10.2 Greenland Sea ecoregion – fisheries overview

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Executive summary

Around 60 vessels currently operate in the Greenland Sea ecoregion. In addition to the Greenlandic fleet, EU, Faroe Islands, Norway, and Russian Federation (Russia henceforth) are fishing in the ecoregion.

As the ecoregion is within the Greenlandic Exclusive Economic Zone (EEZ), the management of marine resources are under Greenlandic authority. Fisheries targeting widely distributed stocks (e.g., Norwegian spring-spawning (NSS) herring [her.27.1-24a514a] and mackerel [mac.27.nea]) are managed by the North-East Atlantic Fisheries Commission (NEAFC). The fisheries of Greenland halibut (ghl.27.561214) and golden redfish (reg.27.561214) have been managed bilaterally with Iceland during the past decade.

Fishing activity is mainly concentrated in the southern part of the region, south of 70°N. The primary pelagic species are herring, and mackerel, fished by pelagic trawl and purse-seine. The most important demersal fisheries are the bottom-trawl fisheries for Atlantic cod (cod.2127.1f14), Greenland halibut, golden redfish, and demersal beaked redfish (reb.27.14b). Northern shrimp is the main exploited invertebrate species in this ecoregion.

The Greenland halibut stock has been relatively stable over the past two decades and is currently at full reproductive capacity with a sustainable fishing pressure in accordance with maximum sustainable yield (MSY). Atlantic cod is highly influenced by the inflow of eggs and larvae from Icelandic waters that occasionally contribute with large year classes. The cod stock is at full reproductive capacity, though with low recruitment. Two species of redfish – golden redfish and beaked redfish – are caught on the continental shelf and slopes in the ecoregion. While the golden redfish stock size has been at full reproductive capacity for more than a decade, the stock status of beaked redfish is unknown. For herring and mackerel, the fishing mortality is above F_{MSY} but above biological reference points.

Supporting data used in the Greenland Sea fisheries overview is accessible at https://doi.org/10.17895/ices.advice.21640769.

Introduction

The Greenland Sea ecoregion covers the shelf and surrounding waters within the Greenlandic EEZ (Figure 1). The region is located along the entire eastern coast of Greenland, running from the Arctic Ocean ecoregion in the north to the Oceanic Northeast Atlantic ecoregion in the south and along the western boundaries of the Norwegian Sea and the Icelandic Waters ecoregion. The ocean and coastal shelves are strongly influenced by cold low-saline water from the north and warm high-saline water from the south; further details can be found in the Greenland Sea ecosystem overview (ICES, 2022a).

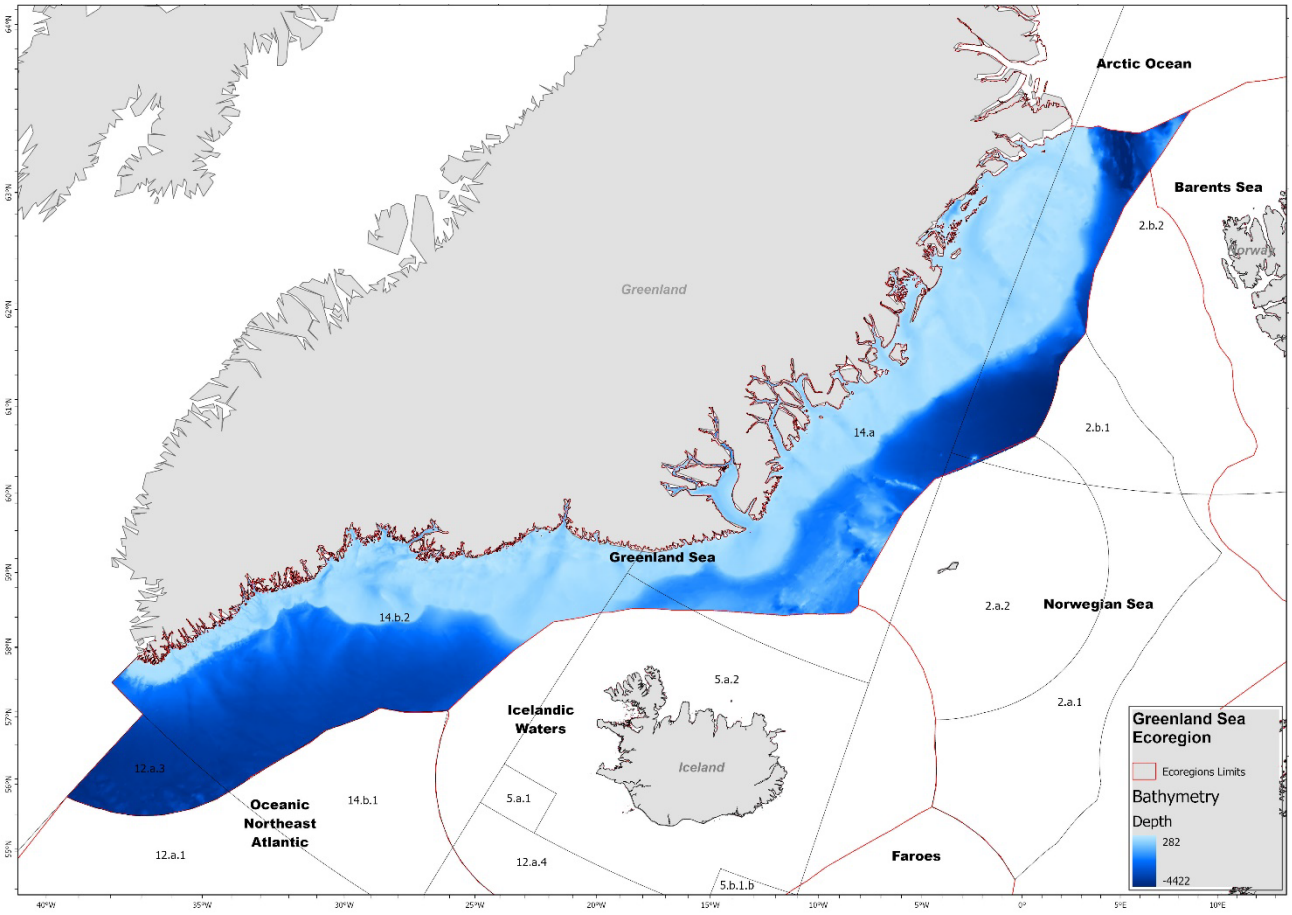


Figure 1 Greenland Sea ecoregion and ICES statistical areas. ICES divisions 2.b.2 and 5.a.2 are not included in this overview since catches from these divisions are only of little relevance for the Greenland Sea ecoregion.

The current overview covers ICES divisions and subdivisions 14.a, 14.b.2, 12.a.3, 2.b.2, and 5.a.2 (Figure 1). The catch statistics include all catches in ICES divisions and subdivisions 12.a.3, 14.a, and 14.b.2, as official catch statistics for the area cannot be broken down into smaller units of the ecoregion. The overview provides:

- a short description of each of the national commercial fishing fleets in the ecoregion, their fishing gears, and spatial and temporal patterns of activity (Information on whale and seal hunting is not included in this overview.);
- a summary of the status of the fisheries resources and the level of exploitation relative to agreed objectives and reference points;
- a description of mixed-fisheries interactions in the ecosystem, and
- an evaluation of the effects of fishing gear on the ecosystem in terms of the seabed and on the bycatch of protected, endangered, and threatened species.

The scientific names of all species described in this overview are listed in Table A2 in the Annex.

Who is fishing

A multinational fishery currently operates in the Greenland Sea ecoregion using different types of fishing gears and targeting several species. Apart from an insignificant inshore fishery with small boats, the fishing is done by large fish industrial factory ships in the length range of 50–100 meters. The fleet fishing on the eastern coast of Greenland has amounted to about 40-60 vessels in recent years (Figure 2). The demersal fisheries mainly deploy bottom trawl and long lines, while the pelagic fishery is carried out with trawls.

