MarinTrust Standard V2

Whole fish Fishery Assessment

Norway Horse Mackerel

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Table 1 Application details and summary of the assessment outcome

Application details and summary of the assessment outcome			
Name(s): Pelagia AS			
Country: Norway			
Email address: post@pelagia.com		**Applicant Code**	
Certification Body Details			
Name of Certification Body:		Global Trust Certification	
Assessor Name	**CB Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/ Re-approval**
Sam Peacock	Conor Donnelly	3	Initial
Assessment Period	May 2022		
Scope Details			
Management Authority (Country/State)	Norway		
Main Species	Horse mackerel (*Trachurus trachurus*)		
Fishery Location	ICES Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k		
Gear Type(s)	Pelagic trawl		
Outcome of Assessment			
Overall Outcome	Pass		
Clauses Failed	None		
CB Peer Review Evaluation	Agree with Assessor determination		
Fishery Assessment Peer Review Group Evaluation	Approve see annex		
Recommendation	Approve fishery		

Table 2. Assessment Determination

Assessment Determination
This assessment covers a single stock, Western horse mackerel (*Trachurus trachurus*). Horse mackerel is categorised as Vulnerable on the IUCN Red List and does not appear in the CITES appendices, and is therefore eligible for use as a raw material for MarinTrust certified products. The stock under assessment is fished primarily by EU, UK and Norwegian vessels. The fishery management systems for all three are robust and transparent with a strong legal basis, and incorporate effective stakeholder engagement mechanisms. The horse mackerel stock is subjected to annual assessment by ICES, who also provide management recommendations. The stock assessment is underpinned by adequate data collection from fishery-dependent and fishery-independent sources, although there is room for improvement and the outcomes of the assessment are subject to retrospective changes in subsequent years. This leads to the appearance of a stock which has been fished in years where the biomass was estimated to be below the limit reference point; however, at the time the fishery was opened, the biomass estimate was higher and therefore this does not represent a breach of MT clause A3.3. It is clear that Western horse mackerel meets all of the MT requirements in Section A with the exception of A3.1. Although a TAC is in place for the EU component of the fishery, it is not clear how fishing mortality within the Norwegian component is restricted. The total level of fishery removals has been below the ICES recommendation every year since 2018, and prior to this the excess landings appear to have been primarily driven by the EU TAC rather than Norwegian fishing activity. On balance and based on the clear steer provided by the MT fishery assessment guidance, the fishery currently meets requirement A3.1. This is dependent on total catch continuing to be within the ICES recommendation. Regarding further impacts, the available evidence suggests that the fishery has minimal interaction with ETP species, does not interact with seabed habitats, and does not have a significant impact on the marine ecosystem. For this reason the fishery passes clause F1, F2 and F3.
Fishery Assessment Peer Review Comments
This peer reviewer agrees with the assessors determinations with regards the fishery management system and further impacts of the fishery. With regards the target stock, it is noted that currently western horse mackerel meets all the MT requirements in Section A including A3.1 – but that this is dependent on total catch continuing to be within the ICES recommendation. Based on the above the fishery should be permitted for use as a raw material under the MarinTrust Standard.
Notes for On-site Auditor
• Confirm that there are no other species present in the catch in quantities representing more than 0.1% of the total catch. • Confirm that catch is taken exclusively with pelagic trawl gears.

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	Horse mackerel (*Trachurus trachurus*)	99.9%	A1	PASS
			A2	PASS
			A3	GAP
			A4	PASS
Category B	No Category B species			
Category C	No Category C species			
Category D	No Category D species			

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category[1]	% of landings	Management	Category
Horse mackerel	*Trachurus trachurus*	ICES Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k	Vulnerable[2]	99.9%	Yes	A
Species categorisation rationale						
The information provided by the applicant indicated that this is a very clean fishery with limited bycatch. On this basis the only species for assessment is horse mackerel. The specific stock under assessment is horse mackerel in ICES Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k, for which reference points have been established and the fishing of which is restricted through the application of an annual TAC. For this reason it is considered that a species-specific management system is in place, and the stock should be assessed under Category A.						

[1] https://www.iucnredlist.org/
[2] https://www.iucnredlist.org/species/198647/43157137

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.

The Western horse mackerel stock is fished by vessels falling under three main management regimes: the EU, the UK, and Norway. Catch is also taken by vessels from the Faroe Islands and Russia in some years.

In Norwegian waters the management of the fishery falls to the Directorate of Fisheries, within the Ministry of Trade, Industry and Fisheries. The Directorate of Fisheries is responsible for regulating and licensing fishing activity, tackling IUU fishing, and negotiating international quotas and other international agreements (Government.no 2022).

In EU waters, where the majority of catch is taken, the fishery is managed according to the Common Fisheries Policy (CFP), as set out most recently in Regulation (EU) No. 1380/2013. The CFP sets out regulations and procedures by which member states must manage their fisheries, and the majority of the relevant legislation is transposed into national laws. Individual member states then adopt responsibility for implementing and monitoring this legislation (EC 2018).

The overarching body responsible for fisheries management policy is the Department for Environment and Rural Affairs (DEFRA); however fisheries management is devolved and is the responsibility of the Marine Management Organisation (MMO) in England, Marine Scotland in Scotland, the Department for Agriculture, Environment and Rural Affairs in Northern Ireland, and the Welsh Government in Wales (APPG 2020).

There are organisations responsible for managing the fishery, which therefore meets the requirements of clause M1.1.

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

Although fisheries dependent and independent data are collected by individual nations, institutions and other fishery stakeholders, the organisation responsible for coordinating and analysing all available information is the International Council for the Exploration of the Sea (ICES). ICES is an intergovernmental marine science organisation which provides frequent analytical and advisory services for the management of fisheries, primarily in the Atlantic but also in the Arctic, Mediterranean, Black Sea and North Pacific (ICES 2022a).

ICES conducts an annual assessment of the Western horse mackerel stock, including estimates of the current status of the stock and recommendations for future catch levels.

The main scientific organisation within Norway is the Institute of Marine Research (IMR), which is affiliated with the Ministry of Trade, Industry and Fisheries and works closely with ICES via that organisation's many Working Groups (IMR 2022).

An additional important scientific and advisory organisation is the Pelagic Advisory Council (PELAC). One of 11 fishery Advisory Councils for the EU, PELAC is a key mechanism for fishery stakeholders to engage in the management of the fishery. The PELAC

consists of a General Assembly, an Executive Council and two Working Groups, which all act as "forums for consultation and the drafting of stakeholder-led advice which, in turn, informs pelagic fisheries policy at the EU level" (PELAC 2022).

There are organisations responsible for collecting data and assessing the fishery, which therefore meets the requirements of clause M1.2.

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

The stated objective of the Norwegian Directorate of Fisheries is to "promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment" (DoF 2019). Additionally, the stated objective of the Norwegian Marine Resources Act (2008) is 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" (DoF 2015).

Objective 1 of the CFP, as set out in Regulation (EU) No. 1380/2013 is to "ensure that fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies".

