



MarinTrust Standard V2

Whole fish Fishery Assessment Raudåte (*Calanus finmarchicus*), Norway.

MarinTrust Programme

Unit C, Printworks

22 Amelia Street

London

SE17 3BZ

E: standards@marin-trust.com

T: +44 2039 780 819

Table 1 Application details and summary of the assessment outcome

Application details and summary of the assessment outcome			
Name(s): Calanus AS			
Country: Norway			
Email address:		Applicant Code	
Certification Body Details			
Name of Certification Body:		LRQA	
Assessor Name	CB Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Blanca Gonzalez	Sam Peacock	5	Re-approval
Assessment Period	April 2024 – April 2025		
Scope Details			
Management Authority (Country/State)		Ministry of Trade, Industry and Fisheries (Norway)	
Main Species		Raudåte (<i>Calanus finmarchicus</i>)	
Fishery Location		FAO 27 Atlantic Northeast, Norway EEZ	
Gear Type(s)		Midwater trawl	
Outcome of Assessment			
Overall Outcome		Pass	
Clauses Failed		None	
CB Peer Review Evaluation		Pass	
Fishery Assessment Peer Review Group Evaluation		Agree with CB recommendation	
Recommendation		Pass	

Table 2. Assessment Determination

Assessment Determination

Raudåte (*Calanus finmarchicus*) assessment for Norway EEZ in the Atlantic Northeast (FAO 27) include 3 species: Raudåte, *Calanus finmarchicus* as target, and herring (*Clupea harengus*) and Redfish (*Sebastes spp.*) as bycatch. *Calanus* is not listed in the IUCN Redlist, while herring is a Least Concern species, and *Sebastes spp.* may be Vulnerable or Least Concern species. None of the 3 species appears in any CITES appendix.

Calanus represents up to 99.2% of the total catch being a Type 1 species, considering that there are no reference points established for the stock and no stock assessment had been conducted, it was assessed under Category B. Herring and redfish represents less than 1% of the fishery, both of them are subject to a management regime specifically aimed with established reference points and an annual TAC established each year; thus, they were assessed under Category C.

The reviewed evidence about the *Calanus* stock management framework (M1) indicates that there is an organisation responsible for managing the fishery, collecting data and assessing the fishery; fishery management organisations are publicly committed to sustainability and are legally empowered to take management actions, also, there is a consultation process through which fishery stakeholders are engaged in decision-making, process is transparent and results are publicly available; therefore all clauses were met. Regarding surveillance, control and Enforcement measures (M2), there is an organisation responsible for monitoring compliance with fishery laws and regulations, there is a framework of sanctions which are applied when laws and regulations are discovered to have been broken, there is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing, and compliance with laws and regulations is actively monitored; thus, all clauses were also met.

Calanus under Category B was assessed using Table B(b) since no analytical stock assessments had been conducted for the species, and no reference points have been established. The current biomass remains around the long-term average biomass, and current fishing mortality is less than the long-term average fishing mortality; ecosystem modelling results indicates that *Calanus* is highly resilient; therefore, this fishery continues to achieve a PASS rating as in previous Marin Trust assessments.

Herring and Redfish, assessed as Category C species, PASSED all the clauses. Herring includes fishery removals data in their stock assessment process, and the fishing pressure is above the F_{MSY} and between F_{pa} and F_{lim} , while spawning-stock size above MSY $B_{trigger}$, B_{pa} , and B_{lim} ; while at the scale the *Calanus* fishery currently operates, catch of redfish eggs and larvae is considered to have negligible impact on the redfish stock as a whole.

The fishery operates using fine-mesh pelagic nets towed at low speeds, which means it is unlikely to interact with ETP species, and no interactions with ETP species were reported in the most recent bycatch study carried out with 2021 fishery information. *Calanus* harvesting uses midwater trawls as fishing method, which is considered to have no impact on sea bottom habitats and bottom structures; thus, impact on physical habitat is minimum. The client held a Friend of the Sea certification, which means that the fishing method prevents bycatch of threatened species and that the catch is carried out using methods that reduce the impact on ecosystems. Given its important role within the broader ecosystem management plan has been developed and the established quotas have been estimated not affecting *Calanus* population; thus, current TAC of 254,000t is itself conservative, set with the objective of ensuring potential ecosystem impacts were minimised. There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem, and the development of new harvesting technology was designed in order to reduce bycatch.

The *Calanus* fishery in Norway EEZ (FAO 27) PASSED all the Marin Trust requirements in this assessment, therefore its re-approval is recommended to be used as a raw material in Marine Trust certified products.

Fishery Assessment Peer Review Comments

The full FAPR review and CB response can be seen at the end of this report.

Notes for On-site Auditor

Request any available & enforcement information specific to the *Calanus* fleet, such as number and frequency of inspections, at sea or in port.

Table 3 General Results

General Clause	Outcome (Pass/Fail)
M1 - Management Framework	Pass
M2 - Surveillance, Control and Enforcement	Pass
F1 - Impacts on ETP Species	Pass
F2 - Impacts on Habitats	Pass
F3 - Ecosystem Impacts	Pass

Table 4 Species- Specific Results

List all Category A and B species. List approximate total percentage (%) of landings which are Category C and D species; these do not need to be individually named here

Category	Species	% landings	Outcome (Pass/Fail)
Category A	No Category A Species		
Category B	Raudåte, <i>Calanus finmarchicus</i>	99.2%	Pass
Category C	Herring, <i>Clupea harengus</i>	<1%	Pass
Category D	Redfish, <i>Sebastes spp.</i>	<1%	Pass

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category ¹	% of landings	Management	Category
Raudåte	<i>Calanus finmarchicus</i>	Norway EEZ	Not listed	99.2%	No	B
Herring	<i>Clupea harengus</i>	Norwegian spring/spawning herring (Subareas 1,2,5 and divisions 4.a and 14.b)	Least Concern ²	0.42%	Yes	C
Redfish	<i>Sebastes spp.</i>	Various	Golden redfish: Vulnerable ³ Beaked redfish: Least Concern ⁴	0.14%	Yes	C

Species categorisation rationale

The *Calanus* fishery continues to be managed under the 2016 management plan (DoF 2016), including an annual quota and geographical restrictions. Each year the Directorate of fisheries submit to the Sami Parliament the proposal for regulation of *Calanus* harvesting and 2024 was not an exception (DoF 2024). However, as at the time of April 2024 re-approval, there are no reference points established for the stock and no stock assessment is conducted; for these reasons, *Calanus* has again been assessed under Category B.

The most recent analysis of catch composition is still the one carried out by The Norwegian Institute of Marine Research during the 2021 fishery (Broms et al. 2022). This report noted that the average proportion of bycatch by weight in the sampled hauls was between 0.3% and 0.8%. The proportion of the bycatch made up of each species is summarised in the chart below (Figure 1):

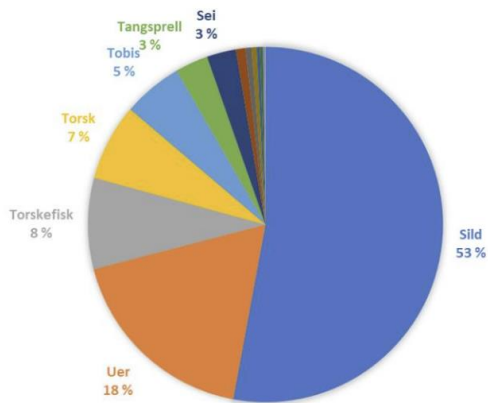


Figure 1: Percentage share of the bycatch within the sampled *Calanus* trawls represented by each species (Broms et al. 2022). Sild (herring); Uer (redfishes); Torskefisk (cod-like fish, e.g. haddock); Torsk (cod); Tobis (sandeel); Tangsprøll (butterfish); Sei (pollock).

Based on a maximum average bycatch by weight of 0.8%, this equates to the following proportions of the total catch represented by each species:

Species / Species group	Proportion of total catch
<i>Calanus</i>	99.2%
Herring	0.42%
Redfish	0.14%
Cod/like species	0.06%
Cod	0.06%
Sandeel	0.04%
Butterfish	0.02%
Pollock	0.02%

¹ <https://www.iucnredlist.org/>
² <https://www.iucnredlist.org/species/155123/4717767>
³ <https://www.iucnredlist.org/species/18237880/45863343>
⁴ <https://www.iucnredlist.org/species/154816/115238709>

Based on these proportions, the only species representing more than 0.1% of the catch in 2021 were *Calanus*, herring, and redfish. The category “redfish” represents at least three stocks of two different species, and therefore it is likely that no individual stock represents more than 0.1% of the total catch. However, for the purposes of this assessment they have been included as a single unit and considered under Category C. Herring has also been assessed under Category C.

DoF. (2016). Directorate of Fisheries. Norwegian management plan for harvesting *Calanus finmarchicus*. https://www.ices.dk/events/symposia/zp6/Documents/Presentations/W3/w3_wednesd_0955_langaard_norwegian.pdf

DoF. (2024). Directorate of Fisheries. REGULERING AV HØSTING AV RØDÅTE I 2024 (Regulation of Raudåte Harvesting in 2024). <https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Reguleringsmoetet2/november-2023/saksdokumenter/sak-25-2023-rodete.pdf>

Broms, C, Strand, E, Mella, W, (2022). “Innblanding av fiskelarver- og yngel i raudåtefangster 2021”; Mix of fish larvae and fry in *Calanus* catches, 2021. Institute of Marine Research.

MANAGEMENT

The two clauses in this section (M1, M2) relate to the general management regime applied to the fishery under assessment. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. A fishery must meet all the minimum requirements in every clause before it can be recommended for approval.