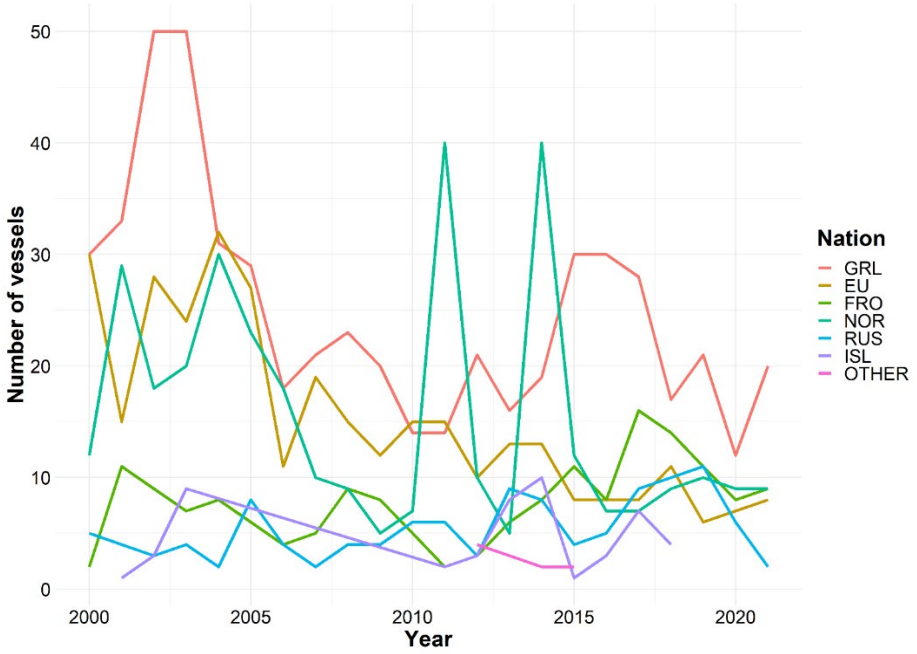


Figure 2 The number of vessels from different nations fishing within the Greenlandic EEZ from 2000 to 2021.

Apart from the Greenlandic fleet, the marine resources in Greenlandic waters are exploited by the EU Member States, Faroe Islands, Norway, and Russia. The number of vessels changes with the availability of the resource, e.g. with the increase of some pelagic stocks in 2011 and 2014 (Figure 2). Foreign vessels are allowed to fish within the Greenlandic EEZ through coastal state and bilateral agreements. Before the establishment of the 200-nautical-mile EEZ in 1976, foreign fisheries had free access to Greenlandic waters; however, little fishery took place at that time (Figure 3).

Greenland accounts for most of the active vessels in both the demersal and the pelagic fisheries. From 2012 to 2015, the number of Greenlandic vessels increased notably and has since remained high compared to other nations. In 2020 and 2021, however, the number of Greenlandic vessels dropped markedly as most of the pelagic fleet moved to fishing areas outside this ecoregion. The largest number of foreign vessels are from the EU, Faroe Islands, Norway, and Russia. The total number of foreign vessels has generally decreased since 2000 except for in a few years (Figure 2). Besides Greenland, EU vessels have accounted for most of the bottom-trawl fishery over time, measured as the number of vessels registered with that gear. Longline fishing is mainly conducted by Russia and Greenland, followed by the Faroes, while the EU and Norway are mainly active in the pelagic fishery.

The biomass caught by the different countries has varied through time. Nowadays, Greenland takes the majority of the catches (Figure 3). Mackerel catches, which started in the ecoregion around 2012, were initially taken by Greenlandic vessels and by chartered vessels from Iceland, the Faroe Islands, and Russia. This has changed, as only Greenlandic vessels are now involved in the fishery.

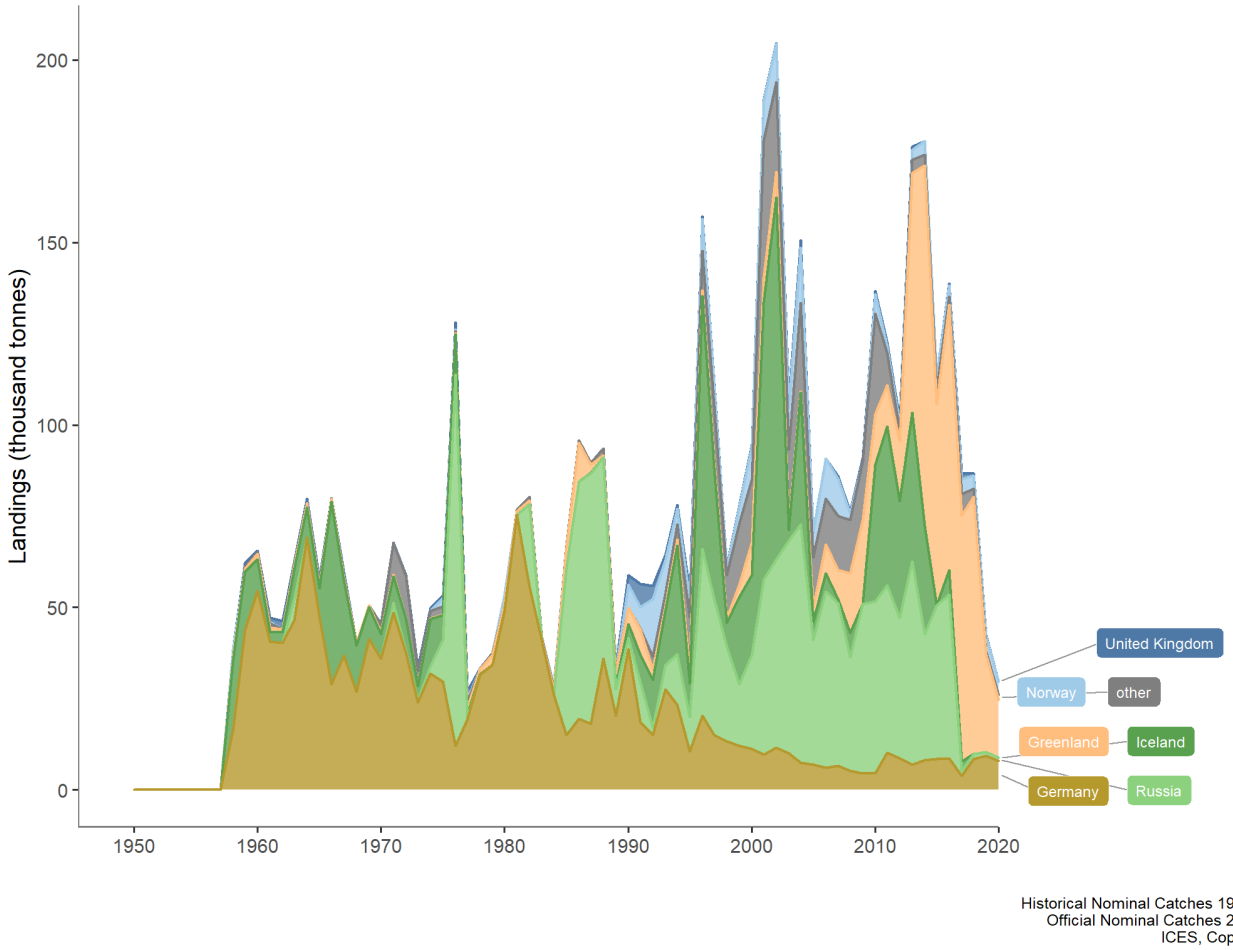


Figure 3 Landings (thousand tonnes) from ICES divisions and subdivisions 12.a.3, 14.a, and 14.b.2 in 1950–2020, by country. The six countries with the highest landings are displayed separately; the remaining countries are aggregated and displayed as "other". Note that capelin catches are not included.

Catches over time

The annual catch in the ecoregion has in recent years varied between 78 000 and 109 000 tonnes from the stocks of Northeast Atlantic (NEA) mackerel, Norwegian spring-spawning herring, cod, Greenland halibut, golden redfish, beaked redfish, and northern shrimp (Figure 4). Landings of the major commercial stocks (NEA mackerel, Norwegian spring-spawning herring, cod, and Greenland halibut) have varied over time (Figure 5), with only a few fisheries until the late 1950s (Figure 5). For the past 20 years, a capelin fishery has not been conducted in the ecoregion because of TAC restrictions in the summer/autumn fishery, which is the main season for the capelin fishery in the ecoregion.

Landings

The cod fishery in the ecoregion started in the mid-1950s and continued until mid-1990s when it collapsed. Recent cod catches have been relatively low (Figure 6).

Catches of Greenland halibut increased from the early 1990s until the beginning of 2000 and then stabilized. In 2013, catches decreased with the reduced fishing effort and have been stable since then (Figure 6).

The offshore northern shrimp fishery started in 1969 and increased up to the mid-1980s, reaching a catch level close to 15 000 tonnes. Catches remained at a high level until the beginning of 2000 but have decreased since then and are presently around 500 tonnes (Rigét, 2020).

Bottom-trawl catches in Greenlandic waters were relatively stable during 2000–2019, while pelagic catches have fluctuated (Figure 7). The longline fishery has increased since 2012 together with increasing cod catches (Figure 7 in ICES, 2021).

