U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1845 Wasp Blvd. Bldg.176
Honolulu, Hawaii 96818
(808) 725-5000 • Fax (808) 725-5215

December 6, 2021

Kitty M. Simonds
Executive Director
Western Pacific Fishery Management Council
1164 Bishop St., Ste. 1400
Honolulu, HI 96813

Dear Ms. Simonds:

The Hawaii Longline Association (HLA) has applied for an experimental fishing permit (EFP) from the National Marine Fisheries Service (NMFS). HLA seeks to conduct a pilot test of tori lines (bird scaring streamers) in the Hawaii shallow-set longline fishery as a potential replacement for current requirements under 50 CFR 665.815 to set longline gear at least one hour after local sunset, and to use blue-dyed thawed bait and strategic offal discharge. The Council recommended this research at its March 2021 meeting. The intent of the EFP is a preliminary evaluation of potential replacement measures to discourage seabird interactions while providing operational flexibility for fishermen, and if effective in the pilot, additional studies of tori lines as a replacement for the other measures would follow.

Fishing under the EFP, if approved, would be part of normal fishing operations targeting swordfish, and catching other highly migratory species such as bigeye and yellowfin tuna, albacore, mahimahi, moonfish, and pomfrets. All other requirements would continue to apply. We expect that fishing under the EFP will have environmental effects on target and non-target fish, and non-seabird protected species that are similar to typical shallow-set fishing.

There have been no observed or reported interactions in Hawaii longline fisheries with short-tailed albatrosses since we began deploying observers in 1994. Most seabird interactions are with black-footed and Laysan albatrosses. Recent increased interactions with black-footed albatrosses in the deep-set fishery led to successful research indicating that tori lines may be more effective than current requirements to reduce seabird interactions. This EFP will test whether tori lines will offer similar mitigating effects in the shallow-set fishery. More details about anticipated target and non-target catch and seabird interactions during this proposed test are in Section 6 of the enclosed EFP application.

We have reviewed the application for compliance with the EFP regulations at 50 CFR 665.17 and have determined that it is complete. NMFS will publish a notice of the application and request for public comments in the *Federal Register*. Consistent with 50 CFR 665.17(e)(2), I intend to consult on the EFP application with the Council and the State of Hawaii at the Council's December 2021 meeting. I have enclosed a copy of the application; I would appreciate your sharing it with the Council.

If you have any questions or comments, please contact Lynn Rassel at 808-725-5184, or *lynn.rassel@noaa.gov*.

Sincerely,

Michael D. Tosatto
Regional Administrator

Enclosure: EFP Application

November 19, 2021

Michael Tosatto
Regional Administrator
National Marine Fisheries Service
Pacific Islands Regional Office
1845 Wasp Blvd., Bldg. 176
Honolulu, HI 96818

Dear Mr. Tosatto:

Please find enclosed an Experimental Fishing Permit (EFP) Application pursuant to regulations found at 50 CFR 665. 17.

The purpose of this experimental trial will be to conduct a pilot study in the Hawaii shallow-set longline fishery to allow for a preliminary evaluation of seabird bycatch risk during one hour before and one hour after local sunset ("sunset hours") when using double tori lines, compared to the existing night-setting operation.

This trial addresses the Western Pacific Regional Fishery Management Council's recommendation from the 185th meeting in March 2021 that called for additional research to develop appropriate seabird mitigation measures for the shallow-set fishery, with high priority placed on identifying combination of mitigation measures that maintain effectiveness of seabird deterrence during dusk compared to the existing night-setting suite of measures, to provide operational flexibility in starting the setting operations before sunset.

Providing greater flexibility for the start of setting time may help to optimize swordfish catch rates, promote more efficient fishing operations, maintain catch value, and enhance crew safety while preventing seabird interactions.

Please see the enclosed EFP application for more information. Mahalo for your consideration and we're hopeful for your timely approval.

Mahalo,

E. K. K

Eric K. Kingma, PhD
Executive Director

Cc. Kitty M. Simonds
Samuel D. Rauch III
Enclosure

Experimental Fishing Permit Application

Submitted under the
Western Pacific Experimental Fishing Permit Regulations (50 CFR 665.17)

(1) The date of the application: November 19, 2021

(2) The applicant's name, mailing address, and telephone number.

