SCIENTIFIC COMMITTEE
TWENTY-SECOND REGULAR SESSION
11-19 August 2026
Apia, Samoa (Hybrid)

GROUP SEINE OPERATIONS OF PHILIPPINE FLAGGED VESSELS IN HIGH SEAS POCKET NUMBER 1 (HSP1)

WCPFC-SC22-2026-ST-IP08
14 July 2026

Submitted by

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ABSTRACT

This paper presents an analysis of the Philippine-flagged vessels engaged in group seine operations in High Seas Pocket Number 1, based on fisheries observer reports in 2025. The study encompasses the activities of twenty-seven (27) operational catcher vessels from January to December 2025. It details the catch, effort, and operational metrics, including catch-per-unit-effort (CPUE), species and size composition, number of sets, and fishing days. Additionally, it compares species catch rates at varying net depths, providing insights into the operational efficiency and ecological impact of the fleet.

I. Introduction

High Seas Pocket No. 1 (HSP1) was closed to purse seine fishing for two years starting January 1, 2010, due to the implementation of Conservation and Management Measure 2008-01 (CMM 2008-01) adopted by the Western and Central Pacific Fisheries Commission (WCPFC). This measure aimed to reduce the fishing mortality of bigeye and yellowfin tunas. HSP1 is bounded by the exclusive economic zones (EEZs) of the Federated States of Micronesia, the Republic of Palau, Indonesia, and Papua New Guinea.

In March 2012, during the 8th Regular Session, the WCPFC adopted CMM 2011-01 as a temporary extension of CMM 2008-01, allowing Philippine traditional fresh/ice-chilled seining vessels to operate as a group in HSP1 until February 2013. Subsequently, CMM 2012-01 provided measures for this fleet in the high seas until February 2014. This was followed by CMM 2013-01 (2014-2017), CMM 2017-01 (2018), CMM 2018-01 (2019-2021), CMM 2021-01 (2022-2024), and CMM 2023-01 (2024-2027). These measures included several conditions, such as a limit of 36 catcher fishing vessels, mandatory use of automatic location communicators (ALC), and the requirement to have regional observers onboard.

Consequently, Fisheries Administrative Order 245 (FAO 245, along with its amendments 245-1, 245-2, 245-3, and 245-4) was issued by the Department of Agriculture through the Bureau of Fisheries and Aquatic Resources (BFAR) to establish regulations and guidelines for the operations of 36 fishing vessels in HSP1. Additionally, Fisheries Administrative Order 240 (FAO 240) was adopted to implement the National Fisheries Observer Program (NFOP) covering high seas operations. Further, Fisheries Administrative Order 241 (FAO 241) was issued to strengthen VMS (Vessel Monitoring System) operations in the high seas.

This report is based on the observations and reports from observers, covering the catch of twenty-seven (27) vessels that conducted fishing in HSP1 in 2025. Most of the fleet opted to operate only for ten and half months (January-June; mid-August-December) in adherence to paragraph 13 of CMM 2023-01.

II. Methods

Catch Estimation

Observers' total catch estimates were derived using two methods. The primary procedure involved counting and estimating the capacity of brails as the fish catch was transferred from the bunt to the wells or fish holds of awaiting carriers. The secondary method was based on assessing the capacity and fullness of wells/fish holds. The catch rate was estimated as metric tons (mT) per fishing day, with typically only one set made per fishing day. Using the brail count/capacity method, the total catch was estimated as follows:

Volume (V) = π r 2 h
Brail capacity = Volume x 80%
Where:
π = 3.14
h= Brail height
r = Brail diameter (d)/2

The volume of fish catch was estimated at 80% of the volume of the brail to account for empty/water space. Using this method, a margin of error of +/- 2% was observed (Dela Cruz, 2010).

