

DRAFT-Exempted Fishery Permit Application

Multi-Species-Extended Link Buoy Gear (XLBG) EFP

Date of application: 10/15/2025

1. Applicant: PIER; Pflieger Institute of Environmental Research, 315 S. Harbor Drive, Oceanside CA 92054 EFP Lead: Chugey A. Sepulveda, PhD, chugey@pier.org; 760-721-1404

2. All necessary vessel and captain information will be provided upon request. All vessels are currently listed in the PIER XLBG EFP as potential EFP candidates.

Fishing Plan and Methodology

Background: The proposed EFP request is to perform simultaneous deep and shallow set experimentation to target the highly migratory species complex that seasonally resides within the CA EEZ. The immediate goal would be to modify XLBG based on the 2025 EFP findings to improve the targeting of Pacific Bluefin Tuna. On all sets the EFP will incorporate heavy weights, the use of a line setter and strike indication to increase sink rate and mitigate surface-based interactions with sensitive non-target species (i.e., sea turtles and birds). This experiment requests flexibility on hook depth, set time and bait type. All data will be used to assess gear performance relative to both target and non-target catch (described below).

3. Time/Season restrictions: No Change to XLBG EFP/ No day or night or seasonal limitations/restrictions.

The time of day: We are requesting the flexibility to set hooks at depths that correspond to the depth distribution of the target species. This will include deep-sets during the day for swordfish as well as sets above 100 meters both during the day and at night for PBF. The practice of night setting has been used as a seabird mitigation measure for U.S. fisheries targeting swordfish outside of the EEZ. The use of heavy weights and a line shooter mitigate surface-based interactions with sea birds and other surface-based non-target species. For this reason we are requesting no day or night restrictions in this EFP.

Rationale for daytime setting: In this EFP the vessels are small and carry limited crew. Setting during the day is much safer than setting at night and the optimal set times for PBF in the 2025 XLBG EFP encompassed the hours around sunrise and sunset. Lastly, the basis for the daytime restriction (i.e., bird interactions) is mitigated by using less gear ($\leq 10\text{nm}$), heavy weights and a line setter.

4. Location: No Change to ongoing XLBG EFP- Same exact locations described in the 2025 XLBG EFP.

Fishing area description from XLBG EFP: EFP fishing is prohibited in waters off the State of Washington (north of the Washington/Oregon border at 46° 15' N latitude). In the first year of permit issuance, EFP fishing is prohibited in waters off the State of Oregon (north of the Oregon/California border at 42° N latitude and south of the Washington/Oregon border at 46° 15' N latitude). No-Fishing Zone: No fishing shall occur shore-side within 30 nm of the mainland shore when south of Point Conception and no fishing shore-side of the generalized 400 m depth contour when north of Point Conception.

5. What type, size, and amount of fishing gear to be used? (i.e., hooks per set, mainline length and diameter).

The proposed EFP submission is based on the lessons learned from active XLBG EFP fishing in 2025 and the need to tailor gear to better target Pacific bluefin tuna (PBF), a species with a domestic quota that is not currently being met by our local fleet. To ensure that fishermen have the ability to adapt to changing environmental conditions and also target more than one species throughout the fishing season, this work is requesting additional flexibility in the number of hooks deployed, bait type used and the depths fished (described below).

In this EFP we are requesting the ability to simultaneously compare sets for PBF that occur above and below the thermocline. This experiment will provide data on relative gear performance by comparing deep and shallow sets that occur at the same location and on the same day. These data will be used to advise and optimize gear configurations for targeting both swordfish and PBF off the US West Coast. This experiment will also offer data on non-target catch rates and address whether subtle changes in depth impact species composition.

General configuration: Multi-species XLBG will use the same general design as the XLBG EFP. Gear will be small scale longline type with a horizontal footprint of less than 10nm. Mainline diameter to be 3.0-3.2mm. Heavy weights (≥ 4 lbs) and a line setter are used to increase sink rate and reduce surface-based fishery interactions on all sets regardless of depth. Although a maximum 10nm footprint is requested, based on the 2025 XLBG deployments, we anticipate actual set distances will be from 5-7nm based on vessel size, buoy numbers and crew constraints.

