

## HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON DEEP-SET BUOY GEAR EXEMPTED FISHING PERMIT CRITERIA TO ADVANCE GEAR AUTHORIZATION

At its June meeting, the Pacific Fishery Management Council (Council) directed the Highly Migratory Species Management Team (HMSMT) to identify key data gaps and research needs with regard to deep-set buoy gear (DSBG) in order to inform terms and conditions for future exempted fishing permit (EFP) applications and to aid prospective EFP applicants in developing those applications. The Council also tasked the HMSMT with identifying incentives for EFP participation including, but not limited to, prioritized eligibility of EFP participants in a potential future DSBG permit program.

The HMSMT discussed these issues at their August 2016 meeting. This report identifies data gaps, provides potential incentives to increase EFP participation, and offers recommendations to the Council regarding elements of the future authorization of a DSBG fishery.

### **Data Gaps**

The Council's June 2016 motion is consistent with previous HMSMT suggestions to address aspects of a DSBG fishery which can be developed with available data while concurrently collecting more data to inform data poor aspects. While authorization of a full-fledged fishery may not be immediate, temporarily permitting through EFPs provides opportunities for participation by interested fishermen. A framework for authorization can be built while data collection continues, allowing the Council to obtain the information needed to support scientifically sound management decisions for full authorization.

There is a broad distinction between continued testing under current conditions in terms of gear configuration and location versus testing new areas, gear designs and methodologies, etc. Continued testing of current EFP conditions (i.e., in the Southern California Bight [SCB] with the current gear configuration - see Appendix) increases the number of replicates and helps to identify rare events that may not be observed with a smaller sample size. However, it may be impossible to gather enough data to conclusively demonstrate that rare event interactions are sufficiently low to authorize a fishery. A more reasonable approach may be to determine how precise an estimate needs to be to support a decision on authorization. Data on bycatch, protected species interactions, fisherman experience, gear conflicts (both within the fishery and with other fisheries), and active tending would be best gathered by additional effort in the SCB. Alternatively, there are data gaps with respect to elements that have not yet been tested. These include using the gear outside of the SCB and testing new gear configurations. While these two data gap categories are not mutually exclusive, the Council may wish to decide whether to emphasize one type over the other.

The HMSMT identified key issues that could benefit from more data collection:

1. Bycatch and protected species interactions for existing and alternate gear configurations, effort areas, etc.
2. Practical limits on, or alternatives to, active tending of gear (relates to bycatch mortality and gear loss)
3. Gear conflicts/appropriate number of vessels
4. Use of gear outside of the SCB

5. Gear configurations (e.g., linked buoy gear being tested by PIER)
6. Gear performance, especially in the hands of inexperienced fishermen
7. Ability to use DSBG in combination with other fishing gears (other than harpoon or drift gillnet (DGN)) on the same trip (concurrent gear use)
8. Economic considerations

### *1. Bycatch and Protected Species Interactions*

This gear is intended to minimize protected species interactions and bycatch of non-marketable species. While the limited research and EFP effort to date have shown minimal bycatch in both volume and number of species, these are subject to change because effort occurs in new areas and times of the year. This unknown warrants additional information because individual species and less favorable fishing conditions could result in higher levels of discard mortality as well as threats to human safety at sea. Restrictions to address this would be more difficult to address after authorization has already taken place.

### *2. Active Tending*

A key component of using DSBG is active tending, which allows gear to be retrieved quickly once a strike occurs, reducing mortality and lowering the risk of lost gear. Research conducted by PIER suggests that up to 10 pieces of gear can be actively tended under the current configuration. However, EFP applicants might want to test that supposition further as use of DSBG in less than favorable conditions may decrease the number of pieces that can be properly monitored, and ideal conditions may allow for efficient tending of more pieces.

