



MarinTrust Standard V2

By-product Fishery Assessment *Flathead sole (Hippoglossoides elassodon) in FAO 61 & 67 (Bering Sea and Aleutian Islands)*

MarinTrust Programme

Unit C, Printworks

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Flathead sole (<i>Hippoglossoides elassodon</i>)
	Geographical area:	FAO 61 & 67 northeast Pacific
	Country of origin of the product:	Thailand (flag state(s): USA)
	Stock:	Flathead sole in Bering Sea and Aleutian Islands (BSAI)
Date	8 May 2023	
Report Code	THA05	
Assessor	Matthew Jew	
Country of origin of the product - PASS	Thailand (flag state(s): USA)	
Country of origin of the product - FAIL	NA	

Application details and summary of the assessment outcome			
Company Name(s): Piyo Bhokabhan Co. Ltd			
Country: Thailand			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		Global Trust Certification	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Matthew Jew	Léa Lebechnech	0.5	Surveillance 1
Assessment Period	Up to May 2023		

Scope Details	
Main Species	Flathead sole (<i>Hippoglossoides elassodon</i>)
Stock	Flathead sole in Bering Sea and Aleutian Islands (BSAI)
Fishery Location	FAO 61 & 67 northeast Pacific
Management Authority (Country/ State)	North Pacific Management Council (NPFMC)
Gear Type(s)	Bottom Trawl
Outcome of Assessment	
Peer Review Evaluation	Agree with the assessor's determination
Recommendation	APPROVED

Table 2. Assessment Determination

Assessment Determination
<p>If any species is categorised as Endangered or Critically Endangered on IUCN’s Red List, or if it appears in the CITES appendices, it cannot be approved for use as Marin trust raw material. Flathead sole (<i>Hippoglossoides elassodon</i>) does not appear as Endangered or Critically Endangered on IUCN’s Red List, and does not appear in CITES appendices; therefore, <i>Hippoglossoides elassodon</i> is eligible for approval for use as Marin trust by-product raw material.</p> <p>This stock is managed by the North Pacific Fisheries Management Council (NPFMC) with stock assessment carried out by National Marine Fisheries Service (NMFS) with reference points defined for BSAI flathead sole. As there is a management regime in place and reference points are defined, this stock is assessed under category C.</p> <p>Fishery removals are included in the stock assessment and it PASSES Clause C1.1. The stock is considered, in its most recent stock assessment, to have biomass above the limit reference point, it PASSES Clause C1.2.</p> <p>Therefore, flathead sole in Bering Sea and Aleutian Islands (BSAI) is APPROVED for the production of fishmeal and fish oil under the current MarinTrust v2.0 by-products.</p>
Fishery Assessment Peer Review Comments
<p>The internal peer reviewer agrees with the assessor’s determination, who correctly classified and approved the stock of flathead sole in Bering Sea and Aleutian Islands (BSAI) under Category C. Fishery removals are included in the stock assessment and the stock is considered, in its most recent stock assessment, to have biomass above the limit reference point, so it PASSES Clauses C1.1 and C1.2.</p> <p>Therefore, flathead sole in Bering Sea and Aleutian Islands (BSAI), is APPROVED for the production of fishmeal and fish oil under the current MarinTrust v 2.0 by-products standards.</p>
Notes for On-site Auditor
<p>N/A</p>

Species Categorisation

NB: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in CITES Appendix 1, it **cannot** be approved for use as a MarinTrust raw material.

IUCN Red list Category

By-product material from a species listed by IUCN (the International Union for Conservation of Nature) under the Red List for the following categories shall immediately fail the assessment;

- EXTINCT (E) AND EXTINCT IN THE WILD (EW)
- CRITICALLY ENDANGERED (CR) facing an extremely high risk of extinction in the wild.
- ENDANGERED (EN) facing a very high risk of extinction in the wild.

By-product material may be used from the following categories provided that all clauses in the MarinTrust standard are passed.

- VULNERABLE (VU) facing a high risk of extinction in the wild.
- NEAR THREATENED (NT) does not qualify for above now, but is close or is likely to qualify for, a threatened category in the near future.
- LEAST CONCERN (LC) Widespread and abundant.
- DATA DEFICIENT (DD) and NOT EVALUATED (NE)

Table 3 Species Categorisation Table

Common name	Latin name	Stock	Management	Category	IUCN Red List Category ¹	CITES Appendix 1 ²
Flathead sole	<i>Hippoglossoides elassodon</i>	Flathead sole in Bering Sea and Aleutian Islands (BSAI)	NPFMC	C	LC	No

¹ <https://www.iucnredlist.org/species/158625653/158637976>

² <https://cites.org/eng/app/appendices.php>

CATEGORY C SPECIES

In a by-product assessment, Category C species are those which are subject to a species-specific management regime and are usually targeted species in fisheries for human consumption.

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 should be assessed as a Category D species instead.