The UK Fisheries Act 2020 sets out 8 objectives for fisheries management in the UK. The first of these is the "sustainability objective", which seeks to ensure that "fish and aquaculture activities are (i) environmentally sustainable in the long term, and (ii) managed so as to achieve economic, social and employment benefits and contribute to the availability of food supplies", and also that "the fishing capacity of fleets is such that fleets are economically viable but do not overexploit marine stocks".

Fishery management organisations are publicly committed to sustainability, and therefore the fishery meets the requirements of M1.3.

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

In Norway, the main overarching legal instrument is the Marine Resources Act of 6 June 2008 (no. 37). This Act empowers the Directorate to apply national, group, district, and/or vessel quotas; to apply research, monitoring and training quotas; to restrict fishing seasons and locations; to restrict fishing with certain gears; to set maximum or minimum landing sizes; to conduct inspections and searches; and various other powers. The Act also requires that all catches of fish in Norwegian waters must be landed (DoF 2015). Additional relevant legislation includes the Regulation of the Participation in Fisheries Act 1999, and the Salt Water Fisheries Act 1983 (FAO 2022).

In EU member states fisheries management is generally empowered by the national legislation arising from the implementation and/or transposing of EU regulations, in particular but not limited to Regulation (EU) No 1380/2013. In the UK the primary fisheries legislation is the Fisheries Act 2020, but also the Marine and Coastal Access Act 2009, and the regulations put in place by the devolved administrations.

Fishery management organisations are legally empowered to take management actions, and therefore the fishery meets the requirements of M1.4.

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

Norwegian fisheries management engages with industry and other stakeholders via the Advisory Meeting for Fisheries Regulations. The Directorate of Fisheries proposes domestic regulations, and subsequently stakeholders such as fishermen's associations, industry, trade unions, local authorities, environmental organisations and the Sami parliament are consulted during one or more Advisory Meetings (FAO 2022).

Within the EU management system, the PELAC described under clause M1.2 acts as a key mechanism for the engagement of stakeholders, to ensure they are involved in the development of fisheries management decisions. The PELAC has encouraged the development and implementation of an international management strategy for Western horse mackerel, and has achieved agreement on some aspects of a potential plan (including TAC-setting procedures) (PELAC 2021).

There are stakeholder consultation processes in place at the Norway and EU levels, and therefore the fishery meets the requirements of M1.5.

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

All of the information used to produce this MarinTrust assessment report was freely available online. The fisheries management decision-making process is primarily guided by the ICES advice, the basis for and outcomes of which are made available via the ICES website (ICES 2022b). Decisions and outcomes at the EU level are published on the EC website and elsewhere. Information regarding Norwegian fisheries management decisions is published on the Directorate of Fisheries website (DoF 2022).

The decision-making process is transparent, with processes and results made publicly available online. Therefore the fishery meets the requirements of M1.6.

References

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PELAC (2022). About Us. https://www.pelagic-ac.org/about-us/

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. https://www.legislation.gov.uk/eur/2013/1380/contents#

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.

Fisheries regulations in Norway are enforced at sea and at port. At sea the Coast Guard is responsible for inspections and checking catch against log book data, of both Norwegian and foreign vessels. Inspections at ports are carried out by sales organisations and the Directorate of Fisheries (DoF). These checks include ensuring the fishing rights of the vessel permit the catch being landed and the gear(s) used, and also a direct inspection of the catch (DoF 2015a).

The roles and responsibilities of the DoF are set out in the Marine Resources Act; Chapter 7 Section 44 states that the DoF "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". Section 46 sets out the process for inspections of vessels, catch, and products, and Section 47 empowers the Ministry to place inspectors and observers on board harvesting fishing vessels (DoF 2015b).

In practice many DoF efforts monitor compliance are implemented by the Fisheries Monitoring Centre (FMC Norway). The FMC is responsible for the 24/7 monitoring of Norwegian and foreign vessels fishing activities, and acts as a hub for efforts to tackle IUU fishing (DoF 2015c).

In EU waters, control and enforcement of fisheries regulations and laws is primarily the responsibility of the authorities in individual members states. However, to ensure consistent implementation and coordinate international efforts, the European Fisheries Control Agency (EFCA) implements the EU fisheries control system (EC 2022).

There are organisations which are responsible for monitoring compliance with fishery laws and regulations, and these organisations and empowered to combat IUU fishing. The fishery meets the requirements of M2.1.

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

The Marine Resources Act sets out the sanctions which may be applied in the event that laws and regulations are broken. Chapter 11 Section 58 empowers the Ministry to impose and collect coercive fines to ensure compliance with provisions made within the Act. Section 59 allows the Ministry to impose infringement fines, as fixed penalties or on a per-case basis. Chapter 12 sets out the extent of criminal liability for contravention of the Act, including up to one year imprisonment (Section 60 – 63). Serious offences may be punished with up to three years imprisonment. Section 65 empowers the Ministry to confiscate "gear, objects, property, facilities or vessels that were used in the contravention", irrespective of who the owner is (DoF 2015b).

There are numerous examples of these sanctions being applied when transgressions are detected. In 2016 a Russian trawler was detained and fined NoK230,000 (approx. US$23,000) for illegal discards, catch volumes, and fishing in a protected zone (FiskerForum 2016). In 2017 a Latvian vessel was seized by the Norwegian coast guard for illegal catches of snow crab in the Svalbard zone (NorwayToday 2017). In addition to news reports highlighting specific transgressions, evidence of control and enforcement activities can be found in the form of the Norwegian Black List. Established in 1998, the document lists every vessel which has contravened quota arrangements or regulatory measures for stocks subject to regulation in Norwegian waters. Such vessels are permanently banned from fishing in Norwegian waters (DoF 2022).

There is a framework of sanctions and clear evidence of them being applied, and therefore the fishery meets the requirements of M2.2.

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

In conducting this assessment, a range of sources were consulted and reviewed and no evidence was encountered to suggest widespread non-compliance in the Norwegian component of the horse mackerel fishery, nor any substantial evidence of IUU fishing. In independent assessments of IUU risk rating, Norway tends to perform fairly well. For example, the IUU Fishing Index rates assigns countries an IUU risk rating based on a range of factors. Risk ratings range from 1 to 5, with 1 representing the lowest risk. In 2021 Norway was assigned a 'Flag score' of 1.92 and a 'Port score' of 1.89, both representing relatively low risk ratings compared to other countries (IUUFI 2021). Other reports suggest similarly low probabilities of widespread non-compliance (e.g. Pramod 2018).

Overall it is considered that there is no substantial evidence of widespread non-compliance or IUU activity in the Norwegian horse mackerel fishery, and so the fishery meets the requirements of M2.3.

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.

As noted in the other parts of this Section, compliance in Norwegian fisheries is monitored by a combination of at-sea and portside inspections, observer programme, and VMS. The Coast Guard performs more than 1,800 inspections of Norwegian and foreign vessels operating in Norwegian waters annually. Inspection activity is focussed based on a risk assessment conducted by the DoF to determine the most likely compliance issues. The Coast Guard also utilises helicopters and aircraft to monitor fishing activity. Norwegian vessels over 24m and EU vessels over 15m are required by law to operate VMS 24 hours a day (DoF 2015a). The FMC processes catch and landing reports and monitors VMS signals 24/7, produces tracking reports, and manages electronic catch and activity reports. The FMC is also the main contact point for the public to report IUU activities (DoF 2015c).