M1	Management Framework – Minimum Requirements	
	M1.1 There is an organisation responsible for managing the fishery.	Pass
	M1.2 There is an organisation responsible for collecting data and assessing the fishery.	Pass
	M1.3 Fishery management organisations are publicly committed to sustainability.	Pass
	M1.4 Fishery management organisations are legally empowered to take management actions.	Pass
	M1.5 There is a consultation process through which fishery stakeholders are engaged in decision-making.	Pass
	M1.6 The decision-making process is transparent, with processes and results publicly available.	Pass
Clause outcome:		Pass

M1.1 There is an organisation responsible for managing the fishery.

Clause is met considering that:

The management of fisheries in Norway falls under the jurisdiction of the Directorate of Fisheries (DoF), within the Ministry of Trade, Industry and Fisheries. The DoF main objective is to promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment, through their vision "Marine Life - our common responsibility". They advise the ministry on how the fisheries and aquaculture industry should be managed, and makes sure that laws and regulations are followed; therefore, the DoF role is to provide professional input to the policy making process by way of analyses, statistics and advice, as well as legislature and regulative work and regulation planning development. (DoF 2024a)

DoF aims to be an efficient manager by implementing political decisions, processing applications and appeals and conducting monitoring and control, as well as to be a partner through active cooperation with trade and industry, the research community and other public services, and to share knowledge with various stakeholders and the general public. The operation areas are: 1) Management of marine resources, 2) Aquaculture management, and 3) Coastal zone management (DoF 2024a).

Norway places great importance on sustainable and environmentally friendly fisheries and aquaculture management, based on a thorough knowledge and understanding of fishery resources dynamics and their environment. (FAO 2024).

M1.2 There is an organisation responsible for collecting data and assessing the fishery.

Clause is met considering that:

The Directorate of Fisheries in Norway has an Electronic Reporting Systems, where Norwegian vessels, when operating in national waters in the economic zones of other countries or in international waters, are able to report their fishing activity using one reporting system. All relevant information is registered in the software on board the vessel and the reports are sent electronically to the Directorate of Fisheries. All Norwegian vessels 15 meters and above (12 meters when operating in the Skagerrak area) and vessels flying the flag of the countries which have fisheries agreements with Norway, should report electronically their catch requirements and activity when fishing in Norwegian waters. All data is stored by the Directorate of Fisheries and is only accessible to authorized personnel who are subject to a duty of confidentiality. The main users of the information are the Norwegian Coast Guard and the Directorate of Fisheries. The Joint Rescue Coordination Centers and the Institute of Marine Research also have access to part of the information (DoF 2024b). The Institute of Marine Research (IMR) is the largest marine research institution in Norway and the main adviser to the Ministry of Fisheries and Coastal Affairs, and it is affiliated to the Ministry of Trade, Industry and Fisheries; being also responsible for fisheries data collection and analysis in Norway (IMR 2024).

M1.3 Fishery management organisations are publicly committed to sustainability.

Clause is met considering that:

The Directorate of Fisheries' goal is to promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment, through their vision "Marine Life - our common responsibility" (DoF 2024a). Also, Norwegian fisheries management is underpinned by the Marine Resources Act of 6 June 2008 no. 37 relating to the management of wild living marine resources (MRA 2008), which has the stated purpose to "ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them, and to promote employment and settlement in coastal communities". It requires that Norwegian fisheries management be guided by the precautionary approach, in line with international treaties and guidelines, and by an ecosystem approach that takes into account habitats and biodiversity (DoF 2024c).

M1.4 Fishery management organisations are legally empowered to take management actions.

Clause is met considering that:

The Directorate of Fisheries in Norway operates under the Marine Resources Act established since 2008. The Act applies to all harvesting and other utilisation of wild living marine resources and genetic material derived from them; thus, The Ministry shall evaluate which types of management measures are necessary to ensure sustainable management of wild living marine resources. Also, The Act's chapter 3 "Catch quantities and quotas", mentions that The Ministry may prescribe the maximum permitted quantities (national quotas) of wild living marine resources that may be harvested, expressed in terms of; weight, volume, number of individuals, the number of days harvesting is permitted, or in other terms. A national quota shall be determined for a specific period of time. When a national quota has been determined, the total quantity of group quotas, research and training quotas and other quotas issued may not exceed the national quota. Other important components of the legislation include a landing obligation and the empowerment of the Directorate of Fisheries to conduct vessel and catch inspections at sea and in port. (DoF 2024c).

M1.5 There is a consultation process through which fishery stakeholders are engaged in decision-making.

Clause is met considering that:

The Marine Resources Act (MRA) entered into force in Norway in 2009 implementing an Ecosystem Approach to Fisheries Management (EAFM). This new approach includes defining management objectives and some simple tools to achieve an overview of management needs and prioritise among these where development of new or revised management measures are most urgently needed, while integrating broader conservation issues and ensuring high stakeholder involvement on a regular basis (Gullestad et al. 2017). The Section 8 "Council for regulatory advice" of the MRA indicates that "The Ministry may appoint a Council for Regulatory Advice that can give its opinion before regulations are made under this Act. The Ministry may adopt regulations on the composition of the Council and its tasks. The Council shall include representatives of organisations for the parties that normally have an interest in such cases." (DoF 2024c). In November occurs the Annual Regulatory Meeting where stakeholders get involved in management decisions through the Advisory Meeting for Fisheries Regulations (The Regulatory Board), representing fishermen's associations, the fishing industries, trade unions, the Sami Parliament, local authorities, environmental organizations and other stakeholders (Gullestad et al. 2017). The annual regulatory cycle (figure 1) with stakeholder participation has been in place since the 1970's, its scope now broadened by the provisions of the new act to include ecosystem and biodiversity related issues (Gullestad et al. 2017).

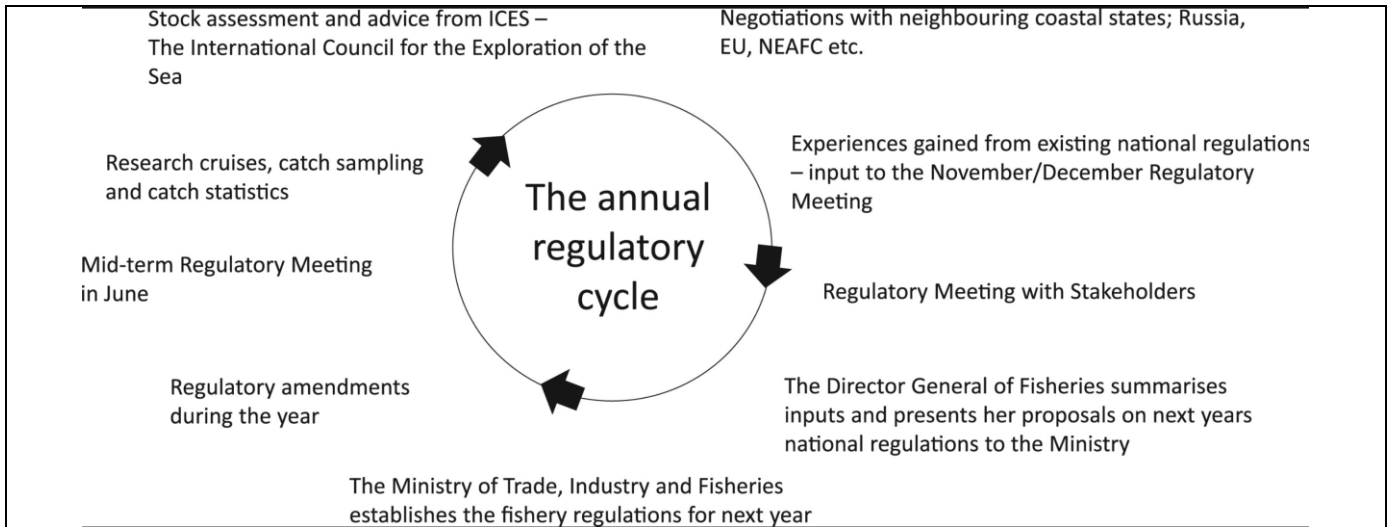


Figure 1. The annual regulatory cycle that occurs in November, where stakeholders get involved in management decisions (Gullestad et al. 2017).

M1.6 The decision-making process is transparent, with processes and results publicly available.

Clause is met considering that:

Decision-making organisations continue to publish reports covering the management process online. Information about Norwegian fisheries and aquaculture management are made public on the Norwegian government website (<https://www.regjeringen.no/en/id4/>).

References

Directorate of Fisheries (2024b). Electronic Reporting System. <https://www.fiskeridir.no/English/Fisheries/Electronic-Reporting-Systems>

DoF. (2024a). Directorate of Fisheries. About the Directorate of Fisheries. <https://www.fiskeridir.no/English/about-the-directorate>

DoF. (2024c). Directorate of Fisheries. The Marine Resources Act. <https://www.fiskeridir.no/English/Fisheries/Regulations/The-marine-resources-act>

FAO. (2024). Fishery and Aquaculture Country Profiles. Norway, 2011. Country Profile Fact Sheets, In: Fisheries and Aquaculture. Rome. Updated Aug 28, 2013. <https://www.fao.org/fishery/en/facp/NOR>

Gullestad, P., Abotnes, A. M., Bakke, G., Skern-Mauritzen, M., Nedreaas, K., & Sjøvik, G. (2017). Towards ecosystem-based fisheries management in Norway—practical tools for keeping track of relevant issues and prioritising management efforts. *Marine Policy*, 77, 104-110.

IMR. (2024). Institute of Marine Research. About us. <https://www.hi.no/en/hi/about-us>

MRA. (2008). Marine Resources Act. <https://www.regjeringen.no/globalassets/upload/fkd/vedlegg/diverse/2010/marineresourcesact.pdf>

Links

MarinTrust Standard clause	1.3.1.1, 1.3.1.2
FAO CCRF	7.2, 7.3.1, 7.4.4, 12.3
GSSI	D.1.01, D.4.01, D2.01, D1.07, D1.04,

M2 Surveillance, Control and Enforcement - Minimum Requirements		
M2.1	There is an organisation responsible for monitoring compliance with fishery laws and regulations.	Pass
M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.	Pass
M2.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.	Pass
M2.4	Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.	Pass
Clause outcome:		Pass

M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.