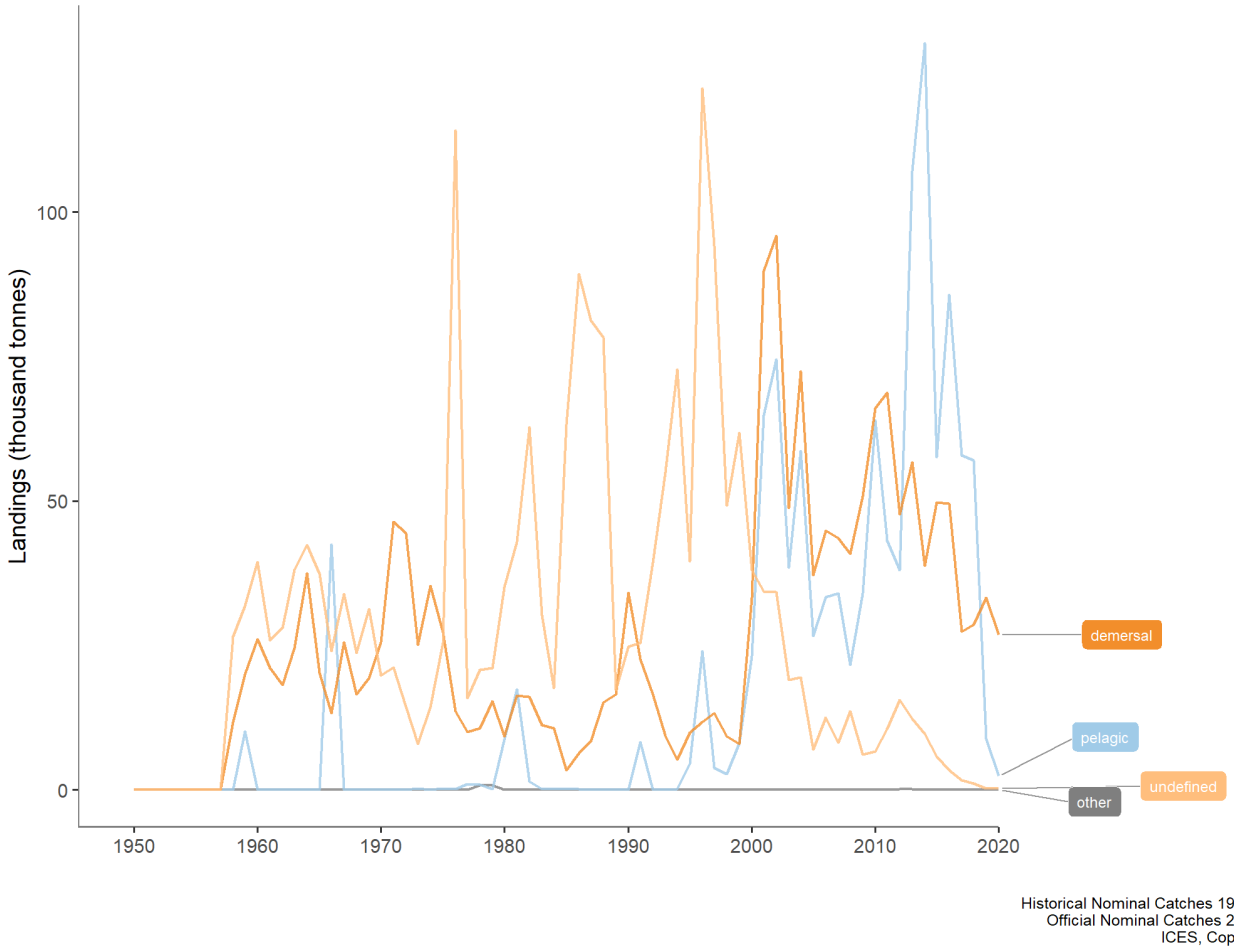


Figure 4 Landings (thousand tonnes) from ICES divisions and subdivisions 12.a.3, 14.a, and 14.b.2 in 1950–2020, by fish category. Table A1 in the Annex details which species belong to each fish category. Note that capelin catches are not included.

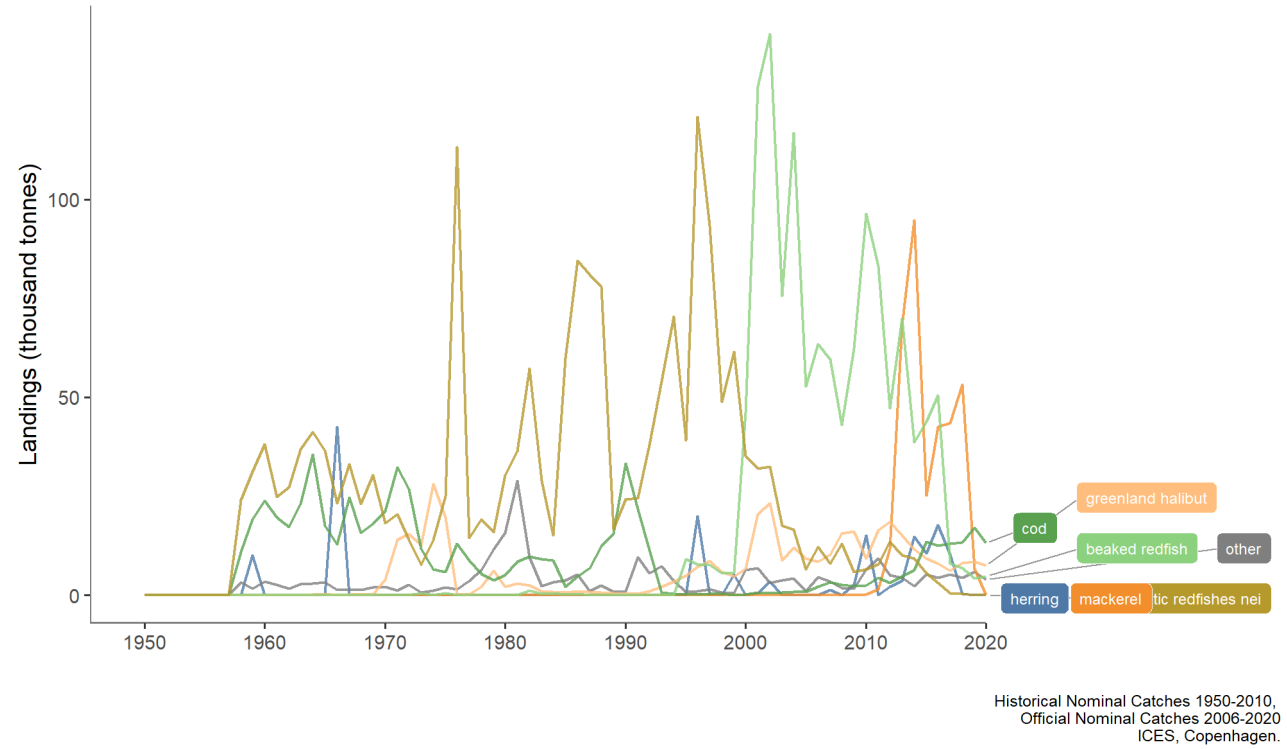


Figure 5 Landings (thousand tonnes) from ICES divisions and subdivisions 12.a.3, 14.a, and 14.b.2 in 1950–2021, by species. The seven species with the highest landings are displayed separately; the remaining species are aggregated and labelled as "other". Note that capelin catches are not included.

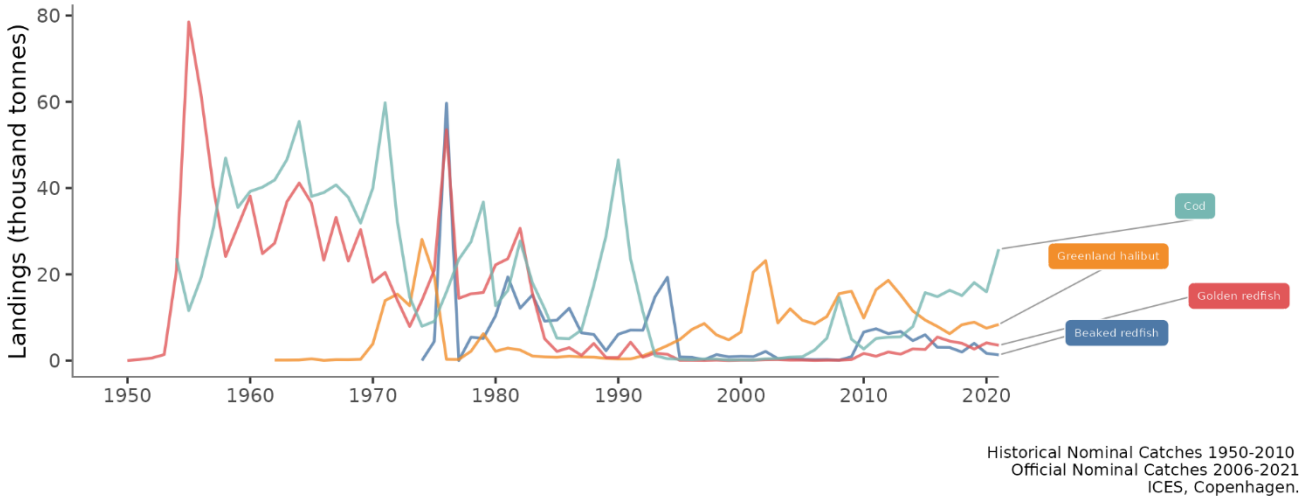


Figure 6 Landings (thousand tonnes) of four demersal species from ICES divisions and subdivisions 12.a.3, 14.a, and 14.b.2 in 1950–2021.