Eric Kingma
Executive Director
Hawaii Longline Association
1131 N. Nimitz Hwy.
Honolulu, HI 96816
808-389-2653

(3) A statement of the purposes and goals of the experiment for which an EFP is needed, including a general description of the arrangements for disposition of all species harvested under the EFP.

The purpose of this experimental trial will be to conduct a pilot study in the Hawaii shallow-set longline fishery to allow for a preliminary evaluation of bycatch risk during one hour before and one hour after local sunset ("sunset hours") when using double tori lines, compared to the existing night-setting operation.

This limited scale trial is an interim step to applying for an EFP to conduct a full-scale study in subsequent years to determine whether Hawaii shallow-set longline setting operations starting during sunset hours and using double tori lines may provide an effective alternative seabird mitigation measure compared to the existing measure that requires night setting, blue-dyed bait, and strategic offal discard. This trial addresses the Western Pacific Regional Fishery Management Council's recommendation from the 185th meeting in March 2021 that called for additional research to develop appropriate seabird mitigation measures for the shallow-set fishery, with high priority placed on identifying combination of mitigation measures that maintain effectiveness of seabird deterrence during dusk compared to the existing night-setting suite of measures, to provide operational flexibility in starting the setting operations before sunset.

The primary seabird mitigation measures required in the Hawaii shallow-set longline fishery are night setting in combination with blue-dyed bait and strategic offal discards. Night setting has been effective in reducing albatross mortality in the shallow-set fishery, although some mortality remains because night setting is known to be less effective on bright moon nights. While blue-dyed bait has been found to be significantly less effective than tori lines in the deep-set fishery, data are lacking on the extent to which blue-dyed bait adds to the effectiveness of night-setting in the shallow-set fishery, or whether alternative mitigation measures may replace blue-dyed bait to produce similar or improved interaction mitigation effects during setting operations in the shallow-set longline fishery.

Additionally, shallow-set fishery participants have expressed interest in exploring alternative combinations of seabird mitigation techniques that could allow for greater flexibility in the start of gear setting time to include the sunset hours. Swordfish depths are affected by their diel vertical migrations and lunar illumination. Swordfish ascend to shallower depths at night, whereas they descend to depths greater than 300m during the day.[1] The nocturnal depths are also affected by the lunar phase, with swordfish found at deeper depths during the full moon than during other lunar phases.[2] Hawaii shallow-set longline fishermen have historically set gear at night to target swordfish at shallower depths, and also adjusted their operations to start setting earlier according to the lunar phase to increase efficiency and optimize catch.[3] The existing night setting requirement implemented in 2004 require fishermen to start setting at least one hour after sunset, which has reduced the operational flexibility to adjust their setting time according to optimal swordfish depth associated with the lunar cycle. The night setting requirement also affects the time available between the setting and hauling operations, during which crew would rest and eat. If the hauling begins too late, the value of the vessel's catch may also be compromised from the floating swordfish caught on the line, and also affects the next day's operational schedule. Therefore, fishermen may compensate for the reduced time available between the end of set and begin of haul by reducing their rest time, which may impact crew safety, or deploying gear at higher vessel speeds, which may lead to greater fuel consumption. Thus, providing greater flexibility for the start of setting time may help to optimize swordfish catch rates, fishing operations, and catch value.

Tori lines may provide a practical alternative for updating the shallow-set longline fishery mitigation measures by further reducing bycatch risk during the night-time setting hours, while allowing for operational flexibility for fishermen to start setting gear up to 2 hours earlier than currently required. However, the tori line design developed for the deep-set longline fishery cannot be directly applied to the shallow-set fishery, as shallow-set vessels use different gear configuration that would require a greater distance astern to be covered by the tori line. Further reducing the potential for entanglements is particularly important for the shallow-set fishery, as the majority of the setting operation would continue to be done after sunset when visibility is low, even if earlier setting time is allowed in the future.