Catch Sampling

Spill sampling, using the sampling bin specified by the Secretariat of the Pacific Community (SPC) was employed as the sampling protocol. The bin has a capacity of around 300-500 kilograms, depending on the size and species of fish caught. Samples were sorted by species whenever possible and weighed to the nearest 0.1 kg. The lengths of all tunas and mackerel scad in the sample were measured to the nearest centimeter (fork length for tuna and large pelagic species, and total length for mackerel scad).

Large tunas, billfish, and other species that were separated as brails were emptied into the wells. These were weighed and measured separately.

Species identification

Species identification was conducted by observers using available identification guides. Special attention was given to the distinctive characteristics of small yellowfin and bigeye tunas.

Analysis

The data were analyzed using descriptive statistics and presented in tables and charts to illustrate the overall status of operations in High Seas Pocket No. 1 (HSP1). The analysis included species composition, fishing effort, catch per unit effort (CPUE), and length frequency distributions. Information on the number of days the vessels spent in HSP1 was derived from Vessel Monitoring System (VMS) data, which recorded the time and date of entry and exit from the area.

III. Results

Catch and fishing effort

The group seine fleets operating in HSP1 in 2025 consisted of twenty-seven purse seine catcher vessels. They operated for only ten and a half months (January-June; mid-August-December) in accordance with paragraph 13 of CMM 2023-01.

Overall, the 27 vessels spent a total of 7,183 days in HSP1, with 3,732 of those being actual fishing days, averaging about one fishing day for every two days spent in HSP1. Fisheries Administrative Order No. 245, which regulates Philippine group seine operations, set an annual catch limit not to exceed the equivalent of 9,846 fishing days for the 36 vessels, corresponding to 273 fishing days per vessel.

Out of the 3,732 fishing days, 3,560 sets were successful, resulting in an efficiency rate of 95%. Unsuccessful fishing days were attributed to damaged gear, machinery malfunctions, unfavorable sea conditions, and other factors, which resulted in no catch being retained in whole weight.

Table 1. Summary of catch and effort of Philippine group seine operation in HSP1, 2025

Month	No. of Catchers	Days @ HSP1	Fishing days	Set/HSP1 days	Total catch (t)	Catch rate (t/set)	Catch rate (t/ day)
JAN	18	574	272	2.28	2,880.44	10.6	5.0
FEB	21	589	261	1.92	2,748.02	10.5	4.7
MAR	22	690	358	2.32	4,411.96	12.3	6.4
APR	25	733	430	1.97	4,631.65	10.8	6.3
MAY	24	768	403	2.38	3,613.76	9.0	4.7
JUN	23	543	334	1.63	4,108.33	12.3	7.6
JUL	2	23	19	1.69	138.16	7.3	6.0
AUG	13	216	92	1.58	1,115.10	12.1	5.2
SEP	24	675	414	1.91	5,820.81	14.1	8.6
OCT	27	816	500	2.06	9,078.45	18.2	11.1
NOV	27	792	282	1.85	3,493.25	12.4	4.4
DEC	26	764	367	1.53	3,973.67	10.8	5.2
TOTAL		**7,183**	**3,732**	**1.94**	**46,013.60**	**12.3**	**6.4**