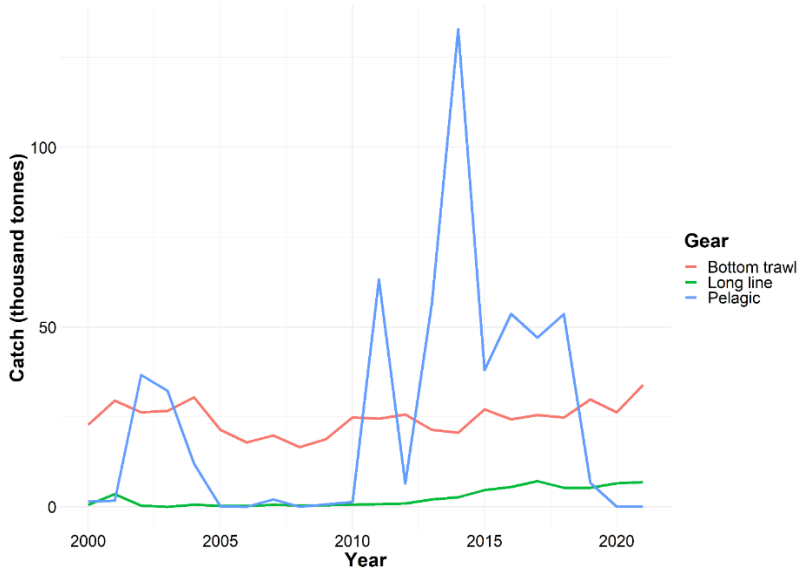


Figure 7 Commercial catches (thousand tonnes) from the Greenland Sea ecoregion in 2000–2021, by gear type.

Discards

Discarding is prohibited in Greenland and is considered negligible for most fisheries.

Description of the fisheries

Within the Greenland Sea ecoregion, the majority of the fishery is conducted in the southern part of the area, south of 70°N. Both a demersal and pelagic fishery are conducted in the ecoregion. A variety of different gear types, including bottom trawl, longlines, and pelagic trawl, are used.

Bottom otter trawl

The bottom-trawl fishery in the region mainly focuses on cod, Greenland halibut, redfish, and northern shrimp and is conducted in the slope and shelf area in the southern part of the ecoregion (Figure 8). For all fished species, the highest effort takes place south of 67°N. Minor effort takes place for cod and Greenland halibut north of 67°N.

Static gear

Longliners target demersal species like cod and, to a lesser degree, Greenland halibut. Furthermore, a small Norwegian longline fishery has for many years targeted Atlantic halibut. The longline fishery for cod in the ecoregion is distributed in the entire area south of 67°N, while the longline fishery for Greenland halibut primarily takes place in two well-defined areas within the region.

Pelagic trawl and pelagic seine

The pelagic fishery for mackerel and herring has developed rapidly in the ecoregion since the late 2000s following changes in the migration routes of these species (Jansen *et al.*, 2016). The main fishing effort for herring has been north of 68°N, while the effort for mackerel has been focused further southwest between Greenland and Iceland (Figure 9).

Recreational

There are no data available on recreational fisheries, but they are considered negligible.

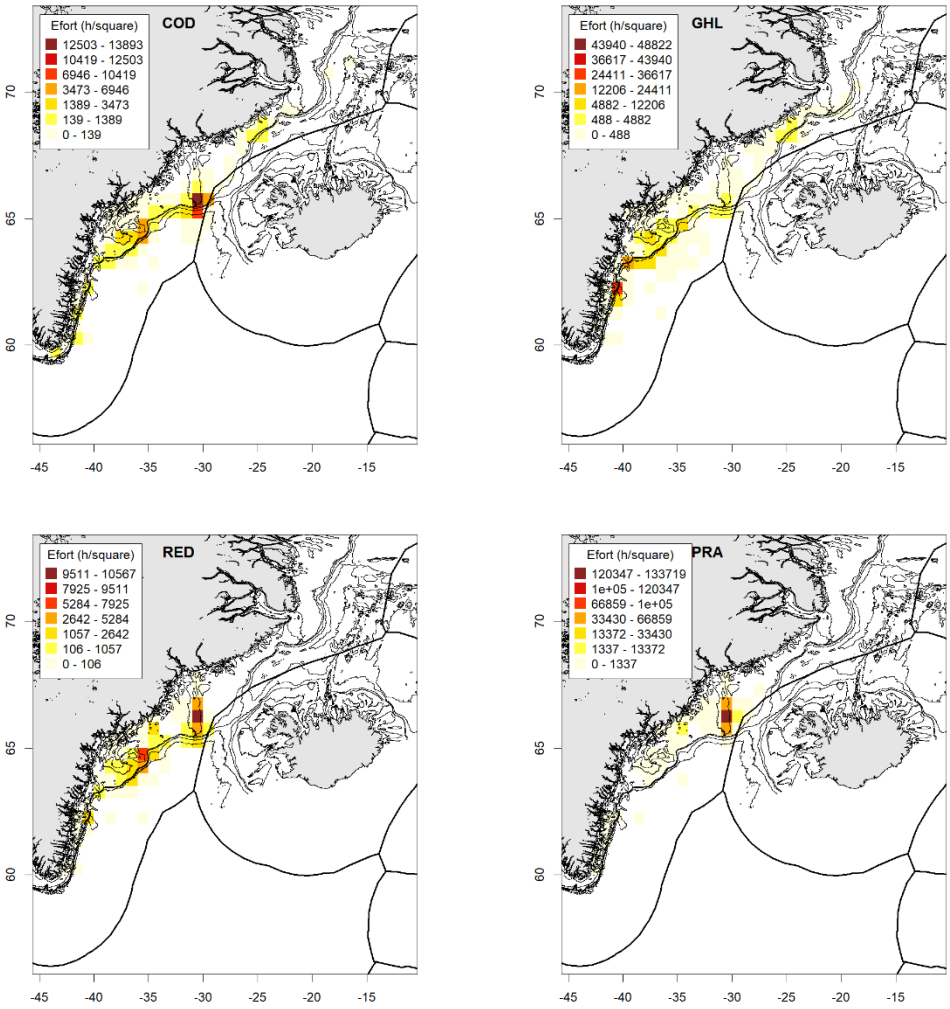


Figure 8 Spatial distribution of bottom-trawling effort during 2010–2021 for four demersal species. Upper panels: cod (COD) and Greenland halibut (GHL). Lower panels: redfish sp. (RED) and northern shrimp (PRA). Greenlandic and Icelandic EEZs are marked.

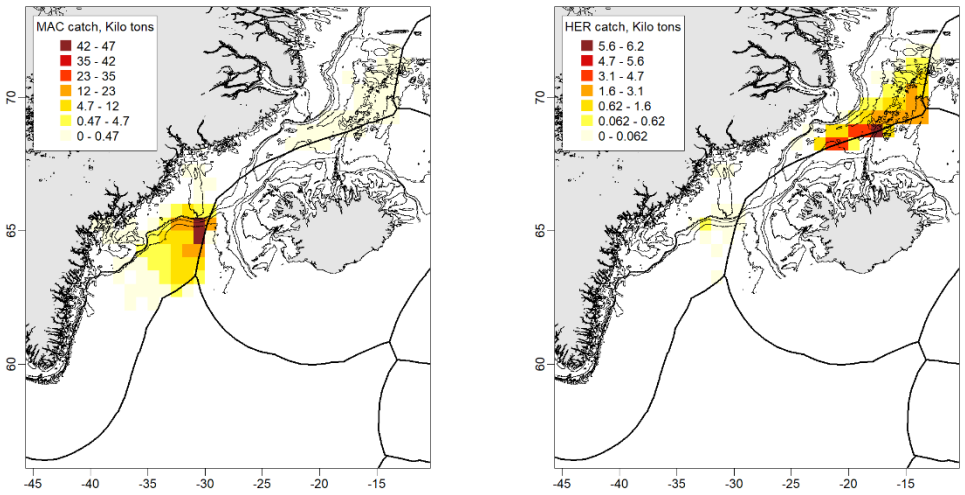


Figure 9 Spatial distribution of mackerel (MAC) and herring (HER) catch during 2010–2021. Greenlandic and Icelandic EEZs are marked.