Hook count: The current XLBG EFP is permitted to use 100 hooks that span up to 10nm. We are requesting an increase to up to 400 total hooks/set.

Rationale: This request is based on the 2025 XLBG EFP deployments targeting PBF that have used a spacing regime that positions ~90 hooks over ~3.5 nautical mile footprint. To increase profitability and ensure economic viability of the proposed EFP operations we are requesting to increase the maximum hook while remaining within the small scale category (i.e., up to 400/set). From the 2025 XLBG deployments we anticipate actual hook deployment numbers to be around 200/set. This estimate is

based on bait cost, workload associated with the deployments and constraints associated with the small crew size of the EFP vessels.

Depths to be fished: Increased flexibility is requested to include the simultaneous testing of both shallow and deep-setting in the same EFP. Minimum hook depth would vary based on the depth of the thermocline, with suspender lengths maintained at $\geq 20\text{m}$. Target hook depths will approximate the depth of the thermocline or 12°C isotherm, which in 2025 ranged from 40-60m.

Rationale: We are requesting flexibility in the depth range to be fished based on (1) Lessons learned and the low PBF catch rates in the 2025 XLBG EFP, (2) The need to improve targeting of PBF, (3) The depth distribution of PBF off southern California (Boustany et al., 2007; Sepulveda et al., 2020) and (4) Thermocline depth and the variable environmental conditions characteristic of the US West Coast (Palacios et al., 2005).

This request is intended to allow for the targeting of both PBF and swordfish during the same fishing season. Increasing target diversity is necessary given seasonal changes in abundance and availability of Southern California HMS. Further, bluefin tuna have been shown to exhibit a relatively shallow day and night depth distribution with tagged fish spending most of the day and night at or above the thermocline (Marcinek et al., 2001; Tagawa et al., 2007; Domeier et al., 2004; Sepulveda et al., 2020). This distribution is largely influenced by prey depth and the strong and relatively shallow thermocline off California (Palacios et al., 2004). In 2025, observations during the XLBG EFP noted that PBF distribution was largely distributed along the thermocline (evidenced by daily depth and temperature recordings). This depth distribution was largely above the depth of the hooks deployed during the 2025 XLBG EFP.

The use of heavy weights ($\geq 4\text{lb}$) on all sets (shallow and deep) will increase gear sink rate, keep gear at target depth and reduce surface-based fishery interactions. These mitigation features are unique to this EFP and provide additional measures to reduce surface-based fishery interactions such as those with sea turtles and birds.

Description of Bycatch Mitigation Tools: In conjunction with this flexibility we will incorporate several bycatch mitigation features that will reduce the potential impact that any of the proposed changes may have on non-target catch. These mitigation tools will be used on all sets regardless of depth or target.

a) Line setter: A line setter/shooter is used to increase gear sink rate and expedite the rate at which gear hits the desired target depth. For shallower operations, a line setter results in reduced surface hook time which reduces the potential overlap hooks have with sea turtles, birds and marine mammals. Additionally, the use of a line shooter aids in bird avoidance by reducing surface time of deployed baits.

- b) Heavy weighted system: The proposed EFP will use heavy weights ($\geq 4\text{lb}$) on the mainline at each vertical suspender to reduce gear surface time and increase gear sink rate relative to offshore longline operations.
- c) Strike detection: Similar to deep-set buoy gear, the presence of a strike indication system allows for a vessel to selectively service the line and remove catch at any time.
- d) Suspender minima: The proposed EFP will employ $\geq 20\text{m}$ suspenders to drop baits down below the surface. This drop down will be maintained taught by the heavy weighted system which will allow the gear to target the thermocline and also reduce surface time compared to traditional offshore longline operations. This system will help mitigate surface species interactions (i.e., birds and sea turtles).

6. How many EFP fishing days are anticipated per vessel per year?

The proposed EFP is requesting a maximum of 60 fishing days/vessel/year or a maximum of 300 possible sets in the 2026 fishing season.