The limits of active tending could be explored in a variety of ways. If alternatives to constant visual contact were tested, it might be possible for fishermen to simultaneously engage in other fishing activities (e.g., harpoon, troll) that could make DSBG more economically feasible. Cost-effective remote monitoring technologies that could substitute for keeping gear in constant visual range might allow for more operational flexibility and effective enforcement.

### *3. Gear conflicts/proper number of vessels*

A concern with authorizing the fishery regards potential conflict, both between DSBG fishermen and with other fisheries, especially if fishing mainly occurs in the SCB. Both PIER research and EFP fishing activity have occurred almost exclusively in the SCB. While gear conflicts in northern California may be less of an issue due to the larger geographical range, the SCB is a relatively small area and has a high prevalence of recreational fishing vessels which could potentially result in conflict between these two groups.

Similarly, one of the biggest unknowns is the appropriate size of a DSBG fishery (i.e., the number of vessels authorized to fish). It seems likely that a limited entry permit may be necessary for the SCB, but there is no current way to know what the appropriate number may be. Gradually expanding the size of the fishery through EFPs may be the most efficient and precautionary way to ensure proper permitting.

As an example of potential gear conflicts, recreational fishermen have already started to voice complaints on recreational fishing forums. These complaints mainly regard the presence of indicator flags at popular offshore fishing locations, reportedly making it difficult for anglers to

effectively spot activity of distant tuna schools. To help prevent unforeseen issues, such as gear conflicts, it is important to be prudent in moving towards authorization.

#### *4. Use of DSBG outside the SCB*

DSBG is envisioned as a small-scale artisanal gear appropriate for small vessels with lower operating costs. Due to ocean conditions in the fall and winter months when swordfish are available, these vessels may have difficulty operating outside the SCB. There may be untested times of the year when sea conditions are favorable and swordfish are available in other areas. For instance, DSBG may be feasible outside of the SCB (either through larger vessels or fishing in certain seasons). Although PIER has conducted limited gear research off of Monterey, CA, EFP fishing has only occurred in the SCB.

Because of differences in habitat, target species catch rates, bycatch composition and bycatch rates are likely different in different regions. EFP testing outside the SCB may be considered a prerequisite to authorizing a fishery outside the SCB.

#### *5. Gear Configurations*

PIER is testing linked buoy gear, a configuration envisioned for larger-scale operations that may produce catch volumes more similar to DGN. The Council might want to encourage expanded EFP testing of this, and other gear configurations, to address the following objectives:

- Larger volume gear, such as linked buoy gear (feasible for larger vessels with higher operating costs)
- Use of configuration components that degrade with time, to help mitigate lost gear
- Economic viability of different gear configurations
- Effective gear tending (e.g., GPS or other electronic strike indicators that may allow for a more flexible definition of “actively tended”)

#### *6. Gear Performance*

Nearly all gear testing has been conducted under carefully controlled conditions with the oversight of PIER. It may be valuable to collect additional data on the performance of DSBG in the hands of inexperienced DSBG fishermen through EFPs prior to full authorization. This would provide the Council with information on the DSBG learning curve and the necessity for DSBG training for new entrants to a fully authorized fishery. If the fishery were to be authorized prematurely, inexperienced fisherman may have the opportunity to use the gear, with the potential result of more bycatch and possible lost gear. It is unknown how “resilient” the gear may be to misuse or lack of experience. There may be natural attrition of those with limited experience that do not rapidly become proficient with the gear.

#### *7. Concurrent Gear Use*

Preliminary information shared by PIER and EFP participants has indicated that fishing DSBG and harpoon concurrently is feasible under certain conditions, while fishing DSBG and DGN is not due to the conflicting nature of the gear (use of larger vessel for DGN, active tending requirement for DSBG, areas fished, length of trips, time of day fished, etc.). Since initial discussions on the use of multiple gear types on a single trip, interest from fishermen outside of the swordfish fisheries (i.e. lobster, crab, etc.) has raised the unknown efficacy of DSBG as a

compliment to these fisheries. Such an application would allow for fishermen in a broader area of the state to expand the range and market for a DSBG fishery.