In advance of the field trials to be conducted under the EFP, HLA will work with fishery participants to redesign the tori line for shallow-set use. Leveraging the successful tori line design developed through an earlier project for the deep-set longline fishery (Gilman et al. 2021)[4], the short-streamer type tori line will be adjusted to cover greater aerial extent. Based on

[1] Dewar, H., Prince, E. D., Musyl, M. K., Brill, R. W., Sepulveda, C., Luo, J., ... & McNaughton, L. M. (2011). Movements and behaviors of swordfish in the Atlantic and Pacific Oceans examined using pop-up satellite archival tags. Fisheries Oceanography, 20(3), 219-241.

[2] Loefer, J. L., Sedberry, G. R., & McGovern, J. C. (2007). Nocturnal depth distribution of western North Atlantic swordfish (*Xiphias gladius*, Linnaeus, 1758) in relation to lunar illumination.

[3] McNamara, B., Torre, L., Kaaialii, G. 1999. Hawaii Longline Seabird Mortality Mitigation Project. Western Pacific Regional Fishery Management Council, Honolulu.

[4] Gilman, E., Naholowaa, H.A., Ishizaki, A., Chaloupka, M., Brady, C., Carnes, M., Ellgen, S., Wang, J., Kingma, E. 2021. Practicality and Efficacy of Tori Lines to Mitigate Albatross Interactions in the Hawaii Deep-set Longline Fishery. Western Pacific Regional Fishery Management Council. Honolulu, Hawaii, 48pp. Available online at: https://www.wpcouncil.org/wp-content/uploads/2021/02/Hawaii-DSLL-Tori-Line-Cooperative-Research-Report_January2021_FINAL-C.pdf

available information, the aerial extent needed for the shallow-set fishery is expected to be about 65-75m. The drag section of the tori line may need to use a thicker or longer rope to maintain the longer aerial section above water, and the same land-based aerial section and in-water drag section weight testing approach described in Gilman et al. (2021) will be used to determine the appropriate length for the shallow-set longline fishery. The completed tori line will undergo initial in-water tests without fishing gear deployment to ensure the design provides consistent aerial coverage when towed behind the vessel at setting speed. HLA will provide the final tori line design to PIRO for review prior to conducting field trials during commercial fishing operations.

During the field trials, double tori lines (two tori lines deployed on both sides of the vessel) will be used as the primary mitigation measure during the sunset hour on treatment sets (additional details on the control and treatment sets are described below).

An EFP is needed to exempt a Hawaii shallow-set longline vessel from the existing requirements to night set, as well as to use blue-dyed bait and strategic discard offal during the set. Specifically, HLA seeks an exemption from 50 CFR 665(a)(2)(i)-(iv), (vi-vii), and 50 CFR 665(a)(4). An excerpt of the applicable regulations is shown below, with underlined sections indicating the specific exemptions sought.

50 CFR 665.815(a)

(2) Alternative to side-setting. Owners and operators of vessels that do not side-set must do the following:

(i) Discharge fish, fish parts (offal), or spent bait while <u>setting or</u> hauling longline gear, on the opposite side of the vessel from where the longline gear is being <u>set or</u> hauled, when seabirds are present;

(ii) Retain sufficient quantities of fish, fish parts, or spent bait <u>between the setting of longline gear</u> for the purpose of strategically discharging it in accordance with paragraph (a)(2)(i) of this section;

(iii) Remove all hooks from fish, fish parts, or spent bait prior to its discharge in accordance with paragraph (a)(2)(i) of this section;

(iv) Remove the bill and liver of any swordfish that is caught, sever its head from the trunk and cut it in half vertically and periodically discharge the butchered heads and livers in accordance with paragraph (a)(2)(i) of this section;

(v) When using basket-style longline gear north of 23° N. lat., ensure that the main longline is deployed slack to maximize its sink rate;

<u>(vi) Use completely thawed bait that has been dyed blue to an intensity level specified by a color quality control card issued by NMFS;</u>

<u>(vii) Maintain a minimum of two cans (each sold as 0.45 kg or 1 lb size) containing blue dye on board the vessel; and</u>

(viii) Follow the requirements in paragraphs (a)(3) and (a)(4) of this section, as applicable.

(4) <u>Shallow-setting requirement. In addition to the requirements set forth in paragraphs (a)(1) and (a)(2) of this section, owners and operators of vessels engaged in shallow-setting that do not side-set must begin the deployment of longline gear at least 1 hour after local sunset and</u>

complete the deployment no later than local sunrise, using only the minimum vessel lights to conform with navigation rules and best safety practices.