Clause is met considering that:

In Norway the Marine Resources Act places the overall responsibility for monitoring, control and surveillance. The fisheries regulations are enforced when the fish is landed and when it is exported, and at sea, the Coast Guard is responsible for inspecting fishing vessels and checking their catch against their log books (DoF 2024a). The 1997 Coast Guard Act provides the Coast Guard with the authority to conduct inspections in waters under Norwegian jurisdiction, within the fields covered by the Marine Resources Act and secondary legislation given with statutory authority in that Act (NCG 2024).

The Directorate of Fisheries inspects activities on the fishing grounds and performs physical inspections of landings. Upon the landing of catches, the landings data are checked against the fishing rights of the vessel. This task is performed by the fish sales organizations and the Directorate of Fisheries. Norwegian vessels are required to have electronic catch logbooks (Electronic Reporting Systems (ERS)). Norway has agreements in place with a number of other countries about exchange of ERS data, including the EU. The Directorate of Fisheries keeps track of how much fish is taken of the quotas of individual vessels, different vessel groups and other states at any given time, based on reports from the fishing fleet, the value of any catch delivered above a vessel’s quota is retained by the sales organization and used for control purposes. Also, the Marine Resources Act Chapter 6 “Arrangements for control and enforcement” and Chapter 7 “Control and enforcement” set the duties that must be done by the Ministry, the Directorate of Fisheries and fishermen to contribute to an effective control of the fisheries. (DoF 2024a, 2024b).

M2.2 There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.

Clause is met considering that:

The Norwegian Marine Resources Act Chapters 11 “Coercive fines and infringement fines” and 12 “Criminal liability” describe coercive and infringement fines. The Ministry may impose coercive fines and prison to ensure compliance with provisions made in or under the Act. A coercive fine is a continuous fine that becomes effective from a specified deadline for complying with an order if the deadline for compliance with the order is not met. An infringement fine may be also imposed as a fixed penalty, or the amount may be fixed in each case. Such factors as the profit or potential profit those responsible have made through the contravention, how serious the contravention was, and the extra costs of control measures and processing the case may be considered in determining the amount of the fine. (DoF 2024a).

Alternatively, catch, gear, vessels or other properties can be confiscated (§ 65). The Act on First-Hand Sales of Wild Catch of Marine Resources also provides a legal foundation for sanctions, including penal liability (§ 22; same as for the Marine Resources Act) and confiscation (§ 23), and the Coast Guard Act for penal liability (§ 36; up to six months prison or two years for infringements committed under aggravating circumstances). The Norwegian enforcement agencies use a graduated sanctioning system, with sanctions ranging from oral warnings, written warnings and administrative fines to formal prosecution. (DoF 2024a).

M2.3 There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.

Clause is met considering that:

The Norwegian Marine Resources Act Chapter 8 “Measures against illegal, unreported and unregulated fishing” prohibited the landing catches of wild living marine resources caught by vessels that are not Norwegian, or by vessels that are not under the command of a Norwegian national or anyone assimilated to Norwegian nationals, if: a) the catch is from a fish stock of joint interest to Norway and other states that is not subject to a joint management regime, b) the catch has been taken in contravention of a desired harvesting or fishing pattern, will result in a reasonable total allowable catch being exceeded, or is in contravention of international agreements, and c) the flag state cannot on request confirm that the catch has been taken during fishing activities that are in accordance with a desired harvesting or fishing pattern or that are not in contravention of rules for fishing activities that have been agreed with another country. Chapter 8 also set measures targeting anyone engaged in or accessory to illegal, unreported and unregulated fishing, and indicates that the Ministry may, in order to combat illegal, unreported and unregulated fishing, prohibit activities that may undermine national management measures or measures taken by international or regional fisheries management organisations. (DoF 2024a).

In November 1998, the Norwegian Black list identify the vessels that have taken part in fishing outside quota arrangements in international waters for a stock which is subject to regulations in waters under Norwegian fisheries jurisdiction or take part in fishing operations that contravene regulatory measures laid down by regional or sub regional fisheries management organisations or arrangements. The consequences of being listed is the refusal of a license to fish/ tranship in the Norwegian Economic Zone and the Fishery Zone around Jan Mayen. In the last 5 years, only 1 vessel was included in the Black list. (DoF 2024c).

As at the time of this assessment, no evidence was encountered to indicate widespread non-compliance in the *Calanus* fishery, or in Norwegian fisheries in general. Additionally, Norway tends to perform well in independent assessments of IUU risk rating, such as the IUU Fishing Index (IUFUI 2024).

M2.4 Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.

Clause is met considering that:

The Norwegian Marine Resources Act Chapter 7 “Control and enforcement” indicates that The Directorate of Fisheries shall ensure that those to whom this Act applies comply with provisions laid down in or under the Act and with other legislation on participation in the harvesting, marketing, production, import and export of wild living marine resources. Inspectors and observers may be placed on board harvesting vessels. (DoF 2024a)

Anyone whose activities are inspected in accordance with provisions issued in or under this Act or other legislation such shall cooperate with the competent authorities during inspections, among other things by answering calls on the radio or other communication equipment. The police shall provide the Directorate of Fisheries with any assistance and protection needed to conduct inspections, and The Directorate of Fisheries may take samples of products, open packaging and take samples of goods, and may among other things thaw frozen products. If the owner of the goods or anyone else incurs expenses as a result of such investigations, they may not claim to have these expenses refunded. (DoF 2024a)

The FMC (Fisheries Monitoring Centre) is the Norwegian Directorate of Fisheries' 24/7 office for monitoring Norwegian and foreign fishing vessels' activities. The centre is responsible for processing various reporting schemes imposed on the Norwegian fishing fleet while at sea and foreign vessels operating in Norwegian waters. One key task is the follow-up of Norwegian and foreign vessels in terms of tracking reports and various electronic catch and activity reports required when active at sea. The centre is a hub in the effort to combat illegal, unreported and unregulated fishing (IUU fishing) through close contact with national and international monitoring authorities. (DoF 2024d)

VMS transmitters on Norwegian vessels must be approved by the Directorate and installed only by those authorized by the Directorate. Norwegian vessels involved in fishing operations 15m and above are required to comply with position reporting. This also includes vessels of 12m (Norway and EU) when operating in the Skagerrak area. Foreign vessels of 24m or more (15m or more in the case of EU vessels) are subject to position reporting when operating in Norwegian waters outside Skagerrak. (DoF 2024d).

The *Calanus* harvesting management plan (DoF 2016) states that the existing surveillance and control regulations in Norwegian fisheries, will also apply to the harvesting of *Calanus*.

References

DoF. (2024a). Directorate of Fisheries. The marine resources act. <https://www.fiskeridir.no/English/Fisheries/Regulations/The-marine-resources-act>

DoF. (2024b). Directorate of Fisheries. Control and enforcement. <https://www.fiskeridir.no/English/Fisheries/Control-and-enforcement>

Directorate of Fisheries (2024c). The Norwegian black list. <https://www.fiskeridir.no/English/Fisheries/Norwegian-Black-List>

DoF. (2024d). Directorate of Fisheries. Fisheries Monitoring Centre Norway. <https://www.fiskeridir.no/English/Fisheries/Fisheries-Monitoring-Centre>

DoF. (2024e). Directorate of Fisheries. Electronic Reporting Systems. <https://www.fiskeridir.no/English/Fisheries/Electronic-Reporting-Systems>

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IUUI. (2024). IUU Fish Risk Index. Country profile, Norway. <https://iuufishingindex.net/profile/norway>

NCG (2024). Norwegian Coastal Guard. Rules and Regulations. <https://www.forsvaret.no/en/organisation/navy/coastguardnorway/rules-and-regulations>

Links

MarinTrust Standard clause	1.3.1.3
FAO CCRF	7.7.2
GSSI	D1.09

CATEGORY A SPECIES

The four clauses in this section apply to Category A species. Clauses A1 - A4 should be completed for **each** Category A species. If there are no Category A species in the fishery under assessment, this section can be deleted. A Category A species must meet the minimum requirements of all four clauses before it can be recommended for approval. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. The species must achieve a pass rating against all requirements to be awarded a pass overall. **If the species fails any of these clauses it should be re-assessed as a Category B species.**

Species Name		N/A	
A1	Data Collection - Minimum Requirements		
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	
			Clause outcome:
<p>A1.1 Landings data are collected such that the fishery-wide removals of this species are known.</p> <p>A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.</p>			
References			
Links			
MarinTrust Standard clause		1.3.2.1.1, 1.3.2.1.2, 1.3.2.1.4, 1.3.1.2	
FAO CCRF		7.3.1, 12.3	
GSSI		D.4.01, D.5.01, D.6.02, D.3.14	

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.	
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	
	A2.4	The assessment is subject to internal or external peer review.	
	A2.5	The assessment is made publicly available.	
			Clause outcome:
<p>A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.</p> <p>A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.</p> <p>A2.3 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.</p> <p>A2.4 The assessment is subject to internal or external peer review.</p> <p>A2.5 The assessment is made publicly available.</p>			

References	
Links	
MarinTrust Standard clause	1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
FAO CCRF	12.3
GSSI	D.5.01, D.6.02, D.3.14

A3	Harvest Strategy - Minimum Requirements	
	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.
	A3.2	Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.
	A3.3	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).
		Clause outcome:
<p>A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.</p> <p>A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.</p> <p>A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).</p>		
References		
<i>Standard clause 1.3.2.1.3</i>		
Links		
MarinTrust Standard clause	1.3.2.1.3, 1.3.2.1.4	
FAO CCRF	7.2.1, 7.22 (e), 7.5.3	
GSSI	D3.04, D6.01	

A4	Stock Status - Minimum Requirements	
	A4.1	The stock is at or above the target reference point, OR IF NOT:
		The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure OR IF NOT:
		The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.
		Clause outcome:

A4.1 The stock is at or above the target reference point, OR IF NOT:

The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure **OR IF NOT:**

The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.