Fisheries management

As the ecoregion is within the Greenlandic EEZ, the management of marine resources is under Greenlandic authority. Fisheries targeting widely-distributed stocks (e.g., herring, mackerel, and capelin) are managed by NEAFC or coastal state agreements. Fisheries of Greenland halibut and golden redfish have been managed bilaterally with Iceland during the past decade.

Fishing is regulated by, amongst other things, quotas and licences issued by the Government of Greenland. For each owner or company, the licence states which species the relevant licensee may fish, which vessels may be used, and in what management area the fishing may take place, as well as other conditions that apply to the fishery. There are two primary types of licences: a fixed-term licence and a non-time-limited licence. Each licence type may or may not be associated with a maximum catch.

Discard management measures are in place to limit bycatch. If bycatch limits are exceeded the vessels are obliged to move to another area.

Several management regulations are in place in the ecoregion to achieve a sustainable fishery. Since the 1990s sorting grids have been mandatory in the shrimp fishery to avoid bycatch of juvenile fish and shrimp as well as bycatch of larger fish, sharks, and cetaceans. Areas have regularly been closed to trawling to protect spawning concentrations of cod to rebuild the stock.

There are no management plans for the stocks in the ecoregion.

Status of the fishery resources

The ecoregion contains 13 stocks – eight demersal and five pelagic – for which ICES provided advice in 2022. While northern shrimp is an important resource in the region, the stock is not assessed byICES and so is not discussed further in this section.

Fishing mortalities and sizes of spawning-stock biomass (SSB) have been evaluated against maximum sustainable yield (MSY) and precautionary approach (PA) reference points, and the status of the stocks has also been assessed relative to safe biological limits, i.e. $F < F_{pa}$ and $SSB > B_{pa}$ (Figure 10). Out of the nine stocks with F reference points, seven were fished above F_{MSY} target levels in 2021 (red colour in Figure 10). Based on PA reference points, three stocks are assessed to be outside theire safe biological limits (SBL; see also Table A1 in the Annex).

The stocks have also been evaluated against EU Marine Strategy Framework Directive (MSFD) indicators for fishing mortality and spawning-stock biomass, which correspond to F_{MSY} and MSY $B_{trigger}$ (Figure 11).

Four stocks lack all reference points (Table A1 in the Annex); the majority of stocks have some, but not all, reference points. Some stocks with missing reference points are "data-limited stocks", which means that there are no forecasts of stock development (ICES categories 3, 5, and 6). Stocks for which quantitative assessments are available, however, make up the majority of the landed biomass (Figure 11).

The majority of the landings in 2021 were from eight stocks with SSBs above MSY $B_{trigger}$ (assessment criterion D3C2; Figure 11) and of which seven had fishing mortality above F_{MSY} (assessment criterion D3C1; Figure 11). The remaining landings were from stocks without a full set of MSY reference points.

NSS herring and mackerel have in recent years been the most important pelagic stocks in the ecoregion, and the average ratio of fishing mortality to F_{MSY} has been close to 1 in the entire time-series. Likewise, these stocks have been on the positive side of the biological reference points (Figure 12). In 2021, however, catches of both mackerel and herring from the Greenland Sea ecoregion were close to zero.

For cod, Greenland halibut, golden redfish, and tusk (usk.27.5a14) the average ratio of fishing mortality (F) to F reference points has fluctuated around 1 since the 1970s (Figure 12). In the last decade, the average has been close to 1, which has been mainly driven by the cod fishery. The average SSB/MSY $B_{trigger}$ ratio has reacted to the changes in the fishery pressure but has remained above or close to 1 throughout the time-series (Figure 12). The stock status of the demersal beaked redfish is unknown.

The northern shrimp stock has been declining since 2003. The stock is presently at a low level.

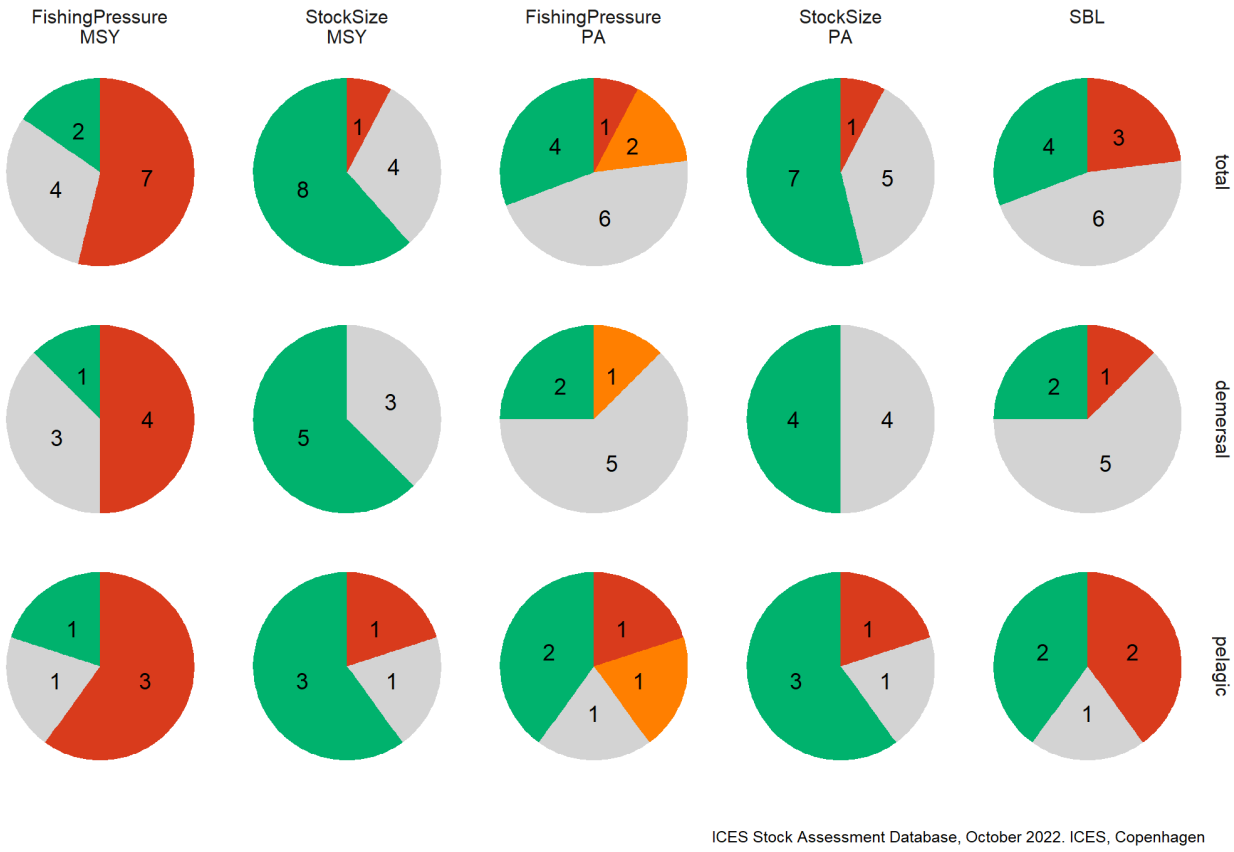


Figure 10 Status summary of Greenland Sea stocks relative to ICES maximum sustainable yield (MSY) approach and precautionary approach (PA), with the relevant number of stocks shown within each category. For the MSY approach: green represents a stock that is fished at or below F_{MSY} and whose size is equal to or greater than MSY $B_{trigger}$; red represents a stock status that is fished above F_{MSY} or whose size is lower than MSY $B_{trigger}$. For the PA: green represents a stock that is fished at or below F_{pa} and whose size is equal to or greater than B_{pa}; red represents a stock that is fished above F_{lim} or whose size lower than B_{lim}. Stocks having a fishing mortality below or at F_{pa} and a stock size at or above B_{pa} are defined as being inside safe biological limits (SBL). If this condition is not fulfilled the stock is defined as being outside safe biological limits. Grey represents unknown reference points. For stock-specific information, see Table A1 in the Annex.

