthoosema glaciale</i>	(Reinhardt, 1837)
Threespot eelpout	NORDLIG ÅLEBRÅSME	Perciformes	Zoarcidae	<i>Lycodes rossi</i>	Malmgren, 1864
Polar sculpin	PADDEULKE	Scorpaeniformes	Psychrolutidae	<i>Cottunculus microps</i>	Collett, 1875
Gelatinous snailfish	POLARRINGBUK	Scorpaeniformes	Liparidae	<i>Liparis fabricii</i>	Krøyer, 1847
Polar cod	POLARTORSK	Gadiformes	Gadidae	<i>Boreogadus saida</i>	
Lumpsucker	ROGNKJEKS	Scorpaeniformes	Cyclopteridae	<i>Cyclopterus lumpus</i>	Linnaeus, 1758
Stout eelblenny	RUNDHALET LANGEBARN	Perciformes	Stichaeidae	<i>Anisarchus medius</i>	
Round ray	RUNDSKATE	Rajiformes	Rajidae	<i>Rajella fyllae</i>	(Lütken, 1888)
Saithe	SEI	Gadiformes	Gadidae	<i>Pollachius virens</i>	(Linnaeus, 1758)
Witch	SMØRFLYNDRE	Pleuronectiformes	Pleuronectidae	<i>Glyptocephalus</i>	(Linnaeus, 1758)

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				cynoglossus	
Herring	SILD'G03	Clupeiformes	Clupeidae	<i>Clupea harengus</i>	Lumpsucker
Deepwater redfish	SNABELUER	Scorpaeniformes	Sebastidae	<i>Sebastes mentella</i>	Travin 1951
Snailfish	SNOTTFISH	Scorpaeniformes	Liparidae	<i>The genus under revisions</i>	
Aurora unernak	SPITSBERGEN†LEBR OSME	Perciformes	Zoarcidae	<i>Gymnelus retrodorsalis</i>	Le Danois, 1913
Argentine	STRJMSILD	Osmeriformes	Argentinidae	<i>Argentina sphyraena</i>	Linnaeus, 1758
Leatherfin lumpsucker	SVARTKJEKS	Scorpaeniformes	Cyclopteridae	<i>Eumicrotremus derjugini</i>	Popov, 1926
Arctic rockling	SJLV TANGBROSME	Gadiformes	Lotidae	<i>Gaidropsarus argentatus</i>	(Reinhardt, 1838)
Silvery pout	SØLVTORSK	Gadiformes	Gadidae	<i>Gadiculus argenteus</i>	Guichenot, 1850
Atlantic poacher	TISKJEGG	Scorpaeniformes	Agonidae	<i>Leptagonus decagonus</i>	(Bloch & Schneider, 1801)
Twohorn sculpin	TORNULKE	Scorpaeniformes	Cottidae	<i>Icelus bicornis</i>	(Reinhardt, 1840)
Atlantic cod	TORSK	Gadiformes	Gadidae	<i>Gadus morhua</i>	Linnaeus, 1758
Daubed shanny	TVERRHALET LANGE BARN	Perciformes	Stichaeidae	<i>Leptoclinus maculatus</i>	(Fries, 1838)
Redfishes	UERSLEKTEN	Scorpaeniformes	Sebastidae		
Greater eelpout	ULVEFISK	Perciformes	Zoarcidae	<i>Lycodes esmarkii</i>	Collett, 1875
Golden Redfish	VANLIG UER	Scorpaeniformes	Sebastidae	<i>Sebastes marinus</i>	(Linnaeus, 1758)
Shorthorn sculpin	VANLIG ULKE	Scorpaeniformes	Cottidae	<i>Myoxocephalus scorpius</i>	(Linnaeus, 1758)
	VANLIG ÅLEBRÅSME	Perciformes	Zoarcidae	<i>Lycodes gracilis</i>	Sars, 1867
Greater argentine	VASSILD	Osmeriformes	Argentinidae	<i>Argentina silus</i>	(Ascanius, 1775)
Atlantic spiny lumpsucker	VORTEKJEKS	Scorpaeniformes	Cyclopteridae	<i>Eumicrotremus spinosus</i>	(Fabricius, 1776)
Norway pout	ØYEPÅL	Gadiformes	Gadidae	<i>Trisopterus esmarkii</i>	(Nilsson, 1855)

Diet of the collected fish species will be presented later in the TIBIA report.