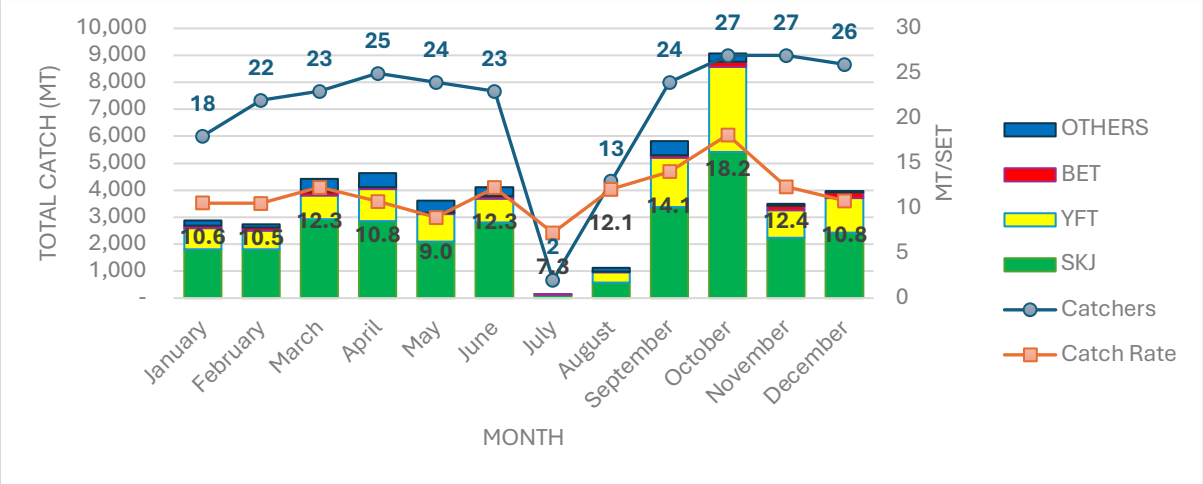

Figure 1. Catch and effort of Philippine group seine operations in HSP1, 2025

Catch and species composition

A total of 46,014 tons of fish was caught in HSP1 in 2025, resulting in a catch-per-unit effort of 12.3 tons per vessel per fishing day, or 6.4 tons per vessel per day. The majority of the catch consisted of skipjack (61.92%) and yellowfin (28.47%). Bigeye accounted for 2.76%, while the remaining 6.85% was made up of other species, including mackerel scad, kawakawa, frigate and bullet tuna, bigeye scad, rainbow runner, dolphinfish, and triggerfish (Table 2, Fig. 1).

Sharks and other species of special interest were also incidentally encircled during the operation, including 167 sharks, 121 dolphins, 1 sea turtle, and 5 Mobula species. These species were handled in accordance with the relevant Conservation and Management Measures (CMM-2022-04, CMM 2011-03, CMM 2018-04, and CMM 2019-05).

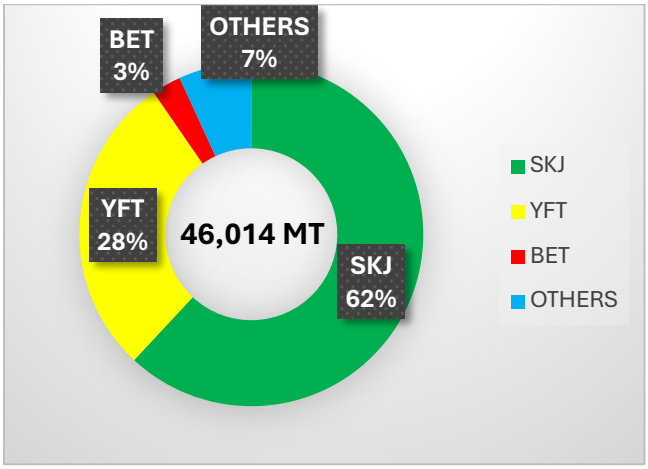

Figure 2. Catch composition of Philippine group seine in HSP1, 2025

Table 2. Catch of major species by month

Month	Skipjack tuna (MT)	Yellowfin tuna (MT)	Bigeye tuna (MT)	Others (MT)	Total (MT)
JAN	1,813.25	775.30	110.10	181.79	2,880.44
FEB	1,816.53	694.11	95.75	141.63	2,748.02
MAR	2,932.03	871.26	147.48	461.19	4,411.96
APR	2,857.53	1,188.72	76.35	509.06	4,631.65
MAY	2,098.21	1,025.74	49.13	440.67	3,613.76
JUN	2,801.05	895.20	82.82	329.26	4,108.33
JUL	133.66	2.16	2.34		138.16
AUG	584.28	363.30	37.46	130.06	1,115.10
SEP	3,367.67	1,834.50	102.08	516.56	5,820.81
OCT	5,412.90	3,160.32	180.12	325.11	9,078.45
NOV	2,249.17	1,014.34	167.59	62.14	3,493.25
DEC	2,426.18	1,277.30	218.06	52.12	3,973.67
TOTAL	28,492.48	13,102.24	1,269.29	3,149.59	46,013.60