Compliance with laws and regulations is actively monitored through inspections, observer programmes and VMS, and therefore the fishery meets the requirements of M2.4

References

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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	**Horse Mackerel (*Trachurus trachurus*)**	
A1	**Data Collection - Minimum Requirements**	
A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	PASS
A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	PASS
	Clause outcome:	PASS

A1.1 Landings data are collected such that the fishery-wide removals of this species are known.

Landings data are recorded and reported by vessels participating in the fishery. In Norway, landings data must be submitted to the Ministry of Trade, Industry and Fisheries as per the Marine Resources Act 2008. The reporting of catch taken in EU waters is mandated by Council Regulations 2874/93, 1006/2008, and 1224/2009 (Scottish Government 2019).

The ICES Working Group on Widely Distributed Stocks (WGWIDE) presents horse mackerel catch totals by country and ICES Division / Subarea in its annual advice (ICES 2021b). The total estimated international catch in 2020 was 76,422t. Discard estimates are submitted by most countries participating in the fishery. In Norwegian waters vessels are obligated to land all catches by the Marine Resources Act (Gullestad *et al*, 2015), and discards by Norwegian vessels are considered by ICES to be zero (ICES 2021b). Discards data are included in the stock assessment as part of the total catches. Catches in Division 3a are taken outside the TAC, but are included in the stock assessment.

Landings data are collected and are sufficiently complete and robust for the fishery to meet the requirements of A1.1.

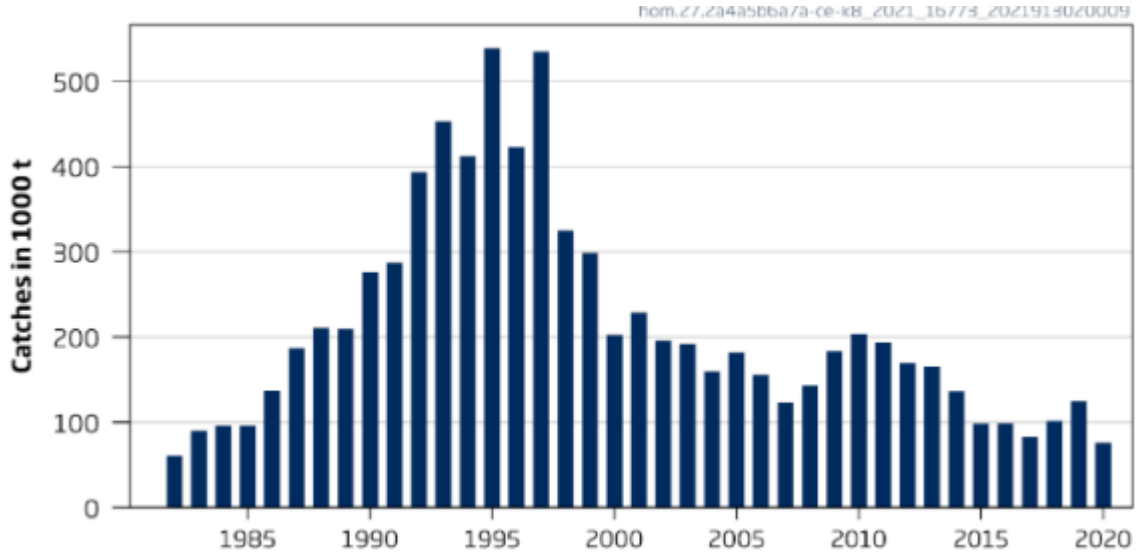

Figure 1: Annual catches of horse mackerel in Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k (ICES 2021a)

A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.

ICES utilises a range of additional information sources to inform the annual horse mackerel stock assessment (ICES 2021b). Egg surveys are carried out annually to produce estimates for Total Annual Egg Production for the stock; details of the methodology for the egg survey are published in the ICES stock annex (ICES 2022b). Other fishery-independent information sources include the International Bottom Trawl Survey (IBTS), on which the horse mackerel recruitment index is based; and the Pélagiques Gascogne (PELGAS) and PELACUS acoustic surveys, which produce estimates of horse mackerel biomass. Fishery-dependent data used by ICES includes catch-at-age sampling from the Netherlands, Ireland, Norway, Spain and England; and catch number-at-length data from the Netherlands, Ireland, Spain, England, Scotland and France. There is also information available from fishery stakeholders, including the Pelagic Advisory Council (PELAC), providing length, developmental, and genetic data from catch samples.

As part of the annual catch advice (ICES 2021a), ICES provides a summary of the estimated quality of the stock assessment. In the most recent advice, published in September 2021, ICES concluded that "The [PELACUS] survey could not be carried out in 2020 due to the COVID-19 disruption and therefore the model was performed without this [abundance] data for 2020. The results of a sensitivity test show that this missing data is unlikely to have had a significant impact on the assessment outputs".

Additionally, the WGWIDE report provides a more detailed analysis of the adequacy of the stock assessment and the data underpinning it. A number of issues are raised in the most recent annex (ICES 2021b), the most significant of which is the tendency for the assessment model to suffer from a retrospective pattern whenever a new year of data are incorporated – i.e., historical estimates of biomass (and other parameters) change retrospectively when new information is added to the model. There is also a degree of uncertainty introduced by a lack of data on the relationship between the size of an individual and the fecundity in eggs/kg.

Overall, although there are clear ways in which the certainty of the assessment could be improved by the provision of additional data, there is clearly sufficient information collected to enable an indication of stock status to be estimated, and therefore the fishery meets the requirements of A1.2.

References

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ICES (2021b). Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 3:95. 874 pp. http://doi.org/10.17895/ices.pub.8298 Annex 7: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c,e–k (the Northeast Atlantic).

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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.	PASS
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	PASS
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	PASS
	A2.4	The assessment is subject to internal or external peer review.	PASS
	A2.5	The assessment is made publicly available.	PASS
		Clause outcome:	PASS

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.

The ICES Working Group on Widely Distributed Stocks (WGWIDE) carries out a stock assessment for Western horse mackerel on an annual basis, utilising all of the information sources listed above in A1 (ICES 2021b). A one fleet, one sex, one area stock synthesis model is used to generate estimates of the current and historical status of Spawning Stock Biomass (SSB) and fishing mortality (see Figure 2, below). The ICES stock annex for horse mackerel (ICES 2021c) details the stock assessment methodology including software and input data. The annex also demonstrates that all landings data and the biological characteristics of the species are included in the stock assessment process.

The stock assessment is sufficiently frequent and incorporates all available data, and therefore meets the requirements of A2.1.

A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.

The current target and limit reference points for Western horse mackerel were established for the stock in 2019. The outputs of the annual WGWIDE stock assessment include an estimate of the current and historical status of the stock relative to these reference points (see Figure 2). The reference points currently established for the stock are summarised in Table 1.