Proposed Regulatory Exemptions and Goals

(7) What is the purpose and justification for seeking an EFP?

The goal of this work is to expand sustainable domestic production and fishing opportunity off the US West Coast while minimizing bycatch to the extent possible. This EFP aims to improve performance of the XLBG EFP which focuses on developing fishing gear that is designed to target the highly migratory species complex that seasonally resides within the CA EEZ. The EFP gear is intended to be used by mid-sized vessels that currently fish the California coast, which include those that historically participated in the CA drift gillnet fishery.

The purpose of this work is to simultaneously test both shallow and deep set weighted fishing gear to compare relative performance, which includes both marketable and released/non-marketable catch. The ultimate goal will be to develop fishing gear that avoids protected and sensitive bycatch and offers fishers with a long-term solution for harvesting West Coast HMS. The justification supporting this request is based on (1) the depth distribution of PBF off California (Marcinek et al., 2001; Tagawa et al., 2007; Domeier et al., 2004; Sepulveda et al., 2020), (2) The need for additional gears for targeting PBF and (3) the strong and relatively shallow thermocline off the California coast.

(a) Regarding purpose, why are you applying for an EFP?

We are requesting this EFP to improve the performance of the current XLBG EFP to allow for greater flexibility for targeting PBF. This request is based on low PBF catch rates observed in 2025 and the shallow thermocline found off the US West Coast (Palacios et al., 2004).

(b) Regarding justification, why do you need an EFP to engage in the proposed EFP activities?

The proposed request requires an EFP as longline type gear is currently prohibited within the CA EEZ. Additionally, the terms and conditions of the XLBG EFP prevent targeting HMS in depths shallower than 100 m.

(c) What specific regulations at 50 CFR 660 subpart K, such as those related to authorized gear types, operational requirements, or time/ area closures, are you requesting an exemption from?

Use of longline type gear within the CA EEZ (50 CFR § 660.712)

Rationale: Several of the longline type restrictions proposed for the XLBG EFP were designed and primarily intended to mitigate fishery impacts on seabirds and sea turtles in the Hawaiian shallow and deep-set longline fisheries. Hawaiian longline operations are much larger in overall scale, use different gear designs, operate in very different locations and largely target a different species complex than the proposed EFP (bigeye tuna vs PBF).

The proposed EFP incorporates bycatch mitigation features that were designed for the waters within the California EEZ. The use of heavy weights ($\geq 4\text{lb}$) and a line setter will be mandatory for all sets. These tools increase sink rate and prevent baited hooks from fishing near the surface, a factor that mitigates potential sea turtle and bird interaction. Further, all gear will include strike detection buoys and a relatively small-scale gear footprint ($\leq 10\text{nm}$) compared to more typical offshore longline operations. In the 2025 XLBG EFP, the horizontal footprint of deployed gear was much less ($< 5\text{nm}$) than that allowed in the EFP (up to 10nm was permitted). This was mainly due to vessel and crew size constraints and the use of targeted sets. In the proposed EFP we anticipate the horizontal footprint will likely range between 5-7 nm (based on buoy number and workload for 2 crew members). Collectively this EFP is designed to align and support the size of vessels and associated crew that have historically fished the US West Coast.

All sets performed in the proposed EFP will use the full suite of mitigation tools regardless of depth or target.

3. Bait type for shallow setting

We are request the use of either mackerel type or squid type bait regardless of target or set type (shallow vs. deep).

Rationale: All sets performed in the proposed EFP (shallow and deep) will use heavy weights ($\geq 4\text{lb}$) and a line shooter to prevent surface fishing, a factor that will mitigate sea turtle and bird interaction. Flexibility on bait type is requested to improve targeting success of PBF, opah and swordfish. The option to use both squid and mackerel type bait expands targeting options and would allow the EFP to: (1) Cope with periods of

reduced bait availability, (2) Offer flexibility for targeting different sized fish (i.e., small vs large PBF), (3) Improve targeting efficacy by matching the prey that is available at the time and location of the set and (4) Provide fishers with bait options that may be less prone to predation by other species. In the 2025 XLBG EFP, fin bait was preyed upon at a much faster rate than squid. Specifically, saury bait (*Cololabis saira*) and mackerel bait was often mutilated within a few hours of the deployment by other small predators (i.e., large squid, hake, other species). This was not as common when squid was used for bait.