References

Links

MarinTrust Standard clause	1.3.2.1.4
FAO CCRF	7.2.1, 7.2.2 (e)
GSSI	D6 01

CATEGORY B SPECIES

Category B species are those which make up greater than 5% of landings in the applicant raw material, but which are not subject to a species-specific research and management regime sufficient to pass all Category A clauses. If there are no Category B species in the fishery under assessment, this section can be deleted.

Category B species are assessed using a risk-based approach. The following process should be completed once for each Category B species.

If there are estimates of biomass (B), fishing mortality (F), and reference points

It is possible for a Category B species to have some biomass and fishing mortality data available. When sufficient information is present, the assessment team should use the following risk matrix to determine whether the species should be recommended for approval.

TABLE B(A) - F, B AND REFERENCE POINTS ARE AVAILABLE

Biomass is above MSY / target reference point	Pass	Pass	Pass	Fail	Fail
Biomass is below MSY / target reference point, but above limit reference point	Pass, but re-assess when fishery removals resume	Pass	Fail	Fail	Fail
Biomass is below limit reference point (stock is overfished)	Pass, but re-assess when fishery removals resume	Fail	Fail	Fail	Fail

Biomass is significantly below limit reference point (Recruitment impaired)	Fail	Fail	Fail	Fail	Fail
	Fishery removals are prohibited	Fishing mortality is below MSY or target reference point	Fishing mortality is around MSY or target reference point, or below the long-term average	Fishing mortality is above the MSY or target reference point, or around the long-term average	Fishing mortality is above the limit reference point or above the long-term average (Stock is subject to overfishing)

If the biomass / fishing pressure risk assessment is not possible

Initially, the resilience of each Category B species to fishing pressure should be estimated using the American Fisheries Society procedure described in Musick, J.A. (1999). This approach is used as the resilience values for many species and stocks have been estimated by FishBase and are already available online. For details of the approach, please refer to Appendix A. Determining the resilience provides a basis for estimating the risk that fishing may pose to the long-term sustainability of the stock. Table B(b) should be used to determine whether the species should be recommended for approval.

TABLE B(B) - NO REFERENCE POINTS AVAILABLE. B = CURRENT BIOMASS; B_{AV} = LONG-TERM AVERAGE BIOMASS; F = CURRENT FISHING MORTALITY; F_{AV} = LONG-TERM AVERAGE FISHING MORTALITY.

B > B_{av} and F < F_{av}	Pass	Pass	Pass	Fail
B > B_{av} and F or F_{av} unknown	Pass	Pass	Fail	Fail
B = B_{av} and F < F_{av}	Pass	Pass	Fail	Fail
B = B_{av} and F or F_{av} unknown	Pass	Fail	Fail	Fail
B > B_{av} and F > F_{av}	Pass	Fail	Fail	Fail
B < B_{av}	Fail	Fail	Fail	Fail
B unknown	Fail	Fail	Fail	Fail
Resilience	High	Medium	Low	Very Low

Assessment Results

Species Name		Raudåte (<i>Calanus finmarchicus</i>)
B1	Species Name	Raudåte (<i>Calanus finmarchicus</i>)
	Table used (Ba, Bb)	B(b)
	Outcome	Pass

In Norway, the *Calanus* total estimated standing stock is 33 million tonnes; and a total quota of 240,000 tons per year was established since 2019. The Directorate of Fisheries proposes to continue with this TAC for 2024 (DoF 2024).

The *Calanus* catch records has not substantially change from previous years, remaining very low without even representing 1% of the TAC (Table 1), this seems to be mainly related to the vessels opportunities to fish over other species during the *Calanus* fishing season. (Nofima 2023).

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<i>Calanus</i> catch (Tons)	284	519	650	760	1,362	352	-	1,156	1,336	60
% TAC used	0.12	0.22	0.27	0.32	0.57	0.15	0	0.48	0.56	0.03

Table 1. *Calanus* catch in tonnes 2014 – 2023. In 2020 no copepods were landed. (Nofima 2023 and DoF 2024). The 2023 quantity has been harvested in its entirety on experimental permits (DoF 2024).

No analytical stock assessments are conducted for the species, and no reference points have been established; in consequence, Table B(a) cannot be used for the assessment and Table B(b) was used as in previous assessments.

The *Calanus* biomass estimation around 33 million tonnes dates from 2016 (DoF 2016). No evidence was found about a more recent *Calanus* biomass assessment; however, a reconstructed time-series biomass for copepods in the Norwegian Sea using 1995-2019 data indicates that biomass has an increasing trend since 2016 (figure 1) (Planque et al. 2022), validating the use of this 2016 biomass reference up today. Also, zooplankton biomass indices in the Norwegian Sea ecosystem were either at similar levels, slightly lower or slightly higher in 2023 compared to 2022 (ICES 2024)

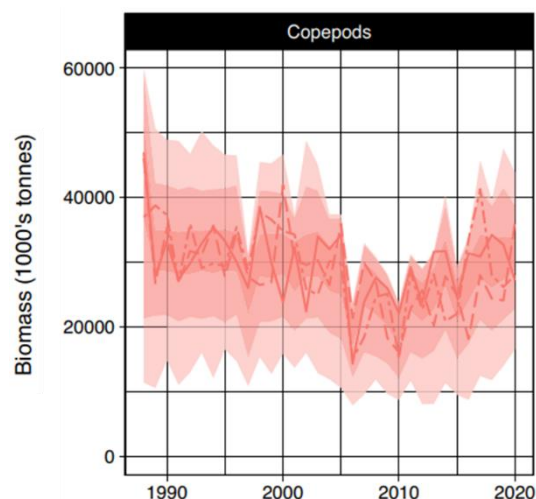


Figure 1. Reconstructed time-series of biomass for copepods. The envelopes containing 100% (light), 95% (medium) and 50% (dark) of the 1000 sampled trajectories. Three individual trajectories are provided for illustration in plain, dashed and dash-dotted lines. (Planque et al. 2022)

Current fishing mortality is less than the long-term average fishing mortality (800 tons) (Nofima 2023); also, ecosystem modelling indicates that even if annual catch were to increase more than 100-fold, to 349,000t per year (almost above the 45% of the actual TAC), there would be no detectable impact on the ecosystem or on the *Calanus* population as a whole. (Hansen et al. 2021), indicating that *Calanus* is highly resilient. Therefore, this fishery achieves a PASS rating (figure 2).

$B > B_{av}$ and $F < F_{av}$	Pass	Pass	Pass	Fail
$B > B_{av}$ and F or F_{av} unknown	Pass	Pass	Fail	Fail
$B = B_{av}$ and $F < F_{av}$	Pass	Pass	Fail	Fail
$B = B_{av}$ and F or F_{av} unknown	Pass	Fail	Fail	Fail
$B > B_{av}$ and $F > F_{av}$	Pass	Fail	Fail	Fail
$B < B_{av}$	Fail	Fail	Fail	Fail
B unknown	Fail	Fail	Fail	Fail
Resilience	High	Medium	Low	Very Low

Figure 2. Table B (b) scoring for *Calanus finmarchicus*.

References

DoF. (2016). Directorate of Fisheries. Forvaltningsplan for raudåte (Management plan for raudåte). <https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Rapporter/2016/Forvaltningsplan-for-raudaate>

DoF. (2024). Directorate of Fisheries. REGULERING AV HØSTING AV RØDÅTE I 2024 (Regulation of Raudåte Harvesting in 2024). <https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Reguleringsmoetet2/november-2023/saksdokumenter/sak-25-2023-rodade.pdf>

Fjeld, K; Tiller, R; Grimaldo, E; Grimsmo, L; Standal, IB. (2023). Mesopelagics – New gold rush or castle in the sky? Marine Policy, 147, 105359. <https://www.sciencedirect.com/science/article/pii/S0308597X22004067>

Hansen, C., Skogen, M. D., Utne, K. R., Broms, C., Strand, E., & Hjøllø, S. S. (2021). Patterns, efficiency and ecosystem effects when fishing *Calanus finmarchicus* in the Norwegian Sea using an individual-based model. Marine Ecology Progress Series, 680, 15-32.

ICES (2024). Working Group on the Integrated Assessments of the Norwegian Sea (WGINOR; outputs from 2023 meeting). ICES Scientific Reports. Report. <https://doi.org/10.17895/ices.pub.25526548.v1>

Melle, W., Ellertsen, B., & Skjoldal, H. (2004). Zooplankton: The link to higher trophic levels. In H. Skjoldal (Ed.), The Norwegian Sea Ecosystem (pp. 137–202). Tapir Academic Press

Nofima. 2023. En studie av det norske fisket etter raudåte. Kan aktivitetsnivået i fisket påvirkes av forhold i andre fiskeri? (A study of the Norwegian fishery for copepods. Can the level of activity in the fishery be affected by fisheries?). <https://nofima.com/publication/2156674/>

Planque, B., Favreau, A., Husson, B., Mousing, E. A., Hansen, C., Broms, C., ... & Sivel, E. (2022). Quantification of trophic interactions in the Norwegian Sea pelagic food-web over multiple decades. ICES Journal of Marine Science, 79(6), 1815-1830.

Links

MarinTrust Standard clause	1.3.2.2, 4.1.4
FAO CCRF	7.5.1
GSSI	D.5.01

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. Where a species fails this Clause, it may be assessed as a Category D species instead, EXCEPT if there is evidence that it is currently below the limit reference point.

Species Name		Herring (<i>Clupea harengus</i>)	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	Pass
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	Pass
Clause outcome:			Pass

C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.