Table 1: Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a-c,e-k. Reference points, values and their technical basis (ICES 2021a)

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	1 168 272	B_{pa}; in tonnes	ICES (2019)
	F_{MSY}	0.074	Stochastic simulations (EqSim)	ICES (2019)
Precautionary approach	B_{lim}	834 480	B_{pa}/1.4; in tonnes	ICES (2019)
	B_{pa}	1 168 272	SSB_{2003}; in tonnes	ICES (2019)
	F_{lim}	0.103	Stochastic simulations (EqSim)	ICES (2019)
	F_{pa}	0.079	The F that provides a 95% probability for SSB to be above B^{lim} (F_{P05})	ICES (2019, 2021b)
	F_{P05}	0.079	Stochastic simulations (EqSim)	ICES (2019)

The most recent estimate of stock status was published in September 2021. At that time it was estimated that "Fishing pressure on the stock is below F_{MSY} and spawning-stock size is below MSY $B_{trigger}$ and between B_{pa} and B_{lim}" (ICES 2021a). At the time of the assessment, SSB in 2022 was estimated to be 912,868t and fishing mortality in 2021 was estimated to be 0.070.

One important aspect of the stock assessment model which ICES notes throughout its reports is the tendency for retrospective changes in estimates of SSB and fishing mortality (see A1.2). One outcome of this is that the most recent time series for SSB

indicates that biomass was below B_{lim} from around 2014 – 2020, while the historical reports from those years estimated SSB to be above B_{lim}.. Thus although historical management decisions were made based on the best available information at the time, they may appear retrospectively not to have been precautionary. This issue is explored in more detail in A3.3 and A4.1.

In summary, the ICES advice provides an estimate of the current status of the stock relative to the established reference points, and therefore the fishery meets the requirements of A2.2.

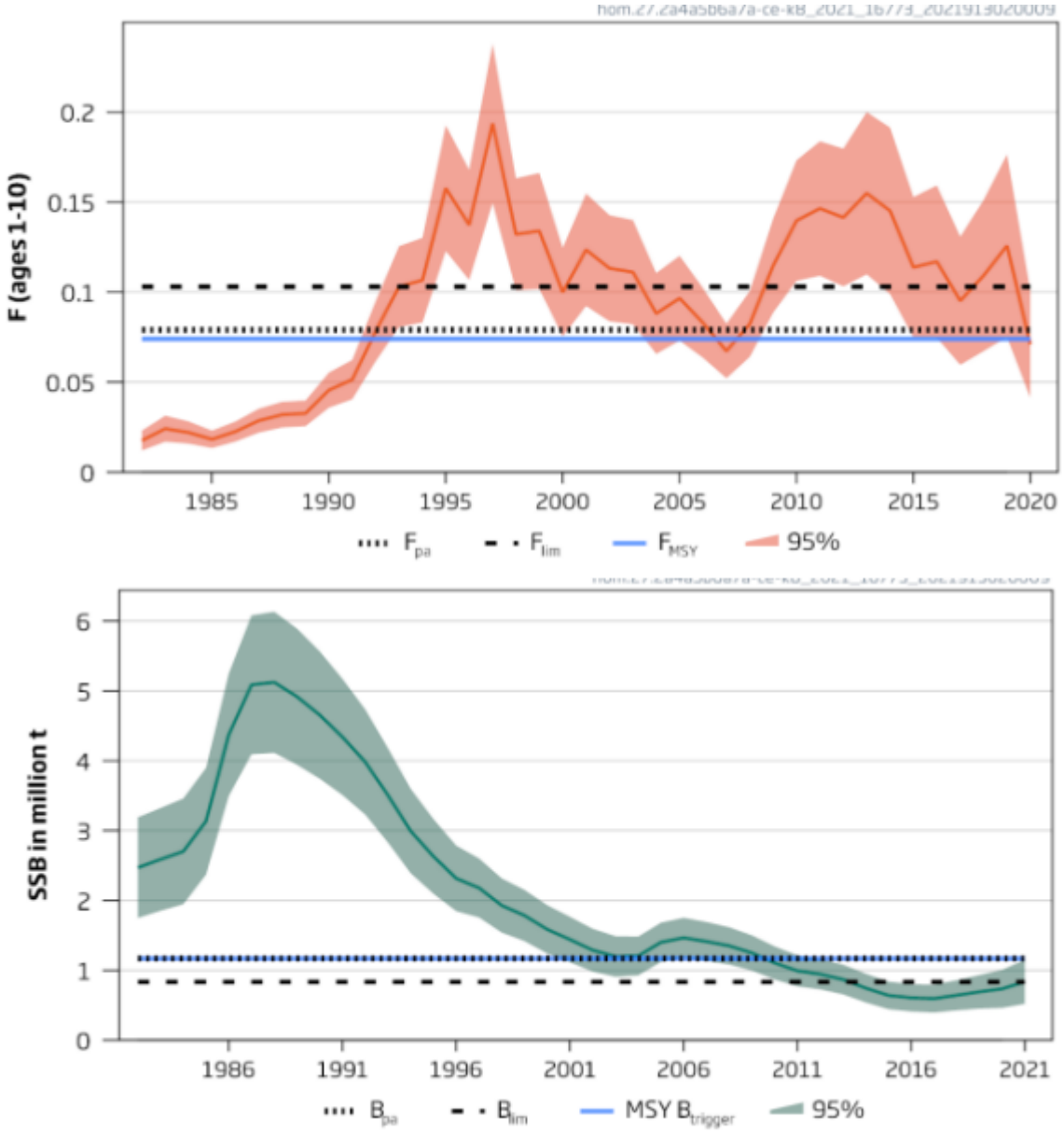

Figure 2: Estimated fishing mortality (top) and spawning stock biomass (bottom) for horse mackerel in Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k, 1981-Present (ICES 2021a)

A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.

ICES produces an annual recommendation for the total catch of Western horse mackerel, based on the outputs of the stock assessment described above. In the September 2021 advice, ICES recommended that catches in 2022 should be no more than 71,138t (ICES 2021a). This recommendation was 12.6% lower than the advice for the 2021 season, due to the stock assessment biomass forecast. Although there is no management plan established for the stock, the ICES advice is based on the MSY approach, whereby catch levels are recommended with the objective of achieving Maximum Sustainable Yield. In practice this means that the catch recommendation is lower when SSB is estimated to be lower, and therefore (as set out in the MT assessment guidance), that the exploitation rate is lower as the PRI is approached.

A precautionary and science-based indication of the volume of fishery removals which is appropriate for the current stock status is provided by ICES, and therefore the fishery meets the requirements of A2.3.

A2.4 The assessment is subject to internal or external peer review.

The Guide to ICES Advisory Framework and Principles (ICES 2020) sets out the process by which ICES carries out scientific activities and provides fishery management advice. The process is designed to be transparent, independent and produce peer-reviewed recommendations. Advice is provided based on ten key Principles, of which Principle 7 states that "To ensure that the best available, credible science has been used and to confirm that the analysis provides a sound basis for advice, all analyses and methods are peer reviewed by at least two independent reviewers. For recurrent advice, the review is conducted through a benchmark process; for special requests through one-off reviews".