(8) What are the goals of the EFP? (e.g., how will information gained contribute to the conservation and management of HMS fisheries)

The overarching goal of this work is to expand sustainable domestic fishing opportunities for highly migratory species while minimizing bycatch to the extent possible. More specifically, this EFP will focus on developing gears that are designed for mid-sized vessels, which include those that historically participated in the CA drift gillnet fishery. These are the same vessels that historically produced the bulk of the HMS landings from within the CA EEZ. This EFP will incorporate the bycatch mitigation advancements developed under previous NOAA funded research and expand the flexibility of the XLBG EFP to better accommodate the targeting of PBF and other valuable HMS.

Fishing Impacts and Data Collections

(9) What species do you plan to target for harvest under the EFP?

Swordfish *Xiphias gladius*, Pacific Bluefin Tuna *Thunnus orientalis*, Opah *Lampris spp.*

(a) What amount(s) (i.e., weight or numbers of animals) of harvest are necessary to maintain participation in exempted fishing?

Based on test fishing during the 2025 EFP, target catch numbers will be dependent on animal size and market price. However, based on estimates from 2025, we believe that vessels will need to generate between \$2,000-3,500/set day to keep fishers participating in the EFP. This minimum level of harvest would equate to least 4-6 PBF (est. total weight 400-500 lbs.) or 2-3 swordfish (est. total weight 300-400 lbs.) per set day. An effort will be made to improve quality and product marketability to the extent possible.

(b) How will the disposition be documented during EFP operations?

Disposition will be documented using the same monitoring protocols currently employed in the PIER-XLBG EFP. All sets will be 100% monitored by electronic monitoring as well as NMFS fisheries observers. EM records will be reviewed by an independent contractor (i.e., Saltwater Inc.) and provided to NMFS at the end of each fishing season. Additional documentation will include fisher logbooks, check in/out procedures for each trip, observer logbook records and landings receipts (Sepulveda and Aalbers, 2018).

Similar to previous EFP efforts, the PIER team will work closely with each applicant to log fishing effort, substantiate log books and manage EFP fishing operations.

The proposed EFP will procure and cover all EM monitoring and review costs. The EFP will take physical observers when supplied by the NOAA WCR Observer Program.

(10) What non-target species do you think you might incidentally catch under the EFP?

Non-target species: Blue shark (*Prionace glauca*), mako shark (*Isurus oxyrinchus*) bigeye thresher shark (*Alopias superciliosus*), escolar (*Lepidocybium* spp.), oilfish (*Ruvettus* spp.) lancet fish spp (Alepisauridae).

Based on the 2025 EFP trials, we anticipate that most of non-target catch will be released alive.

(c) How will disposition be documented during EFP operations?

Disposition will be documented using the same monitoring protocols currently employed in the PIER-XLBG EFP. All sets will be 100% monitored by electronic monitoring as well as NMFS fisheries observers. EM records will be reviewed by an independent contractor (i.e., Saltwater Inc.) and provided to NMFS at the end of each fishing season. Additional documentation will include fisher logbooks, check in/out procedures for each trip, observer logbook records and landings receipts (Sepulveda and Aalbers, 2018). Similar to the previous EFP efforts, the PIER team will work closely with each applicant to log fishing effort, substantiate log books and manage EFP fishing operations.

(11) Which protected species might be impacted by EFP fishing and how will disposition of these species be documented during EFP operations (e.g., observer coverage, electronic monitoring, logbook, etc.)?

An attempt will be made to avoid all protected species interactions by using heavy weights ($\geq 4\text{lb}$) and a line setter. Additionally, any potential interactions will be mitigated to the extent possible by limiting gear to less than 10nm and incorporating strike detection buoys. As noted previously in this proposal, vessel size and crew constraints will limit the size and scope of the proposed EFP activities (i.e., hook number and footprint). This reduced size will also help mitigate the severity of any potential interactions by having the vessel present and proximal to the gear.