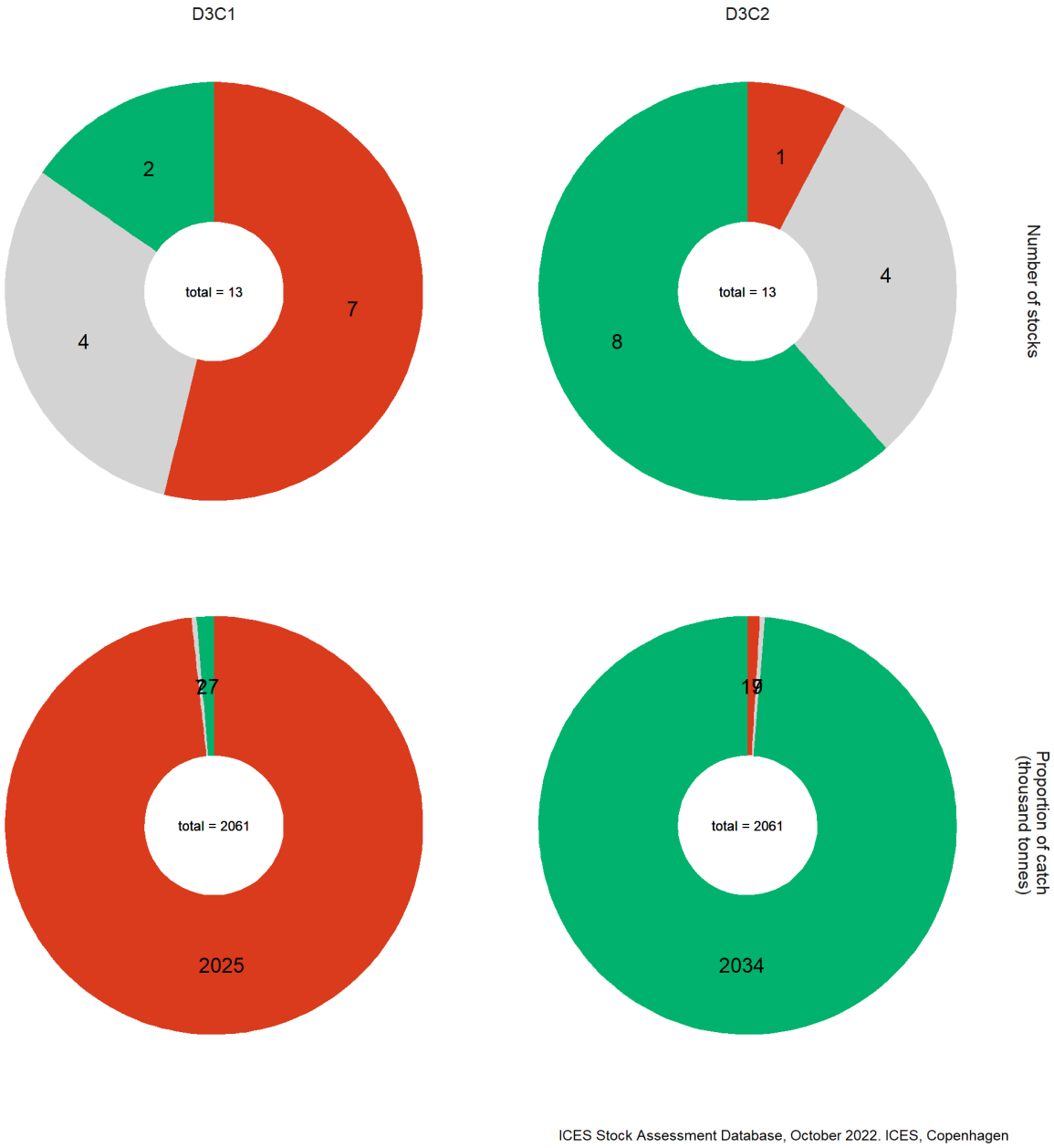


Figure 11 Status summary of Greenland Sea stocks in 2022 relative to the EU Marine Strategy Framework Directive (MSFD) good environmental status (GES) assessment criteria of fishing pressure (D3C1) and stock reproductive capacity (D3C2). Green represents the proportion of stocks fished below F_{MSY} or where the stock size is greater than MSY $B_{trigger}$, for criteria D3C1 and D3C2. Red represents the proportion of stocks fished above F_{MSY} or where the stock size is lower than MSY $B_{trigger}$, for criteria D3C1 and D3C2. Grey represents the proportion of stocks lacking MSY reference points. For stock-specific information, see Table A1 in the Annex.

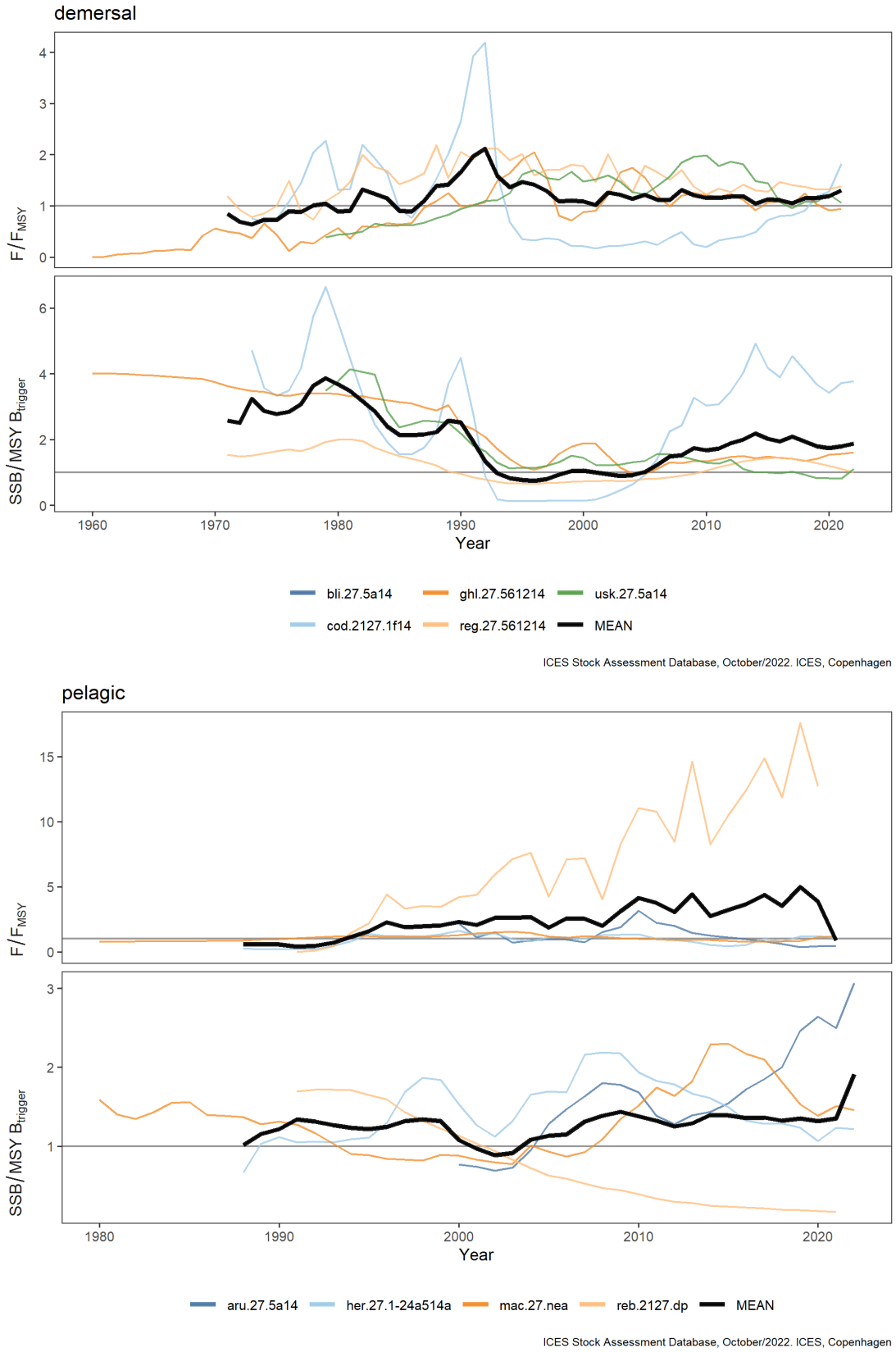
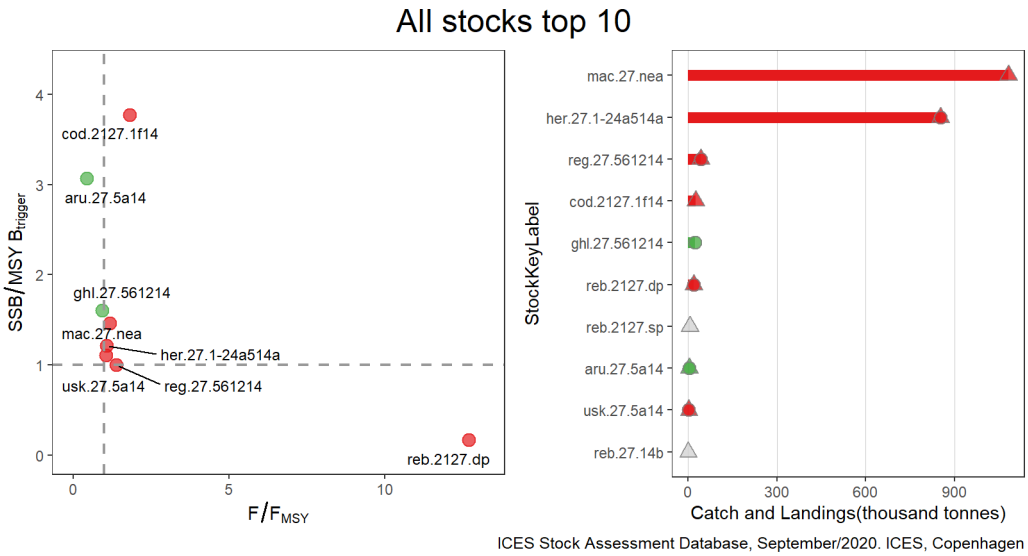
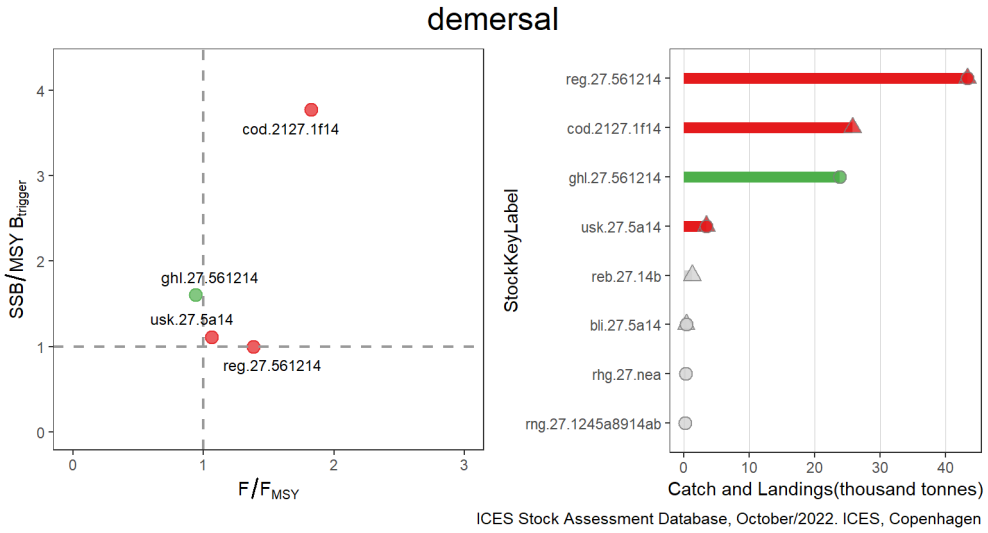