Species Name		Flathead sole (<i>Hippoglossoides elassodon</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.	Yes
	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.	Yes
			Clause outcome: PASS
<p>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.</p> <p>The max allowable biological catch (ABC) for 2023 is 66,927 tons.</p> <p>BSAI flathead sole is assessed using an age-structured mode. The annual catch is added to the model each year along with average survey biomass estimates.</p> <p>Long term catches for BSAI flathead sole are given below:</p>			

Year	Total Hippoglossoides spp.	Flathead sole	Bering flounder
1992	4	4	0
1995	14,715	14,710	4
1996	17,346	17,341	5
1997	20,683	20,678	5
1998	24,387	24,381	7
1999	18,573	18,553	20
2000	20,441	20,408	33
2001	17,811	17,795	16
2002	15,575	15,550	25
2003	13,785	13,767	18
2004	17,398	17,374	24
2005	16,108	16,077	31
2006	17,981	17,975	6
2007	18,958	18,952	6
2008	24,540	24,526	14
2009	19,558	19,530	28
2010	20,127	20,101	26
2011	13,557	13,536	20
2012	11,365	11,359	6
2013	17,353	17,272	80
2014	16,511	16,478	33
2015	11,306	11,273	33
2016	10,313	10,301	12
2017	9,111	9,107	3
2018	11,007	11,001	5
2019	15,880	15,879	1
2020	9,392	9,389	3
2021	10,259	10,255	4
2022	14,075	14,072	3

Figure 1. Long-term catches (in tons) for BSAI flathead sole from 1992 to 2022.
Source: Kapur, 2022.

Therefore, fishery removals of the species in the fishery under assessment are included in the stock assessment process and therefore the stock PASSES clause C1.1.

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.

BSAI flathead sole is managed by the NPFMC and is assessed on a biennial basis by the Groundfish Plan Team. This stock is managed as a stock complex along with the Bering flounder (*Hippoglossoides spp.*). A full assessment was scheduled for 2022, but due to limited resources, a partial assessment was presented.

Flathead sole is assessed using an age-structured model and Tier 3 determination. The single species projection model is run using parameter values from the accepted 2020 assessment model, together with updated catch information for 2020-2021 and

estimated catches for 2022 and 2023-2024 (Figure 1), to predict stock status for Flathead sole in 2023-2024, and to make ABC recommendations and set OFL for those years.

This assessment used a single survey index of “total” Hippoglossoides spp. biomass that included the EBS “standard” survey areas and Aleutian Islands (AI) survey areas for the years 1982-2019 (Table 2). As was done in the 2020 full assessment (Monnahan et al. 2020) and the 2021 partial assessment (Kapur 2021), the stock assessment estimated a relationship between EBS shelf Hippoglossoides spp. survey biomass estimates and AI survey biomass estimates in years when no AI survey occurred. The estimation method uses the linear regression to find an AI biomass estimate in a particular year based on the EBS biomass estimate for that year. There were no AI surveys conducted in 2020 nor 2021, and AI biomass was estimated with the linear equation. An Aleutian Islands survey was conducted in 2022, and the 2022 total BSAI estimate was 710,804 t, a roughly 6% increase over the 2021 regression estimate of 670,091 t.

The stock did not experience overfishing in 2020 nor 2021 and it was not considered overfished (or approaching overfishing) in 2021 or 2022.

Quantity	As estimated or <i>specified</i> last year for:		As estimated or <i>recommended</i> this year for:	
	2022	2023	2023*	2024*
<i>M</i> (natural mortality rate)	0.2	0.2	0.2	0.2
Tier	3a	3a	3a	3a
Projected total (3+) biomass (t)	608,631	612,001	606,522	606,080
Projected Female spawning biomass (t)	155,379	160,748	158,962	164,594
<i>B</i> _{100%}	203,658	203,658	203,658	203,658
<i>B</i> _{40%}	81,463	81,463	81,463	81,463
<i>B</i> _{35%}	71,280	71,280	71,280	71,280
<i>F</i> _{OFL}	0.46	0.46	0.46	0.46
<i>maxF</i> _{ABC}	0.37	0.37	0.37	0.37
<i>F</i> _{ABC}	0.37	0.37	0.37	0.37
OFL (t)	77,967	80,034	79,256	81,167
maxABC (t)	64,288	65,988	65,344	66,927
ABC (t)	64,288	65,988	65,344	66,927
Status	As determined last year for:		As determined this year for:	
	2020	2021	2021	2022
Overfishing	no	NA	no	NA
Overfished	NA	no	NA	no
Approaching Overfished	NA	no	NA	no

Figure 2. BSAI flathead sole summary of the stock assessment.
Source: Kapur 2022.

Therefore, the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point and it PASSES clause C1.2.

References

Kapur, M.S., 2022. Assessment of the Flathead Sole-Bering flounder Stock in the Bering Sea and Aleutian Islands. https://apps-afsc.fisheries.noaa.gov/Plan_Team/2022/BSAIfathead.pdf

Links

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