Size composition

Table 3 presents the length frequency data for skipjack (SKJ), yellowfin (YFT), and bigeye (BET) tuna caught in HSP1. The average lengths observed were 35.95 cm for skipjack, 41.39 cm for yellowfin, and 49.26 cm for bigeye tuna. Modal peaks for these species were recorded at 30 cm (SKJ), 40 and 45 cm (YFT), and 37 and 40 cm (BET), respectively (Fig. 3, Table 3).

Table 3. Average length of SKJ, YFT, BET and MSD caught in HSP1

Species	Skipjack tuna	Yellowfin tuna	Bigeye tuna	Mackerel Scad (Others)
n	675,124	240,252	10,072	244,567
Ave (cm)	35.95	41.39	49.26	26.85
Min (cm)	12	15	15	10
Max (cm)	82	136	133	57
Mode(cm)	30	40,45	37,40	24

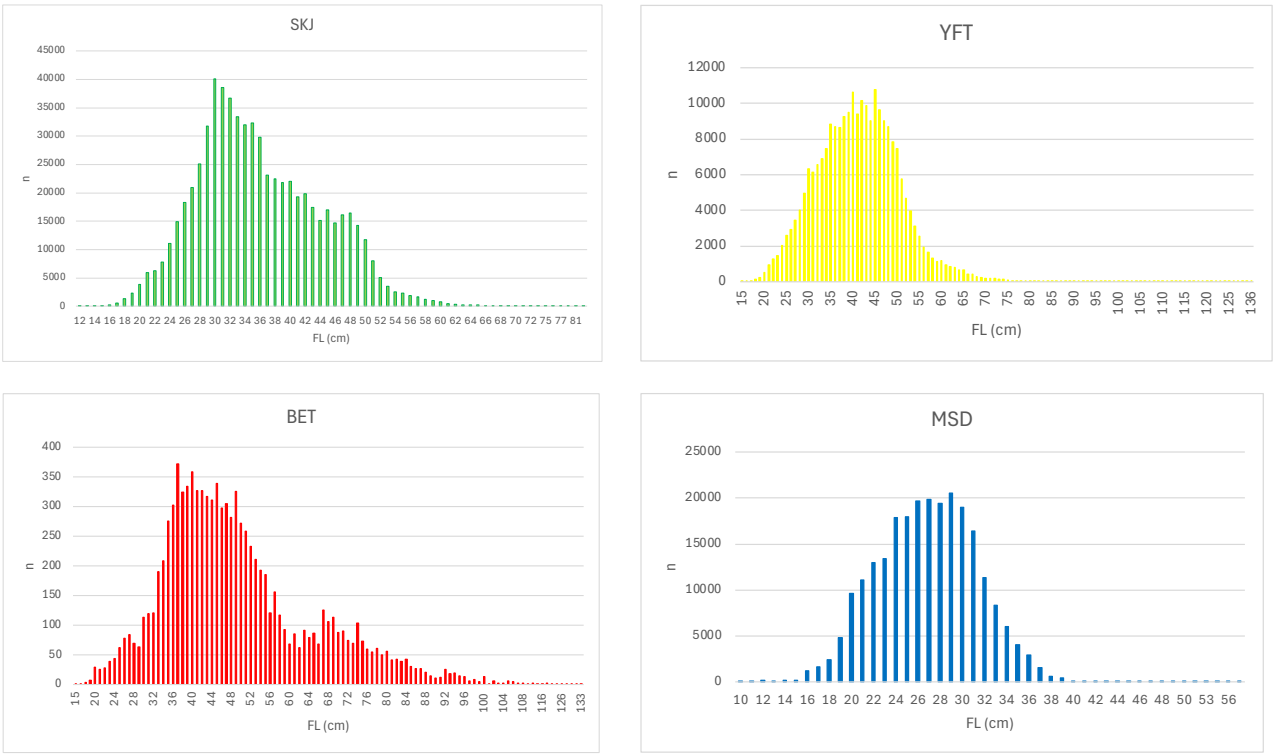

Figure 3. Size composition of SKJ, YFT, BET and MSD caught in HSP1

Seasonal trends in average length were evident across all four tracked species throughout the year. From February to April, all species exhibited a clear downward trend in average length before recovering slightly into May and June. Specifically, the smallest average sizes for both skipjack and yellowfin tuna were recorded in April, dropping below 31 cm and 35 cm, respectively. A notable spike in average size occurred across all species in July—where

skipjack reached roughly 52 cm and yellowfin reached 50 cm—a temporary anomaly attributed to sampling dynamics, as these catches were taken from a free school set which typically targets larger individuals.