Figure 12 Temporal trends in F/F_{MSY} and SSB/MSY $B_{trigger}$ for Greenland Sea demersal and pelagic stocks. Only stocks with defined MSY reference points are considered. For full stock names, see Table A1 in the Annex.

Status of the stocks relative to the joint distribution of exploitation (F/F_{MSY}) and stock size (SSB/MSY $B_{trigger}$) is shown for all stocks with MSY reference points in Figure 13. Greenland halibut and greater silver smelt (aru.27.5a15) are exploited below F_{MSY} and have stock sizes above MSY $B_{trigger}$. Other stocks in the region are exploited above the optimal limit or have unknown/undefined status in relation to reference points (Figure 13).





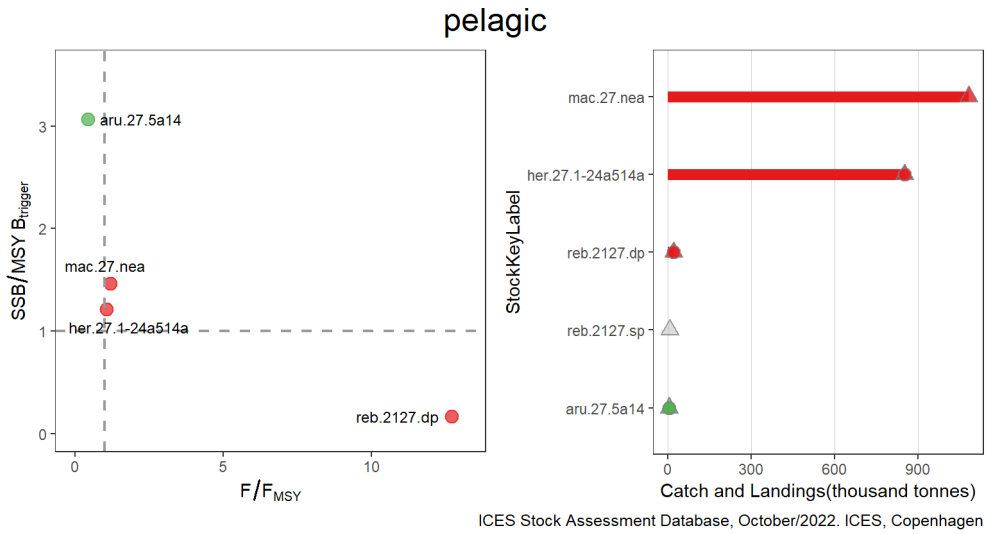


Figure 13 Status of Greenland Sea stocks relative to the joint distribution of exploitation (F/F_{MSY}) and stock size (SSB/MSY $B_{trigger}$) [left panels, by individual stocks] and catches (triangles)/landings (circles) from these stocks in 2021 [right panels]. The left panels only include stocks for which MSY reference points have been defined (MSY where available). Stocks in green are exploited at or below F_{MSY} and have sizes also at or above MSY $B_{trigger}$. Stocks in red are either exploited above F_{MSY} or have sizes below MSY $B_{trigger}$, or both. Stocks in grey have unknown/undefined status in relation to reference points. For full stock names, see Table A1 in the Annex.

Mixed fisheries

Cod and redfish overlap in distribution in the ecoregion and are thus often caught together. Deep-water fisheries targeting Greenland halibut and redfish also take catches of roundnose grenadier (rng.27.1245a8914ab), roughhead grenadier (rhg.27.nea), and tusk (Gordon *et al.,* 2003).

The pelagic fishery in the ecoregion has small amounts of bycatch. For instance, Atlantic bluefin tuna are occasionally caught as bycatch in the mackerel fishery.

Species interactions

The commercially exploited species in the Greenland Sea ecoregion are part of the marine foodweb. The species interact in various ways, including through competition and predation. The interactions between different species are to some degree understood, but potential effects propagating out through the ecosystem from the fisheries impacts are not quantified. Therefore, species interactions are not included in the assessment of fish stocks in the ecoregion.

Effects of fisheries on the ecosystem

The main effects of fisheries are from the extraction of species through the physical disturbance of the seabed and benthic habitats by mobile bottom-contacting fishing gear. Knowledge on the effect of species extraction on ecosystem structure and functioning is limited, but it is known that abrasion by such gear has caused damage and the loss of potentially important benthic habitat. Information on benthic habitats in the ecoregion is limited, but available data reveals considerable overlap between the areas trawled and the distribution of corals, sponges, and sea pens (Figure 14).

The elasmobranchs sailray, common skate, leafscale gulper shark, Portuguese dogfish, and thorny skate occurred as bycatch in bottom-trawl fisheries in the ecoregion (Subdivision 27.14.b.2) in 2018, with thorny skate showing the highest bycatch rate (1.80 specimens per monitored days-at-sea).

The greatest physical disturbance of the seabed and benthic habitats is caused by mobile bottom-contacting fishing gear and there is considerable overlap between the areas trawled and the distribution of corals, sponges, and sea pens. There are also reports of protected, endangered, and threatened elasmobranch bycatch in bottom-trawl fisheries.