The trial will be conducted during the swordfish fishing season (November-June) with one Hawaii shallow-set longline vessel fishing at any given time. The vessel will alternate sets with night setting and blue-dyed bait (control), and the use of double tori lines while starting the set up to 2 hours before the current night setting requirement (treatment) (Table 1). The start time of setting operations in treatment sets will be standardized during the trial as part of the final protocol to be agreed upon with the participating vessel, but all treatment sets will commence no earlier than 2 hours before the current night setting requirement. No offal will be discarded during setting operations to reduce confounding factors, based on a prior experiment conducted in the Hawaii deep-set longline fishery.[5] Both control and treatment sets will continue to meet the WCPFC and IATTC seabird measures.

Table 1. Comparison of the Control and Treatment Sets.

	Set Type	
Seabird Mitigation Measure	**Control**	**Treatment**
Bait type	Blue-dyed bait	Untreated bait
Night-setting	Yes	Start setting operations up to 2 hours before current requirement
Strategic offal discharge	No discharge during setting operations	No discharge during setting operations
Alternative measures	None	Double tori line

The study will target no more than 4 trips total with one shallow-set vessel actively fishing under the EFP at any given time. The total target trips will be a minimum of 20 sets each of control and treatment sets of 40 sets total, but no more than 40 sets each, for a total of 80 sets, would be deployed under the EFP. All catch may be retained and sold.

Data on seabird attempts and contacts as well as number of birds present will be collected using Electronic Monitoring (EM) systems and human observers. The EM system will use a stern-mounted video camera recording the full setting operation. NMFS maintains 100% observer coverage on shallow-set longline trips, and additional data collection protocol for the sunset hours will be coordinated with the observer program.

EM personnel will review the video data following the return of the participating vessels. Seabird capture data will be verified through observer data. Due to the logistics of shallow set fishing, we will also investigate if EM is capable of providing similar quality data to observers during night time setting before continuing to use EM for 100% of data collection in a broader study. By comparing the data captured from an onboard observer to data collected concurrently by an EM system, we will be able to evaluate the ability of the technology. If the technology is

[5] Gilman, E., Chaloupka, M., Ishizaki, A., Carnes, M., Naholowaa, H., Brady, C., Ellgen, S. and Kingma, E. 2021. Tori lines mitigate seabird bycatch in a pelagic longline fishery. Reviews in Fish Biology and Fisheries, pp.1-14.

effective, we will also be able to begin to accurately calibrate what biases each data collection procedure may present so future data collected by EM can be compared to observer program data. Data collected during the EFP study will be analyzed by a statistician to evaluate the efficacy of the control and treatment sets.

We will mitigate the potential risk to sea birds for this project by partnering with the observer program to monitor for the ESA-listed short-tailed albatross. If a short-tailed albatross is sighted during the sunset hours when the treatment set is in progress, the participating vessel will pause the setting until one hour after sunset, and resume setting after that time. There have been no observed short-tailed albatross interactions in the Hawaii longline fishery since 1994, but they are occasionally sighted by observers on shallow-set trips.

(4) A statement of whether the proposed experimental fishing has broader significance than the applicant's individual goals.

Results of the EFP study will be presented to the Council and will inform whether additional research to consider alternative seabird mitigation measures to the current night setting requirement may be warranted, and inform the Council's future management decision for including tori lines in the Hawaii shallow-set longline fishery's required suite of seabird mitigation measures. The results are anticipated to benefit the entire shallow-set longline fishing fleet. The Council is currently considering management modification for the Hawaii deep-set longline fishery, for which tori line trials were conducted in 2019-2021. The Council recommended additional research and development of alternative measures prior to considering modifications to the shallow-set longline fishery. Therefore, this EFP study is an initial step for considering updates to the shallow-set longline fishery management measures.

Shallow-set vessels have the option to either use 1) night-setting and blue-dyed bait, or 2) side-setting with bird curtain and weighted branch lines, although the latter option is considered to be an impractical measure that does not work well for the operational characteristics of the shallow-set fishery. As such, shallow-set vessels currently have no flexibility with seabird mitigation measures and must use night-setting. Finding alternative combinations of mitigation measures that would allow shallow-set vessels to adjust their setting time while maintaining the bycatch mitigation effectiveness would provide the incentive to fishermen to use mitigation measures that work best for their operational preference, which in turn would improve the compliance with the mitigation measures.