Clause is met considering that:

Herring in the Northeast Atlantic and Arctic Ocean (ICES subareas 1, 2, and 5, and in divisions 4.a and 14.a) most recent assessment was published in November 2023 by The International Council for exploration of the Sea (ICES) Working Group on Widely Distributed Stocks (WGWIDE). The assessment was carried out using a Statistical assessment model (XSAM) that uses commercial catches-at-age and surveys in the model and in the forecast; thus, removals of the species are included in the stock assessment process (ICES 2023) (figure 1).

Catches

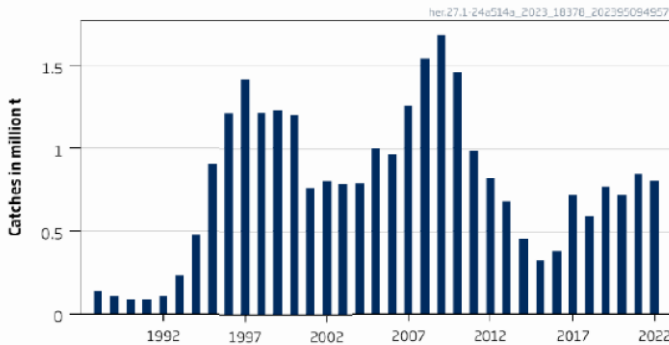


Figure 1. Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring spawners. Catches from 1988-2022 (ICES 2023).

Herring discards and bycatch is not included in the stock assessment, since it is considered negligible (ICES 2023). This suggests that stock status haven't been affected by the bycatch in the Calanus or any other fishery.

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

Clause is met considering that:

The 2023 Herring assessment indicates that fishing pressure on the stock is above F_{MSY} and between F_{pa} and F_{lim} (figure 1), and spawning-stock size is above $MSY B_{trigger}$, B_{pa} , and B_{lim} (figure 2). The catch advice is that when the long-term management strategy agreed by the UK, the Faroe Islands, Iceland, Norway, the Russian Federation, and the European Union is applied, catches in 2024 should be no more than 390 010 tonnes (ICES 2023).

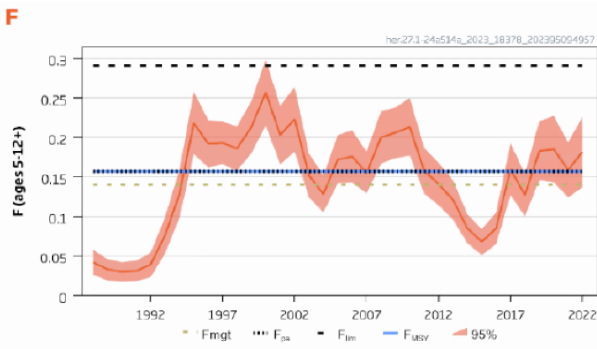


Figure 1. Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring spawners. Fishing pressure above the F_{MSY} and between F_{pa} and F_{lim} (ICES 2023).

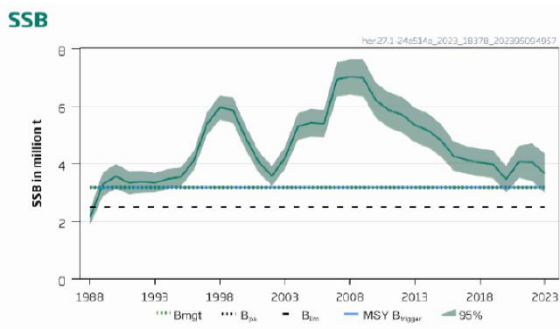


Figure 2. Spawning-stock size above $MSY B_{trigger}$, B_{pa} , and B_{lim} for Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring spawners (ICES 2023).

References

ICES (2023). Herring (*Clupea harengus*) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring-spawning herring (Northeast Atlantic and Arctic Ocean). ICES Advice: Recurrent Advice. Report. <https://doi.org/10.17895/ices.advice.21856509.v1>

Links

MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

Species Name		Redfish (<i>Sebastes norvegicus</i>; <i>Sebastes mentalla</i>)	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	Pass
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	Pass
Clause outcome:			Pass
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.			
Clause is met considering that:			
Most recent estimated annual catch in the <i>Calanus</i> fishery are from 2021, where catches of eggs and fry of two redfish species represented around 0.14% of the total catch of 1,156t (Broms et al. 2022). This equates to around 1.6t of redfish, a very small quantity compared to the total targeted catch of adult redfish in 2023 (52,050t) (DoF 2024). As previously, at the scale the <i>Calanus</i> fishery currently operates, catch of redfish eggs and larvae is considered to have negligible impact on the redfish stock as a whole.			
C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.			

Clause is met considering that:
 Redfish removals by the *Calanus* fishery are considered negligible.

References

Broms, C, Strand, E, Mella, W (2022). "Innblanding av fiskelarver- og yngel i raudåtefangster 2021"; Mix of fish larvae and fry in *Calanus* catches, 2021. Institute of Marine Research.
 DoF. (2024). Directorate of Fisheries. Economic and biological key figures. <https://www.fiskeridir.no/English/Fisheries/Statistics/Economic-and-biological-key-figures>

Links

MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. The comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

D1	Species Name	N/A	
	Productivity Attribute	Value	Score
	Average age at maturity (years)		
	Average maximum age (years)		
	Fecundity (eggs/spawning)		
	Average maximum size (cm)		
	Average size at maturity (cm)		
	Reproductive strategy		
	Mean trophic level		
	Average Productivity Score		
	Susceptibility Attribute	Value	Score
	Availability (area overlap)		
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)		
	Selectivity of gear type		
	Post-capture mortality		
	Average Susceptibility Score		
	PSA Risk Rating (From Table D3)		
	Compliance rating		
	Further justification for susceptibility scoring (where relevant)		
	<i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i>		
References			
<i>Standard clauses 1.3.2.2</i>			

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	High productivity (Low risk, score = 1)	Medium productivity (medium risk, score = 2)	Low productivity (high risk, score = 3)
Average age at maturity	<5 years	5-15 years	>15 years
Average maximum age	<10 years	10-25 years	>25 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Average maximum size	<100 cm	100-300 cm	>300 cm
Average size at maturity	<40 cm	40-200 cm	>200 cm
Reproductive strategy	Broadcast spawner	Demersal egg layer	Live bearer
Mean Trophic Level	<2.75	2.75-3.25	>3.25

Susceptibility attributes	Low susceptibility (Low risk, score = 1)	Medium susceptibility (medium risk, score = 2)	High susceptibility (high risk, score = 3)
Areal overlap (availability) Overlap of the fishing effort with the species range	<10% overlap	10-30% overlap	>30% overlap
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability).	Medium overlap with fishing gear.	High overlap with fishing gear (high encounterability). Default score for target species
Selectivity of gear type Potential of the gear to retain species	a Individuals < size at maturity are rarely caught	a Individuals < size at maturity are regularly caught.	a Individuals < size at maturity are frequently caught
	b Individuals < size at maturity can escape or avoid gear.	b Individuals < half the size at maturity can escape or avoid gear.	b Individuals < half the size at maturity are retained by gear.
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released post-capture and survival.	Evidence of some released post-capture and survival.	Retained species or majority dead when released.

D3		Average Susceptibility Score		
		1 - 1.75	1.76 - 2.24	2.25 - 3
Average Productivity Score	1 - 1.75	PASS	PASS	PASS
	1.76 - 2.24	PASS	PASS	TABLE D4
	2.25 - 3	PASS	TABLE D4	TABLE D4

D4		Species Name	
Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements			
D4.1	The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.		
D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.		
Outcome:			
Evidence			
D4.1: The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.			
D4.2 There is no substantial evidence that the fishery has a significant negative impact on the species.			
References			
Links			
MarinTrust Standard clause		1.3.2.2, 4.1.4	
FAO CCRF		7.5.1	
GSSI		D.5.01	

FURTHER IMPACTS

The three clauses in this section relate to impacts the fishery may have in other areas. A fishery must meet the minimum requirements of all three clauses before it can be recommended for approval.

F1	Impacts on ETP Species - Minimum Requirements		
	F1.1	Interactions with ETP species are recorded.	Pass
	F1.2	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	Pass
	F1.3	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	Pass
			Clause outcome: Pass
<p>As noted in previous assessments, this fishery operates using fine-mesh pelagic nets towed at low speeds (Kostak et al. 2023), means it is unlikely to interact with any ETP species. The main bycatch is larval fish and eggs, and other planktonic organisms (DoF 2016).</p> <p>F1.1 Interactions with ETP species are recorded. Clause is met considering that: There is a monitoring programme in place in the fishery as a component of its exploratory nature. A study on bycatch is undertaken annually and identifies eggs, larvae and juveniles in the catch, of which the most common in 2021 were herring and redfish (see Species Categorisation section) (Broms et al 2022). No interactions with ETP species were reported.</p> <p>F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species. Clause is met considering that: Although there are a number of species listed as threatened in the Norwegian red list, the low towing speeds used in this fishery (approximately 1 knot) (Kostak et al. 2023) mean that adult fish, ETP species and other mobile bycatch are very likely to escape the trawl. Up to date, there is no evidence that the fishery has a significant negative effect on ETP species (Broms et al 2022). also the company has a Friend of the Sea certification, which means that the fishing method prevents bycatch of threatened species (Zooca 2024).</p> <p>F1.3 If the fishery is known to interact with ETP species, measures are in place to minimise mortality. Clause is met considering that: The fishery is highly unlikely to interact with ETP species; despite this, authorities continue to further develop the management plan for the stock based on long-term ecosystem-based objectives in line with the precautionary principle.</p> <p>References Broms, C, Strand, E, Mella, W, (2022). "Innblanding av fiskelarver- og yngel i raudåtefangster 2021"; Mix of fish larvae and fry in Calanus catches, 2021. Institute of Marine Research. DoF. (2016). Directorate of Fisheries. Norwegian management plan for harvesting Calanus finmarchicus. https://www.ices.dk/events/symposia/zp6/Documents/Presentations/W3/w3_wednesd_0955_langaard_norwegian.pdf Norway Red List https://www.biodiversity.no/Pages/135380 KOSTAK, E. N., GRIMALDO, E., BRINKHOF, J., HERRMANN, B., & LARSEN, R. B. (2023). HYDRODYNAMIC DRAG AND CATCH EFFICIENCY OF LOW POROSITY CALANUS NETS. on the Theory of Fishing Gears and Related Marine Systems Vol. 12, 11. Zooca. (2024). Bærekraft (Sustainability). https://www.zooca.no/calanusoljen/baerekraft/</p>			
Links			
MarinTrust Standard clause		1.3.3.1	
FAO CCRF		7.2.2 (d)	
GSSI		D4.04, D.3.08	