Following the end of FAD Closure period, divergent trends emerged in the latter half of the year. After hitting its annual minimum in September at approximately 43 cm, bigeye tuna showed a strong, steady upward trend through the end of the year, reaching its peak average length of 56 cm in December. In contrast, skipjack and yellowfin tuna peaked later in October at approximately 43 cm and 48 cm, respectively, before trending downward through November and December. Meanwhile, mackerel scad consistently maintained the smallest average size, hovering between 23 cm and 28 cm, and exhibited a continuous decline from August through December.

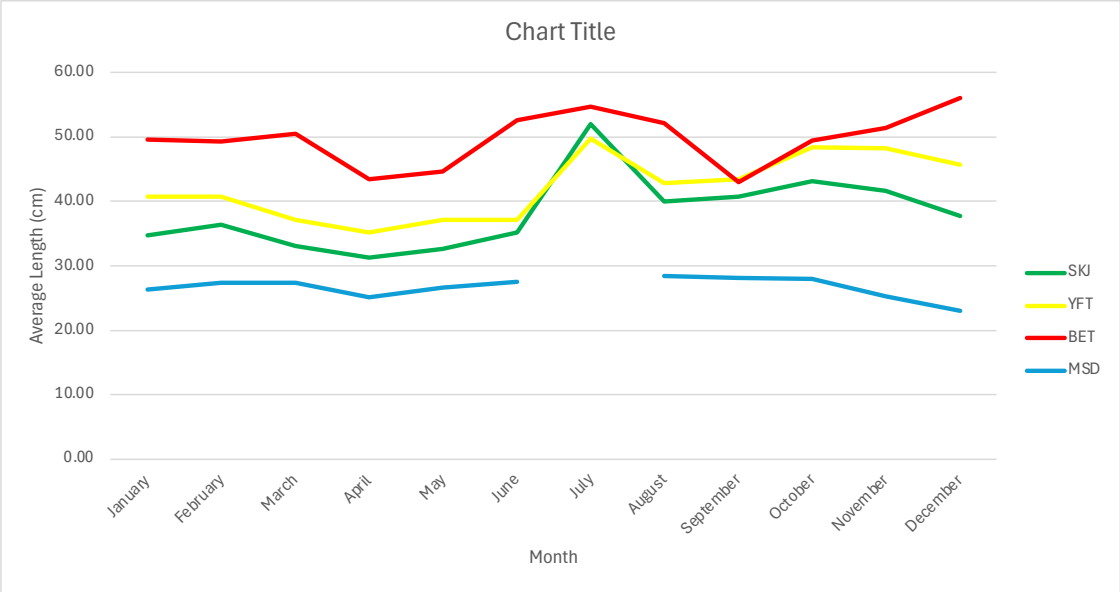

Figure 4. Average size of SKJ, YFT, BET and MSD caught in HSP1

A notable difference in size composition was observed when comparing fish caught in HSP1 with those caught within the Philippine EEZ in 2025 (Fig. 5, Table 4, Table 5). The three tuna species (skipjack, yellowfin, and bigeye) caught in the Philippine EEZ were comparatively smaller. Their modal lengths were 30 cm, 32 cm, and 27 cm, respectively, with corresponding average lengths of 33.13 cm, 35.55 cm, and 33.25 cm. This indicates that the tuna population in HSP1 consists of generally larger individuals compared to those found in the Philippine EEZ during the study period.