(5) Vessel to be covered by the EFP:

One vessel will actively fish under the EFP at any given time. Most Hawaii-based longline vessels that shallow-set determine whether to switch to shallow-setting once the swordfish season starts in December. As such, we are including three candidate vessels to be covered under the EFP.

Vessel #1: Golden Dragon	
Name, address, and telephone number of owner	Owner: A & M FISHING COMPANY, INC. Operator: Bihn Lu

and operator	98-199 KAMEHAMEHA HWY STE B5, AIEA, HI 96701, 808-843-2229, 808-551-7918
USCG documentation, state license, or registration number	Reg#:1120346
Home port	Honolulu
Length of vessel	88.0 ft
Net tonnage/Gross tonnage	27 Net ton / 127 Gross ton
Vessel #2: Rainbows	
Name, address, and telephone number of owner and operator	Owner: HONOLULU RAINBOWS, INC Operator: Tim Nguyen 901 RIVER ST APT 612, HONO., HI 96817-5322, 808-799-9719
USCG documentation, state license, or registration number	Reg # 511130
Home port	Honolulu
Length of vessel	69ft
Net tonnage/Gross tonnage	11 Net ton/71 Gross ton
Vessel #3: Sea Falcon	
Name, address, and telephone number of owner and operator	Owner: Sea Falcon LLC Operator: Dave Lewis 350 WARD AVE # 403, HONO., HI 96814-4010, 808-561-3900
USCG documentation, state license, or registration number	Reg#: 649608
Home port	Honolulu
Length of vessel	84 ft
Net tonnage/Gross tonnage	14 Net Ton/ 92 Gross Ton

(6) A description of the species (directed and incidental) to be harvested under the EFP and the amount of such harvest necessary to conduct the experiment.

With the exception of the seabird mitigation measures that will be modified for the trial, vessels participating in the EFP will carry out fishing operations consistent with conventional shallow-set longline fishing targeting swordfish. The fishery also harvests and retains other highly migratory species including bigeye tuna, yellowfin tuna, albacore, mahi mahi, moonfish and pomfrets.[6] Catch rates of target and non-target fish species are not likely to be affected by having an exemption to the blue-dyed bait in the study, as blue-dyed bait compared to untreated bait have been shown to have no significant effects on target and non-target fish and shark catch rates.[7] Similarly, bait color does not affect sea turtle capture rates.[8] Earlier setting time on the

[6] WPRFMC, 2021. Annual Stock Assessment and Fishery Evaluation Report Pacific Island Pelagic Fishery Ecosystem Plan 2020. Remington, T., Fitchett, M., Ishizaki, A., DeMello, J.(Eds.) Western Pacific Regional Fishery Management Council. Honolulu, Hawaii 96813 USA. 410 pp. + Appendices.

[7] Yokota, K., Kiyota, M. and Okamura, H., 2009. Effect of bait species and color on sea turtle bycatch and fish catch in a pelagic longline fishery. Fisheries Research, 97(1-2), pp.53-58.

treatment sets may optimize swordfish catch rates during certain times of the lunar phase, but this effect is likely to be moderated by having a consistent setting time throughout the study period, rather than adjusting it in accordance with the lunar cycle. Additionally, swordfish catch rates are not likely to be affected on control sets, which represent half of the effort under the EFP. Therefore, fishing under the EFP is expected to have environmental impacts to target, non-target and non-seabird protected species similar to normal commercial fishing operations using shallow-set longline gear.

As described in section 7 below, vessels fishing under the EFP will target 46,520 hooks over 40 sets in 2022 and 2023 as part of the study, but no more than 93,040 hooks over 80 sets. Participating vessels are commercial vessels that normally fish under the Hawaii longline limited entry permit year-round, and their participation in the study does not result in an increase in fishing effort. In 2016-2020, the Hawaii shallow-set longline fishery deployed an average of 682,089 hooks.[9] The EFP fishing effort is, therefore, expected to represent approximately 7% of the total shallow-set longline effort in 2022 or 2023.