F2	Impacts on Habitats - Minimum Requirements		
	F2.1	Potential habitat interactions are considered in the management decision-making process.	Pass
	F2.2	There is no substantial evidence that the fishery has a significant negative impact on physical habitats.	Pass
	F2.3	If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.	Pass
Clause outcome:			Pass
F2.1 Potential habitat interactions are considered in the management decision-making process.			
Clause is met considering that:			
<p>Although the <i>Calanus</i> fishery is unlikely to interact with seabed habitats, in general terms the Norwegian fishery management process does consider potential habitat interactions. In Norway regulations are established by the Marine Resources Act and the Nature Diversity Act. The Marine Resources Act indicates that the Ministry shall evaluate which types of management measures are necessary to ensure sustainable management of wild living marine resources, where the ecosystem approach should take into account habitats and biodiversity. (DoF 2024). The Nature Diversity Act has the objective of maintain the diversity of habitat types within their natural range and the species diversity and ecological processes that are characteristic of each habitat type. (Norway Government 2024).</p>			
F2.2 There is no substantial evidence that the fishery has a significant negative impact on physical habitats.			
Clause is met considering that:			
<p><i>Calanus</i> AS uses midwater trawl as fishing method for <i>Calanus</i> harvesting (Friend of the sea 2024). This fishing method is considered to have no impact on sea bottom habitats and bottom structures (FAO 2024). Interaction with the sea bed area avoided since this can damage the fishing gear, therefore it is considered a very low risk fishery in relation to physical habitats.</p> <p>Up to date, there is no evidence that the fishery has a significant negative impact on physical habitats, also the company has a Friend of the Sea certification, which means that the catch is carried out using methods that reduce the impact on ecosystems (Zooca 2024).</p>			
F2.3 If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.			
Clause is met considering that:			
As the fishery does not interact with physical habitats to any significant degree, measures to mitigate potential impacts are not required.			
References			
DoF. (2024). Directorate of Fisheries. The marine resources act. https://www.fiskeridir.no/English/Fisheries/Regulations/The-marine-resources-act			
FAO (2024). Fishing Gear types. Midwater trawls (nei). Technology Fact Sheets. In: Fisheries and Aquaculture. Rome. [Cited Tuesday, April 30th 2024]. https://www.fao.org/fishery/en/geartype/400/en			
Friend of the sea. (2024). Calanus AS. https://friendofthesea.org/company/calanus-as/			
Norway Government (2024). Nature Diversity Act. https://www.regjeringen.no/en/dokumenter/nature-diversity-act/id570549/			
Zooca. (2024). Bærekraft (Sustainability). https://www.zooca.no/calanusoljen/baerekraft/			
Links			
MarinTrust Standard clause		1.3.3.2	
FAO CCRF		6.8	
GSSI		D.2.07, D.6.07, D3.09	

F3 Ecosystem Impacts - Minimum Requirements		
F3.1	The broader ecosystem within which the fishery occurs is considered during the management decision-making process.	Pass
F3.2	There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.	Pass
F3.3	If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.	Pass
Clause outcome:		Pass

F3.1 The broader ecosystem within which the fishery occurs is considered during the management decision-making process.

Clause is met considering that:

Calanus finmarchicus is the dominant secondary producer within the Norwegian Sea, is an intense grazer of phytoplankton, serves as an important food source for shrimps, whales and the large stocks of pelagic fish such as Norwegian spring spawning herring and mackerel that migrate to this area to feed during spring and summer, and contributes to carbon sequestration through the vertical transport and metabolism of carbon rich lipids; therefore *Calanus* is a key component in the North Atlantic ecosystem (Kristiansen et al. 2021, Fjeld et al. 2023, Botterell et al. 2023).

Given its important role within the broader ecosystem management plan has been developed and the established quotas have been estimated not affecting *Calanus* population (DoF 2016). Despite the management plan has not been updated, The Working Group on the Integrated Assessments of the Norwegian Sea (WGINOR) assess the current state of the ecosystem each year to identify recent change of different components, including zooplankton (ICES 2024). In the last assessment the zooplankton biomass indices were either at similar levels, slightly lower or slightly higher in 2023 compared to 2022 (ICES 2024).

The current TAC of 254,000t is itself conservative, set with the objective of ensuring potential ecosystem impacts were minimised (DoF 2024) and it represents only 0.5% of the estimated total biomass, and therefore is well within safe biological limits (Fjeld et al. 2023). During the last 3 year less than 3,000 tons has been harvested (DoF 2024), that means that less than 1% of the TAC is taken, which indicates the low probability that the fishery at its current scale has a negative impact on the marine ecosystem; even the highest catch record in 2022 represents only 0.6% of the TAC.

F3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.

Clause is met considering that:

Calanus finmarchicus is an important prey for the pelagic fish stock in the Norwegian Sea such as herring, mackerel and blue whiting (DoF 2024). Reconstructed food-web dynamics model in the Norwegian sea ecosystem highlights that interannual variations in the biomass of copepods, krill, amphipods, herring, and blue whiting can primarily be explained by changes in their consumption rather than by predation and fishing; thus, population growth of these species is tightly coupled to consumption of prey, supporting a possible bottom-up control in the ecosystem (Planque et al. 2022).

Stock sizes of herring, mackerel and blue whiting have been declining from historical highs in the recent years, but remain above their respective MSY Btrigger reference point (ICES 2023). However, through extensive modelling, it has been concluded that at current *Calanus* catch levels there are no detectable ecosystem impacts of the fishery, either on *Calanus* biomass or on the biomass of the most important predator species (Hansen et al. 2021; Fjeld et al. 2023). The estimate of *Calanus* new production is 190–290 million tons per year, thus from an ecological perspective, large depletion of their biomass would likely grow back fast (Fjeld et al. 2023); this in addition that *zooplankton* biomass trend remains unchanged or is increasing in the last years (figure 1), and that copepods represents less than 37% of the diet of herring, mackerel and blue whiting (figure 2) (Planque et al. 2022), makes unlikely that the fishery is having a negative impact on the ecosystem.

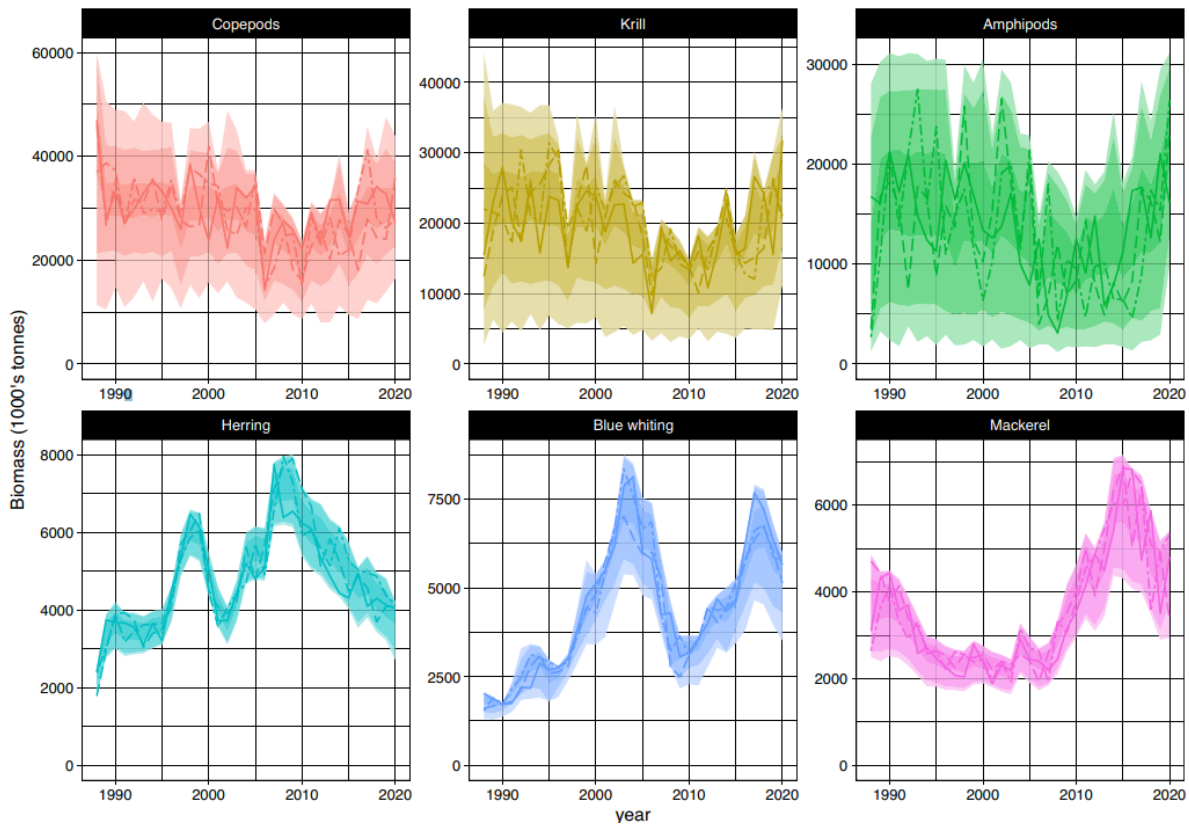


Figure 1. Reconstructed time-series of biomass for the six species within the model domain: copepods, krill, amphipods, herring, blue whiting, and mackerel. Each panel shows the envelopes containing 100% (light), 95% (medium) and 50% (dark) of the 1000 sampled trajectories. Three individual trajectories are provided for illustration in plain, dashed and dash-dotted lines. (Planque et al. 2022)