Table 4. Range and size of SKJ, YFT, BET and MSD caught in Philippine EEZ (2025)

Species	Skipjack tuna	Yellowfin tuna	Bigeye tuna	Mackerel Scad (Others)
n	50,439	22,673	460	49,504
Ave (cm)	33.13	35.55	33.25	27.05
Min (cm)	12	10	17	10
Max (cm)	72	128	65	40
Mode (cm	30	32	27	28

Table 5. Comparative Summary of HSP1 and Philippine EEZ Catch in 2025

Species	HSP1 Catch Composition(%)	PHIL EEZ Catch Composition(%)	HSP1 Average Size (cm)	PHIL EEZ Average Size (cm)
Skipjack tuna	61.92	35.83	35.95	27.98
Yellowfin tuna	28.47	24.67	41.39	28.85
Bigeye tuna	2.76	4.73	49.26	34.04
Others(MSD)	6.84	34.77	26.85	23.53

Catch variation by depth of net

An analysis was conducted to investigate the relationship between net depth and catch composition. The actual stretched depths of the purse seine nets, a mandatory measurement for fishing licenses in HSP1, ranged from 105 to 188 fathoms (Table 6). These depths were grouped into 20-fathom intervals for analysis: ≥161, 141-160, 121-140, and 101-120 fathoms.

Table 6. Number of observations by depth of net (class)

Depth of net (Class)	No. of sets
101-120	729
121-140	752
141-160	1,547
≥161	704
Grand Total	**3,732**