The number of common target, non-target and non-seabird protected species expected to be caught under the EFP, based on the most recent 5 year (2016-2020) average nominal catch-per-unit-effort (CPUE) and the average number of hooks per set that 5 year period (1,163 hooks per set), are shown in Table 2 below. These numbers represent approximate estimates based on historical averages.

Table 2. Approximate estimate of the number of common target and non-target fish, and non-seabird protected species interactions anticipated under the EFP. Less commonly recorded species are not included in this table, but may be captured and retained, if allowed under applicable regulations and the EFP.

	2016-2020 Shallow-set fishery average		Estimated number of fish or protected species under the EFP[2]	
Species	Number of fish caught	CPUE (fish or interactions per 1,000 hooks)	40 sets (minimum target)	80 sets (maximum effort)
Bigeye tuna	1,142	1.82	85	170
Yellowfin tuna	690	1.00	46	93
Albacore tuna	184	0.28	13	26
Swordfish	7,550	10.64	495	990
Blue marlin	36	0.04	2	4
Striped marlin	169	0.20	9	18
Spearfish	82	0.10	5	10
Blue marlin	699	0.96	45	89
Mahi mahi	31	0.04	2	4

[8] Swimmer, Y., Arauz, R., Higgins, B., McNaughton, L., McCracken, M., Ballestero, J. and Brill, R., 2005. Food color and marine turtle feeding behavior: Can blue bait reduce turtle bycatch in commercial fisheries? Marine Ecology Progress Series, 295, pp.273-278.
Also see Yokota et al. (2009). See footnote 5 for full citation.

[9] WPRFMC (2021). See footnote 2 for full citation.

Ono	239	0.33	15	30
Moonfish	20	0.03	1	3
Pomfrets	7,134	9.98	464	929
PMUS sharks[1]	1,142	1.82	85	170
Loggerhead turtle	21	0.037	2	3
Leatherback turtle	3	0.005	0	0
Oceanic whitetip shark	15	0.018	1	2

[1] PMUS (pelagic management unit species) sharks include blue, mako, thresher, oceanic whitetip and silky sharks. Most blue, mako and thresher sharks are released; all oceanic whitetip and silky sharks are released.

[2] Calculated based on the average number of hooks per set in 2016-2020 (1,163 per set based on observed effort) and the 5-year average CPUE.

Data source: 2020 Pelagic FEP Annual SAFE Report

Most of the seabird interactions observed in the Hawaii longline fishery are with black-footed and Laysan albatrosses. Interaction rates for both species are higher in the first and second quarters (January through June) due to greater overlap between the albatross and fishing effort distribution, with over 95% of the interactions observed in the first two quarters. Fishing under the EFP will be conducted in the first two quarters of 2022 or 2023. To account for the seasonality in interaction rates, anticipated levels of black-footed and Laysan albatross interactions (captures) based on the annual and quarter 1–2 average CPUEs are presented in Table 3. These rates were calculated based on data for 2013-2017, which is the most recent five year period in which the shallow-set fishery operated year-round. In 2018-2019, the fishery closed early due to sea turtle interactions, and in 2020, fishing effort after March was limited due to the COVID-19 pandemic. The estimates based on quarter 1–2 are likely to be more representative of the proposed EFP study period, and thus approximately 4 black-footed albatross and 3 Laysan albatross captures are expected for 80 sets of effort under the EFP. These anticipated numbers may be underestimated if most of the field trials are conducted during peak interaction months in March and April. While unlikely due to the limited effort under the EFP, interactions with other seabird species such as sooty shearwaters and northern fulmar may be possible. There have been no observed interactions with short-tailed albatrosses by the Hawaii longline fishery since federal observers started monitoring the fishery in 1994.

Data are not available to estimate the seabird interaction rates for the treatment sets deployed under the EFP (alternative mitigation measures with untreated bait deployed starting 1-2 hours before sunset) compared to the control sets, and it is the focus of this EFP study to determine whether alternative mitigation measures may help maintain a low interaction risk if setting operations are initiated earlier than currently required under the night setting measure. In a controlled experiment conducted in the deep-set fishery, tori lines were found to reduce albatross contact with bait by 4 times compared to blue-dyed bait,[10] and thus tori line as the alternative mitigation measure under this EFP is expected to reduce interaction risk during daylight hours.