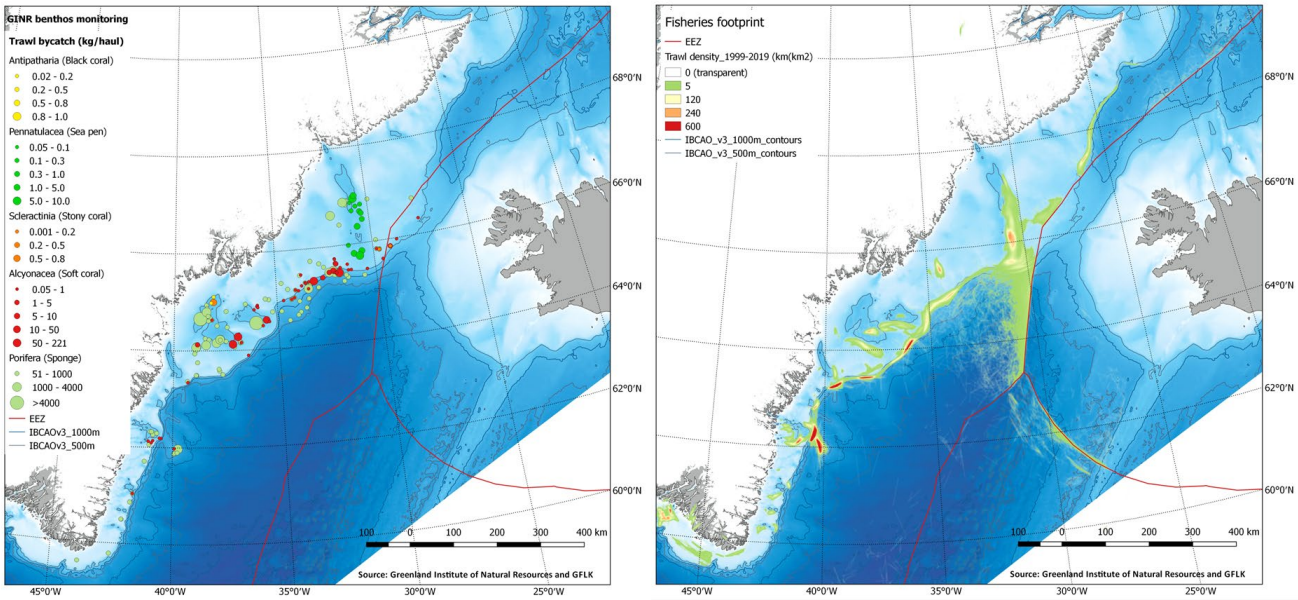


Figure 14 Left panel: density of corals and sponges collected during trawl surveys at depths of 50–1500 m. Right panel: fishing effort based on haul-by-haul logbook data from the Greenland Fishery License Control (GFLK) from fisheries deploying demersal and pelagic trawl gear from 1999 to 2019, all species and vessels inclusive.

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Annex

Table A1 Status summary of the Greenland Sea ecoregion stocks in 2022 (excluding salmon and sea trout), relative to maximum sustainable yield (MSY) and ICES precautionary approach (PA). For MSY: green represents a stock that is fished below F_{MSY} or whose size is greater than MSY $B_{trigger}$; red represents a stock that is fished above F_{MSY} or whose size is lower than MSY $B_{trigger}$. For PA: green represents a stock that is fished below F_{pa} or whose size is greater than B_{pa}; yellow represents a stock that is fished between F_{pa} and F_{lim} or whose size is between B_{lim} and B_{pa}; red represents a stock that is fished above F_{lim} or whose size is less than B_{lim}. Stocks with a fishing mortality below or at F_{pa} and a size above B_{pa} are defined as being inside safe biological limits. Grey represents stocks for which reference points are unknown. MSFD = EU Marine Strategy Framework Directive; D3C1 = MSFD indicator for fishing mortality; D3C2 = MSFD indicator for spawning-stock biomass; SBL = safe biological limits; GES = good environmental status. Stock codes contain a hyperlink for the most recent ICES advice.

Stock code	Stock description	Species scientific name	Species common name	Fisheries guild	Data category	Assessment year	Advice category	Approach	Fishing pressure	Stock size	D3C1	D3C2	GES	SBL
aru.27.5a14	Greater silver smelt in Subarea 14 and Division 5.a	*Argentina silus*	Greater silver smelt	Pelagic	1	2022	MSY	Maximum sustainable yield	✓	✓	✓	✓	✓	✓
								Precautionary approach	✓	✓	✓	✓		
bli.27.5a14	Blue ling in Subarea 14 and Division 5.a	*Molva dypterygia*	Blue ling	Demersal	3.3	2022	PA	Maximum sustainable yield	✗	✓	✗	✓	?	?
								Precautionary approach	?	?	?	?		
cod.2127.1f14	Cod in ICES Subarea 14 and NAFO Division 1.F	*Gadus morhua*	Cod	Demersal	1	2022	MSY	Maximum sustainable yield	✗	✓	✗	✓	✓	✓
								Precautionary approach	✓	✓	✓	✓		
ghl.27.561214	Greenland halibut in subareas 5, 6, 12, and 14	*Reinhardtius hippoglossoides*	Greenland halibut	Demersal	1	2022	MSY	Maximum sustainable yield	✓	✓	✓	✓	?	?
								Precautionary approach	?	✓	?	✓		
her.27.1-24a514a	Herring in subareas 1, 2, 5 and	*Clupea harengus*	Herring	Pelagic	1	2022	MP	Maximum sustainable yield	✗	✓	✗	✓	?	✗

Stock code	Stock description	Species scientific name	Species common name	Fisheries guild	Data category	Assessment year	Advice category	Approach	Fishing pressure	Stock size	D3C1	D3C2	GES	SBL
	divisions 4.a and 14.a, Norwegian spring-spawning herring							Precautionary approach	o	✓	o	✓		
mac.27.nea	Mackerel in subareas 1-8 and 14 and division 9.a	*Scomber scombrus*	Mackerel	Pelagic	1	2022	MSY	Maximum sustainable yield	✗	✓	✗	✓	✓	✓
								Precautionary approach	✓	✓	✓	✓		
reb.2127.dp	Beaked redfish in ICES subareas 5, 12, and 14 and NAFO subareas 1 and 2	*Sebastes mentella*	Beaked redfish	Pelagic	2.13	2021	MSY	Maximum sustainable yield	✗	✗	✗	✗	✗	✗
								Precautionary approach	✗	✗	✗	✗		
reb.2127.sp	Beaked redfish in ICES subareas 5, 12, and 14 and NAFO subareas 1 and 2	*Sebastes mentella*	Beaked redfish	Pelagic	3	2021	PA	Maximum sustainable yield	?	?	?	?	?	?
								Precautionary approach	?	?	?	?		
reb.27.14b	Beaked redfish in Division 14.b, demersal	*Sebastes mentella*	Beaked redfish	Demersal	3.2	2022	PA	Maximum sustainable yield	?	?	?	?	?	?
								Precautionary approach	?	?	?	?		

Stock code	Stock description	Species scientific name	Species common name	Fisheries guild	Data category	Assessment year	Advice category	Approach	Fishing pressure	Stock size	D3C1	D3C2	GES	SBL
reg.27.561214	Golden redfish in subareas 5, 6, 12, and 14	*Sebastes norvegicus*	Golden redfish	Demersal	1	2022	MP	Maximum sustainable yield	✗	✓	✗	✓	✓	✓
								Precautionary approach	✓	✓	✓	✓		
rhg.27.nea	Roughhead grenadier in the Northeast Atlantic	*Macrourus berglax*	Roughhead grenadier	Demersal	6.3	2020	PA	Maximum sustainable yield	?	?	?	?	?	?
								Precautionary approach	?	?	?	?		
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2	*Coryphaenoides rupestris*	Roundnose grenadier	Demersal	6.2	2019	PA	Maximum sustainable yield	?	?	?	?	?	?
								Precautionary approach	?	?	?	?		
usk.27.5a14	Tusk in Subarea 14 and Division 5.a	*Brosme brosme*	Tusk	Demersal	1	2022	MP	Maximum sustainable yield	✗	✓	✗	✓	?	✗
								Precautionary approach	o	✓	o	✓		

Table A2 Species in the ecoregion.

Common name	Species name
Atlantic bluefin tuna	*Thunnus thynnus*
Atlantic cod	*Gadus morhua*
Atlantic halibut	*Hippoglossus hippoglossus*
Atlantic herring	*Clupea harengus*
Beaked redfish	*Sebastes mentella*
Blue ling	*Molva dypterygia*
Capelin	*Mallotus villosus*
Common skate	*Dipturus batis*
Golden redfish	*Sebastes norvegicus*
Greater silver smelt	*Argentina silus*
Greenland halibut	*Reinhardtius hippoglossoides*
Leafscale gulper shark	*Centrophorus squamosus*
Mackerel	*Scomber scombrus*
Northern shrimp	*Pandalus borealis*
Portuguese dogfish	*Centroscymnus coelolepis*
Roundnose grenadier	*Coryphaenoides rupestris*
Roughead grenadier	*Macrourus berglax*
Sailray	*Rajella lintea*
Sea pens	*Pennatulacea*
Thorny skate	*Amblyraja radiata*
Tusk	*Brosme brosme*