The ICES advice, and the stock assessment methodology underpinning it, are subject to independent peer review, and therefore the fishery meets the requirements of A2.4.

A2.5 The assessment is made publicly available.

All of the stock assessment information used to produce this MarinTrust assessment report was publicly available. Specifically, information is published in the WGWIDE report (ICES 2021b), the stock annex (ICES 2021c), and the catch advice (ICES 2021a). Additionally, the publication of methodologies, data, deliberations and outcomes is a core part of the ICES process, as set out by the ICES Advisory Framework and Principles, particularly Principles 4, 5 and 6 (ICES 2020).

The stock assessment process and outcomes are made publicly available and therefore the fishery meets the requirements of A2.5.

References

ICES (2020), Guide to ICES advisory framework and principles. In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, Guide to ICES Advice. https://doi.org/10.17895/ices.advice.7648

ICES (2021a). Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a-c,e-k (the Northeast Atlantic). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, hom.27.2a4a5b6a7a-ce-k8. https://doi.org/10.17895/ices.advice.7777

ICES (2021b). Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 3:95. 874 pp. http://doi.org/10.17895/ices.pub.8298 Annex 7: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c,e–k (the Northeast Atlantic).

ICES (2021c). Stock Annex: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, e–k (the Northeast Atlantic). https://www.ices.dk/sites/pub/Publication%20Reports/Stock%20Annexes/2021/hom.27.2a4a5b6a7a-ce-k8_SA.pdf

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.	PASS
	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.	PASS
	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).	PASS
		Clause outcome:	PASS

A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.

Total catch by the EU and UK components of the fishery is restricted through a Total Annual Catch (TAC) which is set broadly in line with the ICES advice. At present there is no TAC in place for the Norwegian component of the fishery and it is not clear what the limiting factor is on total horse mackerel removals by the Norwegian fleet. There are general restrictions in place on the Norwegian fleet including closed areas and seasons, and all fishing vessels must be licenced; however, it is not clear to what extent these generic regulations are effective at keeping Norwegian horse mackerel removals to appropriate levels.

The Norwegian catch represents a relatively small proportion of the total removals (in the order of around 8% - 15%) and does not appear to be the driving factor when the ICES catch advice is exceeded. However, additional information is required to clarify the exact mechanism by which the Norwegian catch is restricted, and to provide reassurance that excessive Norwegian catches in the future are unlikely.

A key piece of evidence suggesting that the generic measures may be effective is that the total estimated catch of horse mackerel has not exceeded the ICES advice in any year since 2017. Additionally, those years in which total landings did exceed the ICES advice coincide with an EU TAC which also exceeded the advice. The MT assessment guidance states that for clause A3.1, "The assessment should consider all historical data but can award a pass rating as long as the fishery removals meet the requirements outlined in A3.2". Therefore, as the fishery meets the requirements of A3.2 a Pass score has also been awarded under A3.1. As in the case of clause A3.2, this Pass score is dependent on the total catch continuing to not exceed the ICES advice.

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.

Historically catches have exceeded the advice frequently (see Table 2); however total fishery removals are estimated not to have exceeded the ICES advice since 2017. In years where the catch did exceed the advice, this appears to be primarily due to the EU TAC being set in excess of the advice. In recent years the TAC has been set in line with or below the advice, and total catch (including Norway, which fishes outside the TAC) is estimated to have fallen short of the quota.

Overall, because landings have not exceeded the advice in recent years, the fishery is considered to currently meet the requirements of A3.2. However, future MarinTrust assessments of this fishery should pay particular attention to the relationship between total catch and ICES advice, and adjust the assessment outcome if necessary.

Table 2: Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k. ICES advice, TACs, and catches. All

weights are in tonnes. Years in which the total catch exceeded the ICES advice are coloured; orange indicates the catch exceeded the advice by less than 10%, red by more than 10%. Constructed from the ICES catch advice report (ICES 2021a), with 2022 TAC taken from Council Regulation (EU) 2022/515.

Year	ICES Catch advice	Agreed TAC (EU only)	Estimated Total Catch
2000	<200000	240000	202732
2001	<224000	233000	229081
2002	<98000	150000	196120
2003	<113000	137000	191856
2004	<130000	137000	159742
2005	<150000	137000	182001
2006	<150000	137000	155827
2007	<150000	137000	123356
2008	180000	170000	143349
2009	180000	170000	183782
2010	180000	183191	203112
2011	181000–229000	195130	193698
2012	≤211000	183000	169858
2013	≤126000	181000	165258
2014	≤110546	133220	136360
2015	≤99304	97603	98419
2016	≤126103	124403	98811
2017	≤69186	95500	82961
2018	≤117070	115470	101682
2019	≤145237	136376	124947
2020	≤83954	81796	76422
2021	≤81376	81375	
2022	≤71138	71138	

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).

The Western horse mackerel stock has not been estimated to be below the limit reference point by past stock assessments. This is contrary to the SSB time series illustrated in Figure 2 because the outcomes of the stock assessment model used to estimate current and historical biomass and fishing mortality have a tendency to change retrospectively in response to the addition of new data. For example, although the outputs of the 2021 stock assessment produced a time series which placed SSB considerably below the B_{lim} of 834,480t in 2018, at the time the biomass was estimated to be 941,821t (ICES 2018). The issue is exacerbated by the change in reference points in 2019, when B_{lim} was revised upwards from 661,917t to 834,480t. For these reasons, the continuation of the fishery in the period where Figure 2 indicates the stock was below B_{lim} does not represent a failure to meet requirement A3.3.

In other fisheries, ICES has recommended that the TAC be set at zero (or a small monitoring TAC) when SSB has been estimated to have fallen below the limit reference point. There are also occasions where this recommendation has been implemented by the EC. An example of both is the sandeel fishery in Sandeel Area 2r (central and southern North Sea), where a monitoring TAC was both recommended and adopted in 2018, 2019 and 2021 (ICES 2022). However, it is not clear whether this approach would

be applied in the case of horse mackerel, nor whether the Norwegian fishery (which currently operates without a quota) would be closed.

As there is clear evidence that total landings in the fishery are reduced as B_{lim} is approached, and there have been no occasions where the fishery has continued despite the stock biomass being known to be below the limit reference point, the fishery is considered to currently meet the requirements of A3.3. However, future MarinTrust assessments should ensure that in the event of the stock biomass falling below B_{lim} in an ICES stock assessment, the fishery, and particularly the Norwegian component of the fishery, is closed.

References

Council Regulation (EU) 2022/515 of 31 March 2022 amending Regulation (EU) 2022/109 fixing for 2022 the fishing opportunities for certain fish stocks and groups of fish stocks applicable in Union waters and for Union fishing vessels in certain non-Union waters.