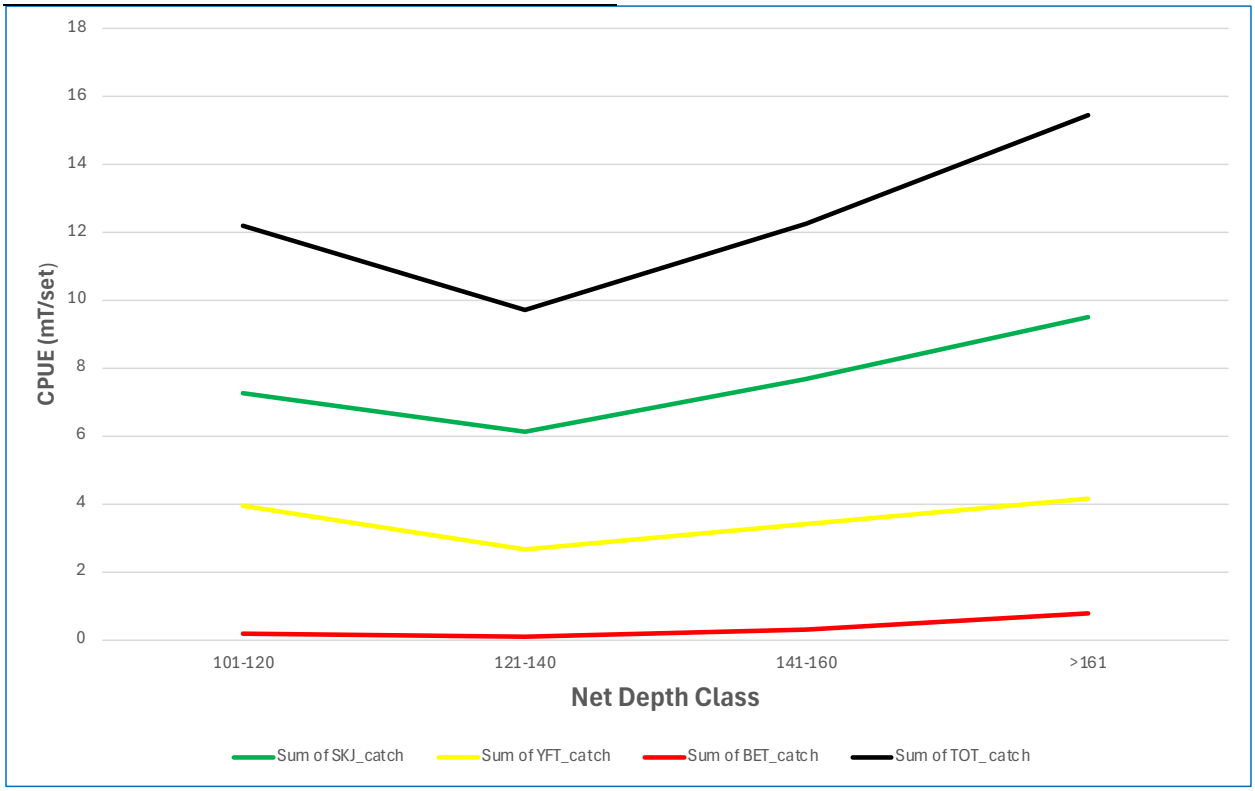

Figure 5. Average catch by species by net depth

Figure 5 illustrates the variation in Catch Per Unit Effort (CPUE, measured in mT/set) across different net depth classes for key tuna species. A clear, consistent trend emerges for all targert species: average catch increases notably with greater net depths, particularly from 140 fathoms and deeper. This upward trajectory indicates that deeper net configurations are significantly more effective at targeting these species within HSP1.

Table 7. BET catch reduction

Net depth range (fm)	Average catch (t/set)	% BET Decrease
≥161	0.790	
141-160	0.317	60%
121-140	0.106	66%
101-120	0.196	-84%

A closer examination of bigeye tuna (BET) catch highlights its pronounced sensitivity to net depth reductions (Table 7). Decreasing the net depth by approximately 20 fathoms consistently yields a substantial reduction in average bigeye catch: shifting from the deepest range (>161 fathoms) to the 141–160 fathom bracket results in a 60% reduction (from 0.790 to 0.317 t/set). Further reducing the depth to the 121–140 fathom bracket triggers an additional 66% drop (down to 0.106 t/set). This strong direct relationship emphasizes the operational potential for managing bigeye tuna populations through net-depth regulations—a critical insight given ongoing conservation concerns for this species.

However, a distinct inflection point occurs at the shallowest depth class. When net depth is reduced below 120 fathoms (into the 101–120 fathom range), the trend reverses: bigeye catch rebounds by 84% (increasing from 0.106 to 0.196 t/set). As shown in Figure 5, this U-shaped curve or shallow-water rebound is mirrored by the other associated tuna species (skipjack and yellowfin), suggesting a change in gear dynamics or species behavior closer to the surface.

IV. Summary / Recommendations

1. In 2025, the Philippine group seine fleet in HSP1 reported a total catch of 46,014 metric tons. Of this, 42,864 metric tons consisted of skipjack, yellowfin, and bigeye tuna, representing approximately 18% of the total production of these tuna species caught within the Philippine EEZ.

2. The fleet demonstrated an average catch-per-unit effort (CPUE) of 12.3 tons per vessel per fishing day, or 6.4 tons per vessel per day in HSP1.

3. Notably, the skipjack, yellowfin, and bigeye tuna caught in HSP1 were, on average, larger than those caught within the Philippine EEZ.

4. Analysis indicated that increasing net depth correlated with higher bigeye and skipjack tuna catches; conversely, a 20-fathom reduction in net depth significantly decreased bigeye tuna catch 60-66%). Therefore, evaluating net depth reduction as a management measure is recommended, as it could be a viable strategy to mitigate bigeye and yellowfin tuna catch in the purse seine fishery and support conservation efforts.

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