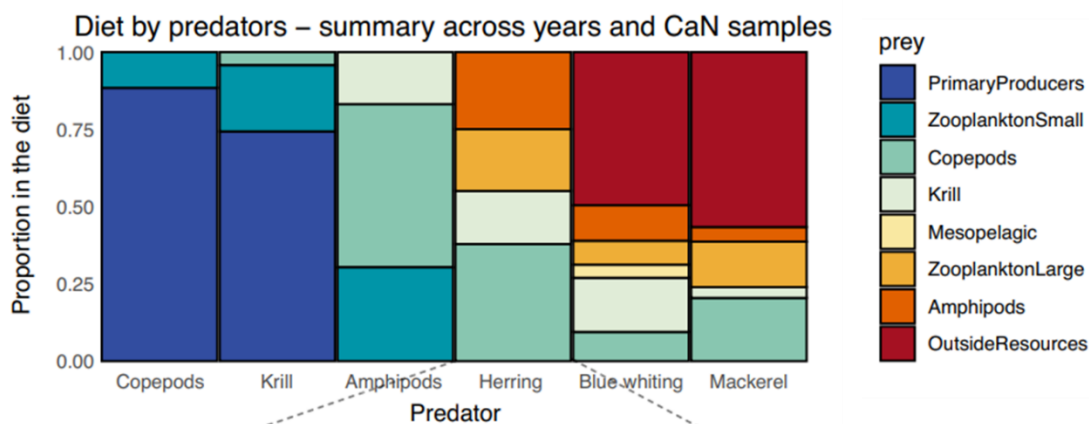


Figure 2. Reconstruction of diets. The height of coloured bars indicates the proportion in the diet for each prey consumed. (Planque et al. 2022).

In terms of bycatch, the maximum average by weight is 0.8%, where herring and redfish are the most common bycatches species; while cod, Sandeel, butterfish and pollock by catch amounts are minimal (Broms et al. 2022). This indicates that in terms of by catch, the *Calanus* fishery do not impact the ecosystem balance by removing large number of species.

F3.3 If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.

Clause is met considering that:

Calanus plays a key role in the marine ecosystem, acting as an important link between primary producers and other species, therefore management is intentionally conservative to reduce the likelihood of ecosystem impacts and the regulatory measures must be designed so that underfishing of the zooplankton in important grazing areas for marine mammals and central fish stocks can be avoided, i.e. important species at a higher trophic level (DoF 2026). The major legal instrument under which authority, enterprises and Calanus fishery operates is the Marine Resources Act (MRA), which is a legislative framework with an explicit precautionary approach based on sustainability principles (DoF 2016). The precautionary approach is applied to all fisheries in Norway, and this strategy has proven effective.

The Institute of Marine Research has a plankton group is active in environmental monitoring and research, as it provides advice to the Norwegian Government on environmental issues associated with phytoplankton, zooplankton, fish eggs and fish larvae in our marine ecosystems. Almost all members of the group are involved in regular transect cruises used to monitor the open ocean regions surrounding Norway approximately 4-6 times a year, monitoring is carried out in order to assess the status of dissolved inorganic nutrients, the growth of phytoplankton and zooplankton, and the potential impact these parameters may have on fisheries resources at higher trophic levels. (IMR 2024)

Calanus AS is currently leading the expansion of a new industrial value chain based on Calanus finmarchicus, they developed, and patented an environmentally friendly technology for harvesting by use of a special purpose, patented planktonic trawl. The trawl is rather wide and shallow, equipped with a mesh size suited for sieving water while retaining C. finmarchicus. The development of good technology ensures minimum bycatch, and all the raw material is used in production and only water is filtered out. (Zooca 2024).

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ZooCa (2024). <https://zooca.eu/harvesting/>

Links	
MarinTrust Standard clause	1.3.3.3
FAO CCRF	7.2.2 (d)
GSSI	D.2.09, D3.10, D.6.09

SOCIAL CRITERION

In addition to the scored criteria listed above, applicants must commit to ensuring that vessels operating in the fishery adhere to internationally recognised guidance on human rights. They must also commit to ensuring there is no use of enforced or unpaid labour in the fleet(s) operating upon the resource.

Appendix A - Determining Resilience Ratings

The assessment of Category B species described in this assessment report template utilises a resilience rating system suggested by the American Fisheries Society. This approach was chosen because it is also used by FishBase, and so the resilience ratings for many thousands of species are freely available online. As described by FishBase, the following is the process used to arrive at the resilience ratings:

“The American Fisheries Society (AFS) has suggested values for several biological parameters that allow classification of a fish population or species into categories of high, medium, low and very low resilience or productivity (Musick 1999). If no reliable estimate of r_m (see below) is available, the assignment is to the lowest category for which any of the available parameters fits. For each of these categories, AFS has suggested thresholds for decline over the longer of 10 years or three generations. If an observed decline measured in biomass or numbers of mature individuals exceeds the indicated threshold value, the population or species is considered vulnerable to extinction unless explicitly shown otherwise. If one sex strongly limits the reproductive capacity of the species or population, then only the decline in the limiting sex should be considered. We decided to restrict the automatic assignment of resilience categories in the Key Facts page to values of K , t_m and t_{max} and those records of fecundity estimates that referred to minimum number of eggs or pups per female per year, assuming that these were equivalent to average fecundity at first maturity (Musick 1999). Note that many small fishes may spawn several times per year (we exclude these for the time being) and large live bearers such as the coelacanth may have gestation periods of more than one year (we corrected fecundity estimates for those cases reported in the literature). Also, we excluded resilience estimates based on r_m (see below) as we are not yet confident with the reliability of the current method for estimating r_m . If users have independent r_m or fecundity estimates, they can refer to Table 1 for using this information.”

Parameter	High	Medium	Low	Very low
Threshold	0.99	0.95	0.85	0.70
r_{max} (1/year)	> 0.5	0.16 - 0.50	0.05 - 0.15	< 0.05
K (1/year)	> 0.3	0.16 - 0.30	0.05 - 0.15	< 0.05
Fecundity (1/year)	> 10,000	100 - 1000	10 - 100	< 10
t_m (years)	< 1	2 - 4	5 - 10	> 10
t_{max} (years)	1 - 3	4 - 10	11 - 30	> 30

[Taken from the FishBase manual, “Estimation of Life-History Key Facts”, <http://www.fishbase.us/manual/English/key%20facts.htm#resilience>]

Appendix B – Fishery Assessment Group Peer Review

MarinTrust Fishery Assessment Peer Review Template

This section comprises a summary of the fishery being assessed against version 2 of the MarinTrust Standard.

Fishery under assessment	Wholefish Assessment Raudåte (<i>Calanus finmarchicus</i>) FAO 27 Atlantic Northeast, Norway EEZ by Midwater Otter trawl.
Management authority (Country/State)	Ministry of Trade, Industry and Fisheries (Norway)
Main species	Raudåte (<i>Calanus finmarchicus</i>)
Fishery location	FAO 27 Atlantic Northeast, Norway EEZ
Gear type(s)	Midwater Otter trawl
Overall recommendation. (Approve/ Fail)	Approve

Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision.
<p>The assessor have provided a very thorough examination of the fishery with appropriate levels of referenced evidence to substantiate a decision to re-approve the fishery.</p> <p>Following items noted but not requiring a response:</p> <ul style="list-style-type: none"> Note that Internal Peer Review of the report comments section does not contain any comments. In the Assessment Determination (last but one sentence). <p><i>There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem, and the development of new harvesting technology was designed in order to ensure bycatch.</i> Is the sentence complete? Should this read ensure bycatch avoidance?</p> <ul style="list-style-type: none"> Regarding C1.1 Herring, a note made clarifying if herring bycatch from calanus fishing is included in ICES Stock assessments, or excluded considering it is negligible.

- Regarding C1.2 Typo notes regarding volume of redfish bycatch in tonnes when considering redfish directed fishery catches.
In both cases, the peer reviewer agrees with the pass scores.

General Comments on the Draft Report provided to the peer reviewer

The assessor have provided a very thorough examination of the fishery, with good level of detail specific to each clause and applying these to all three species included as Category B main species and Category C bycatch species.

Summary of Peer Review Outcomes

Peer reviewers should review the fishery assessment report with the primary objective of answering the key questions listed in the table below. Where the situation is more complicated, reviewers may instead answer “See Notes”.

	YES	NO	See Notes
A – Fishery Assessment			
1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	✓		
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	✓		
3. Are the scores in the following sections accurate (i.e. do the scores reflect the evidence provided)?	Yes✓		
Section M - Management	✓		
Category A Species	N/A		
Category B Species	✓		
Category C Species	✓		
Category D Species	N/A		
Section F – Further Impacts	✓		

Detailed Peer Review Justification

Peer reviewers should provide support for their answers in the boxes provided, by referring to specific scoring issues and any relevant documentation as appropriate.

Detailed justifications are only required where answers given are one of the ‘No’ options. In other (Yes) cases, either confirm ‘scoring agreed’ or identify any places where weak rationales could be strengthened (without any implications for the scores).

Boxes may be extended if more space is required.

1. Is the scoring of the fishery consistent with the MarinTrust standard, and clearly based on the evidence presented in the assessment report?
Scoring is consistent with Marin Trust Standard and clearly based on the evidence presented.
Certification body response
No comments

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance?
The fishery assessment has been fully completed following the MarinTrust methodology and guidance, except that internal peer review comments box is not completed.

Certification body response

No comments

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?