ICES (2018). Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k (the Northeast Atlantic). In Report of the ICES Advisory Committee, 2018. ICES Advice 2018, hom.27.2a4a5b6a7a-ce-k8. https://doi.org/10.17895

ICES (2021a). Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a-c,e-k (the Northeast Atlantic). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, hom.27.2a4a5b6a7a-ce-k8. https://doi.org/10.17895/ices.advice.7777

ICES (2021b). Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 3:95. 874 pp. http://doi.org/10.17895/ices.pub.8298 Annex 7: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c,e–k (the Northeast Atlantic).

ICES (2022), Sandeel (*Ammodytes* spp.) in divisions 4.b–c and Subdivision 20, Sandeel Area 2r (central and southern North Sea). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, san.sa.2r, https://doi.org/10.17895/ices.advice.10001

Standard clause 1.3.2.1.3

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.	PASS
		Clause outcome:	PASS

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.

The results of the most recent stock assessment indicate that the stock biomass is currently below the target reference point (ICES 2021), and therefore the fishery does not meet the first component of this clause.

The stock assessment indicates that the stock biomass is currently above the limit reference point (ICES 2021). However, there is currently no clear evidence indicating whether the fishery would be closed in the event that the biomass fell below the limit reference point. As explained in A3.3, there is evidence that this has sometimes occurred in other fisheries with similar circumstances. There is also clear evidence that the total catch in the fishery has reduced as the limit reference point has been approached. Overall it is considered appropriate to give fishery managers the balance of the doubt regarding the closure of the fishery should the biomass ever fall below B_{lim}; however future MarinTrust assessments should pay particular attention to this aspect of management, as outlined in A3.3.

References

ICES (2021). Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a-c,e-k (the Northeast Atlantic). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, hom.27.2a4a5b6a7a-ce-k8. https://doi.org/10.17895/ices.advice.7777

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

F1.1 Interactions with ETP species are recorded.

Sea mammal and seabird bycatch is required to be recorded and reported via logbook data (DNV GL 2019). Chapter 4 Section 15 of the Marine Resources Act 2009 mandates that all catch must be landed (unless it can be released alive) and therefore any interactions with other ETP species are captured in the landings data. Additionally, the Norwegian Reference Fleet (see F1.2) is utilised to further study and understand the potential interactions between Norwegian fishing activity and ETP species.

Interactions with ETP species are recorded and reported and the fishery meets the requirements of F1.1.

F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species.

The Norwegian Reference Fleet is a group of active fishing vessels selected as an indicative sample of Norwegian vessels in general. Information is collected on their catches and general fishing activity and used to better understand the reported aspects of Norwegian fishing. Data on the species caught in each gear type by the reference fleet is made publicly available and can be used to understand which ETP species may be caught during pelagic trawl activities in Norwegian waters (Clegg & Williams, 2020).

The only elasmobranch species listed in the reference fleet pelagic trawl catch data (NMDC 2020) are spurdog (*Squalus acanthias*, IUCN Vulnerable) and velvet belly (*Etmopterus spinax*, IUCN Vulnerable). None of the other species present in the catch data for the reference fleet are present on the Norwegian Redlist (NBIC 2014), and none of the ETP species identified in a recent MSC assessment report as having potential interactions with herring fisheries in Norwegian waters are present on the reference fleet list (DNV GL 2019). The MSC report also confirms that through personal communication with an IMR scientist it was revealed that there were no interactions between the herring vessels using pelagic trawl gears in the reference fleet and seabirds or sea mammals.

Overall there is considerable evidence that interactions between the horse mackerel fishery and ETP species are minimal, if they occur at all, and the assessment has certainly not encountered any evidence of significant negative effects on ETP species. Therefore the fishery meets the requirements of F1.2.

F1.3 If the fishery is known to interact with ETP species, measures are in place to minimise mortality.

All available evidence suggests that there are minimal interactions between the horse mackerel fishery and ETP species, meaning that no fishery-specific ETP management plan is required. In general terms, the Marine Resources Act contains a number of provisions relating to the minimisation of impacts of fishing activity, including Chapter 1 Section 7f which states that importance shall be attached to “ensuring that harvesting methods and the way gear is used take into account the need to reduce possible negative impacts on living marine resources”. The Act also empowers the Ministry to enact various restrictions including gear types, fishing areas and seasons, and the creation of Marine Protected Areas (DoF 2015).

The fishery is currently thought not to interact with ETP species, and should interactions be detected in future, management authorities are empowered to introduce measures to minimise mortality. The fishery is considered to meet the requirements of F1.3.

References

Clegg, T., & Williams, T. (2020). Monitoring bycatch in Norwegian fisheries: Species registered by the Norwegian Reference Fleet 2015-2018. https://www.hi.no/templates/reporteditor/report-pdf?id=31549&63955120

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DNV GL (2019). Final report for the re-assessment of the Norway North Sea herring fishery. https://fisheries.msc.org/en/fisheries/norway-north-sea-herring/@@assessments

IUCN (2022a). Spiny dogfish (spurdog), *Squalus acanthias*. https://www.iucnredlist.org/species/91209505/124551959

IUCN (2022b). Velvet belly lanternshark (*Etmopterus spinax*). https://www.iucnredlist.org/species/161388/124475610

Norwegian Biodiversity Information Centre (2014). Norwegian red list for species. https://www.biodiversity.no/Pages/135380/Norwegian_Red_List_for_Species

NMDC (2020). Species registered by the Norwegian Reference Fleet 2015-2018. http://metadata.nmdc.no/metadata-api/landingpage/19d05ab8e0afe1ceac1b2be3ddf68612

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.

The horse mackerel fishery is very unlikely to directly interact with seabed habitats (see F2.2). The MarinTrust fishery assessment guidance states that "good practice requires there to be a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types". Such a strategy is not required for the specific fishery under assessment here, as due to the gear type used it fundamentally does not pose such a risk.

In general terms, potential habitat impacts of fishing activity are considered within the Norwegian fishery management process. Section 7 of the Marine Resources Act sets out the fundamental considerations for the management of Norwegian fisheries, noting that "in the management of wild living marine resources" importance should be attached to "an ecosystem approach that takes into account habitats and biodiversity" (DoF 2015).

F2.2 There is no substantial evidence that the fishery has a significant negative impact on physical habitats.

The horse mackerel fishery is carried out using pelagic trawl gears. These are designed to minimise contact with the sea bed, as horse mackerel is a pelagic species. Pelagic trawls are widely considered to have minimal, if any, impact on physical habitats. Examples of this conclusion can be found throughout the literature, for example in the BENTHIS project (Rijnsdorp 2013) and also in the risk ratings of many fishery assessment methodologies (such as the Seafish RASS methodology and the Monterey Bay Aquarium scoring guidance). Therefore by default it is very unlikely that this fishery has a significant negative impact on physical habitats, and it passes the requirements of F2.2.

F2.3 If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.

The fishery is known not to interact with physical habitats, and therefore no such measures are required to be in place. The nature of the fishery means that in the absence of any evidence of habitat interactions, the requirements of clause F2.3 are met.