[10] Chaloupka, M., Gilman, E., Carnes, M., Ishizaki, A., Brady, C., Swimmer, Y., Wang, J., Ellgen, S., Kingma, E. 2021. Could tori lines replace blue-dyed bait to reduce seabird bycatch risk in the Hawaii deep-set longline fishery? Western Pacific Regional Fishery Management Council. Honolulu, Hawaii. Available online at: https://www.wpcouncil.org/wp-content/uploads/2021/09/Tori-Line-2021-Study-Report_Final.pdf

The EFP also seeks an exemption from the strategic offal discharge requirement during setting operations, which is likely to have minimal effects on seabird interaction rates. Current regulations for strategic offal discharge do not specify the amount or frequency of offal discharge, thus a small amount of offal or bait discarded during setting would meet the requirement and it is likely that this measure is being applied inconsistently across the fleet. In the cooperative research study conducted in the Hawaii deep-set longline fishery, inconsistent use of strategic offal discharge during setting created a confounding factor in the analysis. No offal discharge during setting operations is consistent with one of two options for managing offal discharge under the WCPFC and IATTC measures.

Table 3. Approximate estimate of the number of black-footed and Laysan albatross interactions (captures) anticipated under the EFP. Estimates based on the 5-year averages of the annual CPUE and quarters 1–2 (January to June) CPUE based on 2013-2017 data are shown. Estimates based on quarters 1–2 are more likely to be representative of the proposed EFP fishing period.

	2013-2017 Shallow-set fishery average[1]		Estimated number of fish or protected species under the EFP[2]	
Species	**Number of albatrosses caught**	**CPUE (fish or interactions per 1,000 hooks)**	**40 sets (minimum target)**	**80 sets (maximum effort)**
Annual				
Black-footed albatross	39	0.0355	2	3
Laysan albatross	31	0.0277	1	3
Q1–Q2				
Black-footed albatross	38	0.0428	2	4
Laysan albatross	30	0.0329	2	3

[1] 5-year annual average number of captures calculated based on the annual estimated total interactions for 2013-2017, which is the most recent 5-year period in which the fishery operated year-round.
[2] Calculated based on the average number of hooks per set in 2016-2020 (1,163 per set based on observed effort) and the 5-year average CPUE.
Data source: 2020 Pelagic FEP Annual SAFE Report (for annual data); Pacific Islands Regional Observer Program Longline Quarterly Reports (for quarterly data)

(7) For each vessel covered by the EFP, the approximate times and places fishing will take place, and the type, size, and amount of gear to be used.

The trial will be conducted with one Hawaii shallow-set longline vessel fishing at any given time. The vessel is expected to fish between February and June during the months with higher seabird encounter rates to allow collection of sufficient amounts of data for statistical analysis. Fishing is expected to take place where vessels normally fish between February and June; during that period, SSLL vessels typically fish in areas where their effort overlaps with albatross distributions. The SSLL fishery operates north of Hawaii in an area between 180°- 125° W and 17°- 45° N. The trial may be conducted in 2022 if funding becomes available in January 2022. If funding does not become available until a later time, initial tori line design tests may be conducted before June 2022, with the main trial to be conducted February-June 2023. ***We***

therefore request an 18 month EFP to allow flexibility in conducting trials in either 2022 or 2023.

With the exception of seabird mitigation measure modifications described in this application, the vessel will use conventional shallow-set longline gear and in compliance with all applicable regulations.

The study will target a minimum of 40 sets, but no more than 80 sets (of which half will be control sets that follow existing seabird mitigation requirements, and the remaining using an alternative set of measures) under commercial fishing operations throughout the duration of the study. On average, vessels deployed 14 sets per trip in years 2016-2020, thus approximately 3 trips are anticipated under the EFP to achieve the minimum target of 40 sets. Based on the observed effort reported in the 2020 SAFE Report, shallow-set longline vessels deployed on average 1,163 hooks per set in years 2016-2020, and thus approximately 46,520 hooks are anticipated to be deployed to achieve the minimum number of 40 sets, but no more than 93,040 hooks over 80 sets.

(8) The signature of the applicant.

Signed: Eric Kingma, HLA