(12) What are anticipated impacts of EFP fishing on the environment?

We do not anticipate any negative impacts on the larger environment. Although all extractive activities have some associated environmental impact, we do not anticipate any population-level effects or loss of habitat as a result of the proposed fishing activities.

(a) Do you anticipate gear conflicts with other fishery sectors?

No. Because we did not have any gear conflicts in 2025 and because we do not anticipate any changes in the location of operations, we do not anticipate any gear conflicts during this EFP. Further, given that the XLBG EFP terms and conditions preclude inshore effort while in the SCB, we believe there is adequate space to test this work without generating any additional fishery conflicts. Any additional SCB-based limitations on set areas (i.e., distances from shore or Islands) would likely lead to reduced EFP effort and success, as resources aggregate just beyond the Islands and weather gets progressively worse as we move to the West, outside of the Islands.

(b) Please provide a brief description of any potential adverse effects to essential fish habitat.

We do not anticipate any adverse effects to essential fish habitat (EFH).

The proposed EFP uses pelagic gear that does not come into contact with the sediment. All operations occur offshore and pose no direct risk to EFH. Satellite locating buoys, radar reflectors and strobe lights are all incorporated to prevent any gear loss.

Part II: Determination of whether proposed EFP fishing methods align within the scope of existing analyses.

(1) Will you be using hook and line or net or trap?

Hook and Line, small scale longline type less than 10nm.

(2) Does the fishing configuration include setting hooks along a horizontal mainline greater than 5 nm?

Yes. The maximum horizontal footprint will be the same as the XLBG EFP which is currently set at 10nm.

(3) What depths do you plan to target: above or below 100 meters?

We are requesting to target depths above and below 100 m depending on the target species. Specifically, we hope to target swordfish using deep-set operations which fish at depths between 250-350m during the day. The swordfish sets will largely occur in the late fall months when the annual migration enters into the CA EEZ (October-January, Sepulveda and Aalbers, 2025). Pacific bluefin tuna will be targeted during the summer months (June-October) using mid-water sets that approximate the depth of the thermocline (40-60m; Palacios et al., 2004). The sets will target the depth distribution of PBF (Tagawa et al., 2007; Sepulveda et al., 2020).

(4) Will you use heavy weights ($\geq 4\text{lb}$) and extenders to set the mainline at depth?

Yes, heavy weights and extenders will be used on all vertical lines to sink the gear and mitigate surface-based interactions. Additionally, a line setter will be used during all deployments to further increase sink rates.

(5) Do you plan to use circle hooks?

Yes, 16/0 or 18/0 circle hooks will be used depending on bait size and target species.

(6) What type(s) of bait do you plan to use (e.g., finfish, squid, artificial baits)?

. The EFP will use finfish, squid and artificial baits depending on the conditions, bait size and species targeted.

(7) Do you think your proposed fishing gear methods and harvest production will be economically viable for you?

Yes, the goal is to develop gear that is economically viable for mid-sized vessels that are similar to those that historically fished the CA drift gillnet fishery. Economic viability is a key component of the proposed submission as we hope to improve gear performance relative to the 2025 XLBG EFP deployments. Additionally, this work is also important as it will provide data on catch composition and gear performance relative to the different depths fished. These data are needed to optimize and develop a West Coast harvest strategy that is effective and also minimizes bycatch to the extent possible.

(8) Do you have space on your vessel to carry an observer?

Yes, all vessels participating in this EFP are currently permitted to carry observers and also carry electronic monitoring equipment. This EFP will use the same vessels currently participating in the XLBG EFP.

(9) How might your fishing configuration help avoid or reduce the potential for interactions with, or post-release mortality of protected species?

The proposed gear is using several bycatch mitigation tools to reduce impacts to non-target species. These include the use of a line setter, heavy weights and strike indication. Additionally, the inclusion of daytime shallow sets coupled with strike indication helps mitigate interactions with non-target species (i.e., unwanted catch can be released quickly).