References

Caveen, A. & Lart, B. (2020). Seafish RASS scoring guidance. https://www.seafish.org/document/?id=4351A6BB-D3E4-4D26-BE93-EE19695C5FA9

Directorate of Fisheries (2015). The Marine Resources Act, English translation. https://www.fiskeridir.no/English/Fisheries/Regulations/The-marine-resources-act

Rijnsdorp, A. (2013). BENTHIS deliverable 1.1b: Benthic impact from the perspective of the fisheries. https://www.benthis.eu/web/file?uuid=e89c7e3e-a611-4d12-b829-47caed6f8313&owner=fd9fa22c-6bf7-42dc-ad64-ad4cbd966f98

Seafood Watch Fisheries Standard V F4 (2020). https://www.seafoodwatch.org/globalassets/sfw/pdf/standards/fisheries/seafood-watch-fisheries-standard-version-f4.pdf

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.

The potential ecosystem impacts of fisheries are primarily taken into account in the management process through ICES ecosystem overviews, the outcomes of which are incorporated into Working Group discussions and recommendations. The most relevant ICES ecoregions to the Norwegian horse mackerel fishery are the Greater North Sea (ICES 2020, see Figure 3) and the Norwegian Sea (ICES 2021a), although the majority of Norwegian catch is taken in the former. Ecosystem overviews provide a summary of the key environmental indicators, ecosystem pressures, and the current state of the ecosystem. Relevant aspects of the North Sea ecoregion which are summarised in the ICES report include:

- The episodic changes in productivity of key elements of the ecosystem in the North Sea, including phytoplankton, zooplankton and demersal and pelagic fish.
- The links between these changes in productivity and temperature trends both within the North Sea and across the North Atlantic.
- The impacts of wind farms and other artificial hard substrates on biodiversity and productivity.
- The impacts of fishing on ecosystem structure, particularly the removal of many larger fish.

- A shift from pelagic to benthic production, particularly the substantial increase in the size of the plaice stock.

All of these factors are considered in the development and delivery of ICES advice, which in turn underpins the management decision-making process as per the Marine Resources Act (in Norway) and the CFP (in the EU). This is exemplified by the Ecosystem Considerations section of the ICES Working Group report (ICES 2021b).

There is a clear link between ecosystems research and analysis and the advice given by ICES, and from there the management decision-making process. The fishery meets the requirements of F3.1.

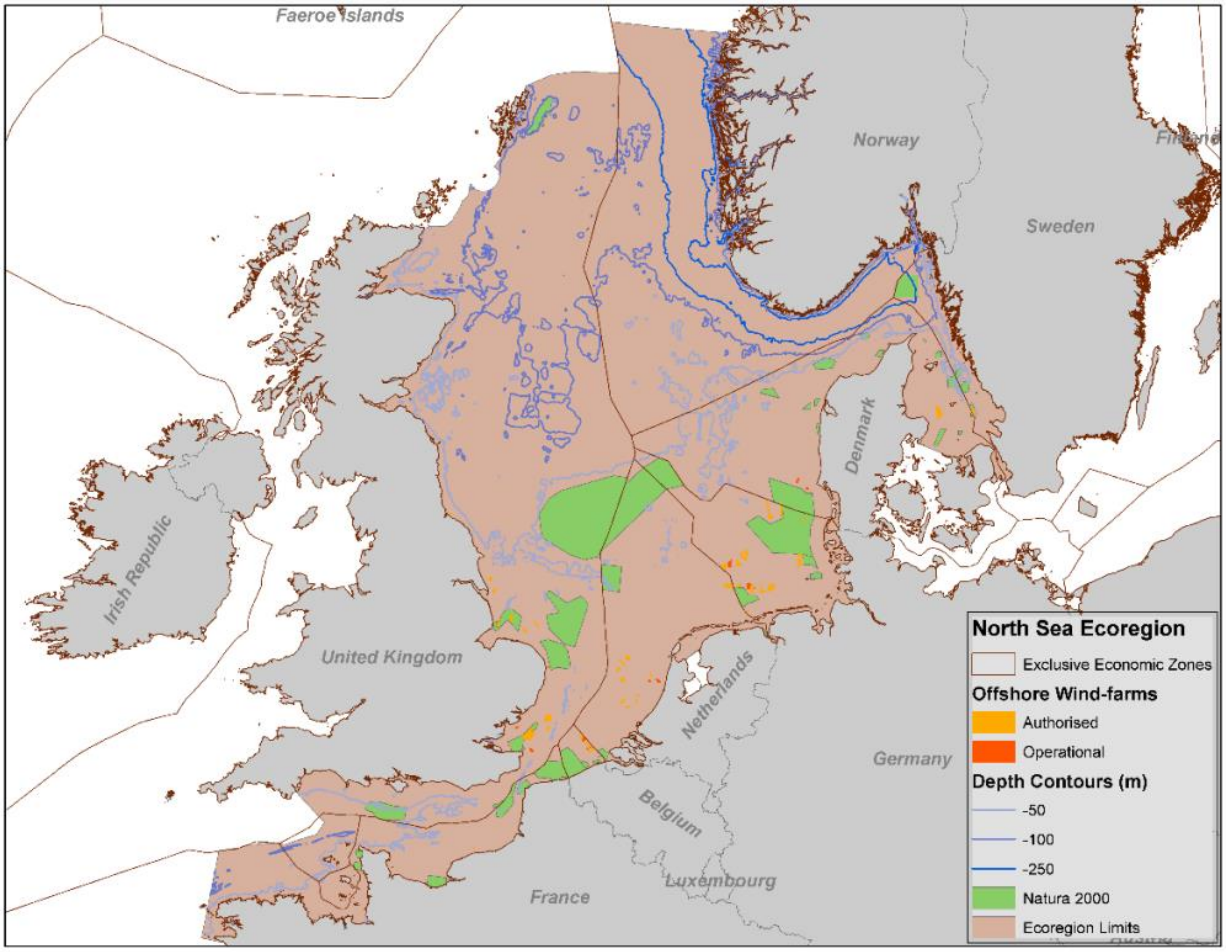

Figure 3: ICES Greater North Sea Ecoregion, showing EEZs, larger offshore Natura 2000 sites, and operational and authorised wind farms (ICES 2020).

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

Throughout the completion of this assessment report, no evidence was encountered to suggest this fishery has a significant negative impact on the marine ecosystem. The 'ecosystem aspects' sections of the ICES advice do not include any mention of potential significant negative impacts of the fishery on ecosystems (ICES 2021b; ICES 2021c). The Marine Resources Act states that fisheries management in Norway must apply an ecosystem approach which takes into account habitats and biodiversity.

Overall because there is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem, the fishery passes the requirements of F3.2.

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.

Horse mackerel has not been identified by ICES as being a species which is particularly important as prey (ICES 2021b; ICES 2021c). Horse mackerel in the North Sea is known to have a relatively high trophic level of 4.38 (Mackinson & Daskalov 2007) The ecosystems aspects of the fishery, along with potential ecosystem impacts, are considered by ICES when it makes its recommendations as to potential catch levels; however as horse mackerel has not been determined to play a key role in the ecosystem there is no particular reference to additional precaution in the catch recommendations. The fishery passes the requirements of F3.3.