Yes, the species categorisation section reflects the best current understanding of catch composition. Composition is based on work carried out by the Norwegian Institute of Marine Research (IMR) during the 2021 fishery and available and published - Broms, C, Strand, E, Mella, W, (2022). "Innblanding av fiskelarver- og yngel i raudåtefangster 2021"; Mix of fish larvae and fry in Calanus catches, 2021. Institute of Marine Research. The full range of bycatch species are noted, (7 species/sp. Groups) with an estimate of total weight representing 0.8% of calanus catches. Proportions above 0.1% include herring (0.42%) and redfish sp. (0.14%, possibly representing two species and min. 3 stocks). Recent 2024 fishery Regulation is cited, noting that reference points are not established for the stock and therefore, has been assessed as Cat B species. Type 2 species; herring and redfishes, representing 0.56% of landings do have stock reference points and are assessed as Cat C species. Table 5 is completed, and IUCN categories are included.

Certification body response

No comments

3M. Are the scores in "Section M – Management" clearly justified?

The scores in this section are evidenced by the available information and are justified.

The assessor clearly describes the various entities that make up the legal framework and management of the fishery under Norwegian jurisdiction.

The management authority, Directorate of Fisheries (DoF), within the Ministry of Trade, Industry and Fisheries is noted.

The assessor has identified that DoF operates an Electronic Reporting Systems, where Norwegian vessels, when operating in national waters in the economic zones of other countries or in international waters, are able to report their fishing activity using one reporting system.

The assessor cites from Marine Life (DoF. (2024a). Directorate of Fisheries. About the Directorate of Fisheries. <https://www.fiskeridir.no/English/about-the-directorate>) noting that DoF goal is to promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment, through their vision.

Norway has established legal powers to DoF via the Marine Resources Act 2008. With various sections allowing DoF to establish fisheries and manage extraction rates using a full range of management tools.

The assessor has evidenced the parts of the Act leading to the establishment of consultative mechanisms, including the Council for regulatory advice and this shall include representatives of organisations for the parties that normally have an interest; stakeholders include stakeholders get involved in management decisions through the Advisory Meeting for Fisheries Regulations (The Regulatory Board), representing fishermen's associations, the fishing industries, trade unions, the Sami Parliament, local authorities, environmental organizations and other stakeholders. The annual regulatory cycle with stakeholder participation is described and referenced.

The process is public, decisions are published and available on the Norwegian government website. The process is transparent.

The Directorate of Fisheries inspects activities on the fishing grounds and performs physical inspections of landings and at sea, with enforcement duties specified in the Marine Resources Act and, the Coast Guard is responsible for inspecting fishing vessels and checking their catch against their logbook under the 1997 Coast Guard Act.

The assessor identifies the range of sanctions in the Norwegian Marine Resources Act including Chapters 11 “Coercive fines and infringement fines” and 12 “Criminal liability” describe coercive and infringement fines. The Ministry may impose a range of sanctions from infringement fines, fixed penalty fines and coercive fines up to prison to ensure compliance with provisions made in or under the Act. Gear can also be confiscated and proceeds from catch sales seized and used for control purposes.

The assessor did not identify any evidence to indicate widespread non-compliance in the *Calanus* fishery, or in Norwegian fisheries in general. Additionally, they note that Norway tends to perform well in independent assessments of IUU risk rating, such as the IUU Fishing Index (IUUFI 2024).

The assessor identifies The FMC (Fisheries Monitoring Centre) is the Norwegian Directorate of Fisheries' 24/7 office for monitoring Norwegian and foreign fishing vessels' activities. VMS transmitters are required on Norwegian vessels and must be approved by the Directorate and installed only by those authorized by the Directorate. Norwegian vessels involved in fishing operations 15m and above are required to comply with position reporting. This also includes vessels of 12m (Norway and EU) when operating in the Skagerrak area. Foreign vessels of 24m or more (15m or more in the case of EU vessels) are subject to position reporting when operating in Norwegian waters outside Skagerrak. (DoF 2024d). The applicable rules apply to the harvesting of *Calanus*.

The evidence is referenced appropriately and with most recent available publications and references are retrievable.

Certification body response

No comments

3A. Are the “Category A Species” scores clearly justified?

External peer review agrees with the determination; there are no Cat A species.

Certification body response

No comments

3B. Are the “Category B Species” scores clearly justified?

Raudåte (*Calanus finmarchicus*) is identified as Cat B since no reference points are established. A standing stock estimate is available from 2016 and formal stock assessment is not conducted. A reconstructed time-series biomass for copepods in the Norwegian Sea using 1995-2019 data indicates that biomass has seen an increasing trend since 2016 (from Planque et al. 2022),

An annual TAC is established (240kt) although landings are <1% of this. The assessor uses MT Table Bb and notes that Calanus is described in the literature as highly resilient to fishing pressure and the current stock biomass remains at the long term average and with a fishing rates less than Fav. The external peer reviewer agrees, and the score is clearly justified.

Certification body response

No comments

3C. Are the “Category C Species” scores clearly justified?

The bycatch species; herring and redfishes are assessed as Cat C species in the fishery.

Herring

The ICES stock assessment Herring (*Clupea harengus*) for, Norwegian spring-spawning herring (Northeast Atlantic and Arctic Ocean) subareas 1,2 & 5/Divisions 4.a and 14.a includes commercial catches from both directed and indirect (bycatch) fisheries.

The advice for 2024 is 24% lower than for 2023 because: (1) the adult stock size is declining because of low recruitment since the large 2016 year class; and (2) F advised is reduced compared to last year since the SSB in 2024 is predicted to be below SSB_{mtg} (= MSY B trigger).

For clarification: Noting that ICES Table 5 in the report states discards and *bycatch* are not included but considered negligible, it may be appropriate to state that the v. minor catches associated with the calanus fishery have negligible impact on stock status, and meets the MT requirements or there is another ICES reference that could be added to confirm bycatch of herring in other fisheries is included (or estimated)?

The external peer reviewer agrees that the fishery meets C1.1 and C1.2

Redfishes

The external peer reviewer agrees, that at the scale of current operation of the calanus fishery, redfish bycatches (eggs and fry representing 0.14% of catch is negligible against the catch of redfish (52,050t). To note; a typo in decimal placing- the estimate of 0.14% of total Calanus catches- 1,156t is 1.6t rather than 16t.

The external peer reviewer agrees that the fishery meets C1.1 and C1.2

Certification body response

Herring: the following text has been added after figure 1 in C1.1: “Herring discards and bycatch is not included in the stock assessment, since it is considered negligible (ICES 2023). This suggests that stock status haven’t been affected by the bycatch in the Calanus or any other fishery.”. There is no information about by catch in the complete ICES stock assessment report from the Working Group on Widely Distributed Stocks (ICES. 2023. Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 5:82. <https://doi.org/10.17895/ices.pub.24025482>)

Redfish: typo error in decimal placing has been corrected from 16t to 1.6t in section C1.1.

3D. Are the “Category D Species” scores clearly justified?

There are no Cat D species.

Certification body response

No comments

3F. Are the scores in “Section F – Further Impacts” clearly justified?

The assessor describes the fishery as exploratory and is monitored including bycatches, reported as larvae and eggs due to the fine mesh used. The gear is towed at low speeds allowing other species opportunities to avoid capture, including ETPs. There are non-reported in the most recent report but it is evident that were ETP’s to be encountered, they would be recorded and there is no evidence that ETP species are negatively impacted by the fishery. The external peer reviewer agrees that F1 clauses are met and justified.

The assessor draws reference to the framework of Acts and policies regarding management decision making taking consideration of habitat interactions. The fishery is midwater, highly unlikely to interact with seabed habitats and operates at <1knt speed and highly unlikely to cause negative impact of habitat. The external peer reviewer agrees that F2 clauses are met and justified.

Regarding ecosystem considerations; The assessor notes that despite the management plan has not been updated, The Working Group on the Integrated Assessments of the Norwegian Sea (WGINOR) assess the current state of the ecosystem each year to identify recent change of different components, including zooplankton (ICES 2024). In the last assessment the zooplankton biomass indices were either at similar levels, slightly lower or slightly higher in 2023 compared to 2022 (ICES 2024). Management approach considers the important role of calanus in the ecosystem, and the TAC represents <0.5% of the estimated biomass. Catches are 1% of TAC.

DoF has recognised the important role of calanus in the food web and notes that variations in biomass are not affected by fishing. The assessor notes the recent Fjeld et al, 2023 and Planque et al. report (2022) identifying that it is unlikely that the fishery is having a negative impact on the ecosystem.

Planque, B., Favreau, A., Husson, B., Mousing, E. A., Hansen, C., Broms, C., ... & Sivel, E. (2022). Quantification of trophic interactions in the Norwegian Sea pelagic food-web over multiple decades. *ICES Journal of Marine Science*, 79(6), 1815-1830
 Fjeld, K; Tiller, R; Grimaldo, E; Grimsmo, L; Standal, IB (2023). Mesopelagics – New gold rush or castle in the sky? *Marine Policy*, 147, 105359.
<https://www.sciencedirect.com/science/article/pii/S0308597X22004067>

A clearly precautionary approach is evident and described by the assessor, in light of the important role of Calanus in the ecosystem. Other species, herring and redfish are encountered at negligible levels in this fishery.

F clauses are justified and met.

Certification body response

No comments

Optional: General comments on the Peer Review Draft Report

The report is concise, sufficiently evidenced and well referenced.

Certification body response

Regarding the following Peer Reviewer summary note:

- In the Assessment Determination (last but one sentence).

There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem, and the development of new harvesting technology was designed in order to ensure bycatch. Is the sentence complete? Should this read ensure bycatch avoidance?

This was a typo error, the correct word is “reduce” not ensure. This has been corrected.

Glossary

Non-target: Species for which the gear is not specifically set, although they may have immediate commercial value and be a desirable component of the catch. OECD (1996), Synthesis report for the study on the economic aspects of the management of marine living resources. AGR/FI(96)12

Target: In the context of fishery certification, the target catch is the catch of stock under consideration by the unit of certification – i.e. the fish that are being assessed for certification and ecolabelling. (GSSI)