Line Setter: This tool increases the speed at which line leaves the spool and helps increase sink rate. The use of a line-setter reduces gear surface time and helps mitigate surface-based interactions (i.e., birds, mammals, sea turtles).

Heavy Weights: This tool increases sink rate and gets the gear to target depth quickly. Regardless of configuration (shallow, deep or intermediate) the addition of heavy weights expedites sink rate and reduces surface based interactions.

Strike Indication: The presence of strike indication allows for the servicing of the gear and the quick removal of catch (retained and non-retained). During the 2025 XLBG EFP, non-retained catch (blue and mako sharks) were released prior to haul back, a strategy that minimizes stress and improves post-release survival. This is a clear distinction from other longline type gears.

Horizontal footprint: By using a reduced horizontal footprint of $\leq 10\text{nm}$, vessels are able to monitor strike buoys and tend the gear throughout the deployment. This level of monitoring can reduce the severity of an interaction if one were to occur. As discussed previously, we anticipate actual gear footprint to be around 5-7 nm.

(10) If available, are you willing to test electronic monitoring?

Yes.

The XLBG EFP is currently testing electronic monitoring and comparing the results to human observation. Currently all vessels participating in the XLBG EFP are equipped with an operational EM system.

(11) When do you need to start fishing under your EFP?

May of 2026 to capture the early PBF season

12. *Signature of Applicant*



10/15/2025

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www.pier.orgReferences

References

TAGAWA, T., BOUSTANY, A.M., FARWELL, C.J., WILLIAMS, T.D., CASTLETON, M.R. and BLOCK, B.A. (2007), Horizontal and vertical movements of juvenile bluefin tuna (*Thunnus orientalis*) in relation to seasons and oceanographic conditions in the eastern Pacific Ocean. *Fisheries Oceanography*, 16: 409-421. <https://doi.org/10.1111/j.1365-2419.2007.00441.x>

Domeier, Michael & Kiefer, Dale & Nasby-Lucas, Nicole & Wagschal, Adam & O'Brien, Frank. (2005). Tracking Pacific bluefin tuna (*Thunnus thynnus orientalis*) in the northeastern Pacific with an automated algorithm that estimates latitude by matching sea-surface-temperature data from satellites with temperature data from tags on fish. *Fish. Bull.* 103.

Marcinek, David & Blackwell, Susanna & Dewar, Heidi & Freund, Ellen & Farwell, Charles & Dau, Daniel & Seitz, Andrew & Block, Barbara. (2001). Depth and muscle temperature of Pacific bluefin tuna examined with acoustic and pop-up satellite archival tags. *Marine Biology*. 138. 869-885.

Palacios, D. M., S. J. Bograd, R. Mendelssohn, and F. B. Schwing (2004), Long-term and seasonal trends in stratification in the California Current, 1950–1993, *J. Geophys. Res.*, 109, C10016, doi:[10.1029/2004JC002380](https://doi.org/10.1029/2004JC002380).

Sepulveda Chukey & Aalbers S.A. (2018) Exempted Testing of Deep-set Buoy Gear and Concurrent Research Trials on Swordfish, *Xiphias gladius*, in the Southern California Bight. *Marine Fisheries Review*, 80, 17-29. doi.org/10.7755/MFR.80.2.2 Sepulveda,

Sepulveda, Chukey; Aalbers, S.A.; Wang, M.; Kneebone, J. and Bernal, Diego. (2020). Post-release survivorship of Pacific bluefin tuna (*Thunnus orientalis*) captured in the California recreational fishery. *Fisheries Research*. 223. 105413. 10.1016/j.fishres.2019.105413.

Sepulveda, Chukey and Scott Aalbers (2025) Swordfish horizontal movements in relation to stock structure within the Eastern North Pacific, *ICES Journal of Marine Science*, Volume 82, Issue 7, July 2025, fsaf098, <https://doi.org/10.1093/icesjms/fsaf098>