References

Directorate of Fisheries (2015). The Marine Resources Act, English translation. https://www.fiskeridir.no/English/Fisheries/Regulations/The-marine-resources-act

ICES (2020). Greater North Sea Ecoregion – Ecosystem overview. https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/EcosystemOverview_GreaterNorthSea_2020.pdf

ICES (2021a). Norwegian Sea Ecoregion – Ecosystem overview. file:///C:/Users/samue/Downloads/EcosystemOverview_NorwegianSea_2021.pdf

ICES (2021b). Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 3:95. 874 pp. http://doi.org/10.17895/ices.pub.8298 Annex 7: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c,e–k (the Northeast Atlantic).

ICES (2021c). Stock Annex: Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, e–k (the Northeast Atlantic). https://www.ices.dk/sites/pub/Publication%20Reports/Stock%20Annexes/2021/hom.27.2a4a5b6a7a-ce-k8_SA.pdf

Mackinson, S. & Daskalov, G. (2007). An ecosystem model of the North Sea to support an ecosystem approach to fisheries management: description and parameterisation. Cefas. https://www.cefas.co.uk/publications/techrep/tech142.pdf

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 rm. 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]

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)

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	Norway Horse Mackerel
Management authority (Country/State)	Norway
Main species	Horse mackerel (*Trachurus trachurus*)
Fishery location	ICES Subarea 8 and Divisions 2a, 4a, 5b, 6a, 7a-c and 7e-k
Gear type(s)	Pelagic trawl
Overall recommendation. (Approve/ Fail)	Request further information from client as per assessors' comments

Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision.
The assessors have provided a detailed examination of the fishery with appropriate levels of evidence and which follows the MT standards required. The following comments are of note: Is there any evidence of fishers providing additional information to managers to support the effective management of the fishery? i.e voluntarily carrying observers, recording bycatch data, reporting

suspected illegal activity, providing operational or economic data? Is there evidence that all landings are monitored?

Is there evidence of percent of observer coverage? Of the 1800 annual inspections is there information of the level of infringements detected/reported?

The assessor and internal reviewer have requested additional information regarding A3.1 – requiring evidence regarding what mechanism is in place by which total fishing mortality of this species is restricted. While the fishery passes A3.2 and MT guidance states that "a pass rating can be awarded as long as the fishery removals meet the requirements outlined in A3.2" the peer reviewer agrees with the assessor that the client should provide this additional information given that historical data from the fishery indicates that pre 2018 the fishery did exceed, by >10%, the ICES quota on multiple occasions, and that currently there is no quota for the Norwegian component of the fishery.

General Comments on the Draft Report provided to the peer reviewer

A well-presented review with good level of references and detail.

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?	Yes		
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes		
3. Are the scores in the following sections accurate (i.e. do the scores reflect the evidence provided)?	Yes		
Section M - Management	Yes		
Category A Species	Yes		
Category B Species	N/A		
Category C Species	N/A		
Category D Species	N/A		
Section F – Further Impacts	Yes		

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?
The scoring is consistent with the MT standard and the appropriate evidence is provided within the assessment report.
Certification body response

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 notwithstanding the remarks in this peer review report (see summary and below). A statement on control and enforcement could be included in the Assessment Determination Table 2 as per guidance notes.

An internal review of the assessment has been conducted and agrees with the decision of the assessor.

Certification body response

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

The species categorisation section (see Table 5) indicates the catch composition is made up of >99.9% Norway Horse Mackerel with no category B, C or D species. There is a management plan in place for this species and as such the Species categorisation correctly reflects the fishery.

Certification body response

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

The scores in this section are clearly justified by the assessor with very detailed responses and supported by links to references. Excellent evidence of sanctions being applied.

Comment:

Section M1.1 Can the assessor identify in this section the management body responsible for monitoring and surveillance (coastguard and DOF as per M2.1?) and administration and training (DOF?)

Section M2.3 Is there any evidence of fishers providing additional information to managers to support the effective management of the fishery? i.e voluntarily carrying observers, recording bycatch data, reporting suspected illegal activity, providing operational or economic data? Is there evidence that all landings are monitored?

Section M2.4 – Is there evidence of percent of observer coverage? Of the 1800 annual inspections is there information of the level of infringements detected/reported?

Certification body response

3A. Are the "Category A Species" scores clearly justified?

The scores in this section are clearly justified by the assessor, with appropriate figures, data and references given. The assessor provided good detail on the fishery dependent and fishery independent data collection and evidences that the stock is assessed annually and that fishing pressure on the stock is below F_{MSY} and spawning-stock size is below MSY $B_{trigger}$. The stock assessment is subject to peer review.

The assessor has identified that "At present there is no TAC in place for the Norwegian component of the fishery and it is not clear what the limiting factor is on total horse mackerel removals by the Norwegian fleet. " and states that "additional information is required to clarify the exact mechanism by which the Norwegian catch is restricted, and to provide reassurance that excessive Norwegian catches in the future are unlikely." For this reason, the assessor has identified that there is no evidence of a mechanism in place by which total fishing mortality of this species is restricted and have not passed the fishery until the client is able to provide this evidence.

MT guidance for Section A3.1 states: "The assessment team will also consider final landings data and compare this to the initial scientific advice. The assessment should consider all historical data but can award a pass rating as long as the fishery removals meet the requirements outlined in A3.2."

The assessor has compared landings data to advice i.e. "total estimated catch of horse mackerel has not exceeded the ICES advice in any year since 2017" and the assessor has stated that the fishery removals meet the requirements outlined in A3.2 i.e. fishery landings have not exceeded the advice in recent years. However, given that historical data in most years pre 2018 show that landings exceeded ICES quota by >10% (albeit EU TAC was also set >ICES quota) it seems reasonable for the assessor to require the client to provide evidence of the mechanism by which fishing mortality is restricted in Norway given the fishery currently operates without a quota, before this fishery is awarded a pass rating.

The assessor has identified stock biomass is currently above the limit reference point (ICES 2021), but that there is no clear evidence indicating whether the fishery would be closed in the event that the biomass fell below the limit reference point. However, there is evidence that the total catch in the fishery has been reduced as the limit reference point has been approached.

Certification body response

3B. Are the "Category B Species" scores clearly justified?

No Category B species were identified.

Certification body response

3C. Are the "Category C Species" scores clearly justified?

No Category C species were identified.

Certification body response

3D. Are the "Category D Species" scores clearly justified?
No Category D species were identified.
Certification body response

3F. Are the scores in "Section F – Further Impacts" clearly justified?
The scores in this section are clearly justified by the assessor with detailed reasoning and numerous references given. Comments: Is there evidence of an observer program or video surveillance and if so what percent of the fishery is observed? The assessor states the interactions with ETP species is minimal - Is data available on number of by-catch incidents (by species for spurdog/velvet belly) and mortality rates available?
Certification body response

Optional: General comments on the Peer Review Draft Report
The fishery has been correctly reviewed by the assessor with a good level of detail provided and useful references. Additional information regarding the mechanism in place to restrict fishing mortality in the Norway fishery, as suggested by the assessor, should be sought from the client prior to awarding a Pass rating.
Certification body response