#### *8. Economic considerations*

The March 2016 CDFW report ([Agenda Item F.3.a, Supplemental CDFW Report](#)) indicates that DSBG fish will likely only fill a ‘niche’ higher-price market resulting from eco-marketing and labeling efforts. This new market will be in addition to, and not likely replace, existing markets for fish taken with other gears.

Economic considerations include the cost of using the gear, catch per unit of effort and sale price for DSBG-caught swordfish in different conditions and locations.

As stated in the June 2016 HMSMT report on DSBG ([Agenda Item D.5.a, Supplemental HMSMT Report](#)), there is substantial uncertainty about the volumes of marketable catch DSBG is capable of providing and the relationship between the volume of DSBG catch and price. Whether increased DSBG landings would result in price declines depends on both the volume of new supply over short time periods and the market’s ability to absorb a large amount of additional catch (i.e. the short-run price elasticity of demand).

Collecting data on these variables could support an economic viability analysis of DSBG under different conditions.

#### **Incentives to Increase Participation in DSBG EFPs**

The HMSMT has identified two main incentives to encourage DSBG EFP participation. The first involves participants receiving a DSBG permit in a future authorized fishery, and the second addresses reducing the cost of EFP observer coverage. A simplified Council application process would also encourage submission of new EFP applications.

The permit incentive is premised on the Council authorizing a fishery with limited participation (i.e., establishing a limited entry permit). The number of submitted EFP applications may give the Council an indication of how much interest there is in participating in a DSBG fishery, helping to determine whether a limited entry permit is necessary. However, the promise of receiving a permit may artificially inflate the level of interest in the fishery. Identifying that actual EFP fishing effort, not simply holding an EFP, could be used to determine future priority for DSBG permits could be used as a means to prevent otherwise un-interested parties from submitting an EFP application.

To address the reduced observer cost incentive, the Council may want to task the HMSMT with developing criteria for deciding the appropriate coverage levels for all new DSBG EFPs. The Council may wish to consider a phased approach where new EFP participants begin with a higher level of observer coverage (unless previous experience under an existing EFP) which is then reduced as the participants gain DSBG experience and demonstrate competence with the gear.

The HMSMT discussed the idea of producing an “EFP application template” specific to DSBG to aid applicants in designing proposals that address the identified data gaps. Based on Council guidance at this meeting, the HMSMT could provide a draft template for consideration at the November Council meeting. In June 2016, the Council agreed to accept DSBG EFP applications at any Council meeting when HMS is on the agenda. This gives applicants up to four times per

year to submit EFP applications in contrast to the one time per year identified in Council Operating Procedure 20.

**HMSMT Recommendations**

- Confirm HMSMT identified data gaps described above and indicate any additional gaps.
- Continue to collect data on the current SCB DSBG fishery to support authorization, and encourage EFP applications to test new ideas.
- Identify EFP participation as a criterion for future permit issuance.
- Provide guidance on developing criteria for recommended observer coverage levels.
- Task the HMSMT with developing an EFP application template for DSBG applicants.
- Identify permitting authority (i.e. state or federal) to establish Council intent.

**Appendix**

Table 1. Summary of PIER DSBG research and EFP catch and effort data presented to date.

	PIER Research Activities with DSBG					Exempted Fishing Permit			
	Phase I, 2011-12	Exper. Trials, 2013-14	Fishing Trials, 2013-14	Above Pt. Concept. In PLCA, 2013-2014	Research Trials, 2014*	Coop. Fishers, 2014*	PIER, began Sept. 2015	Perguson, 2015	PIER, began May, 2016
<b>Effort</b>									
No. Vessels							4	1	5
No. days (8 hr.)		10	12		23	83	108	3	
No. sets	54			16			138		
No. pieces of gear	540								
No. hooks soaked	1080			420					
No. of Hook-hours	4320	1850	2590	2050			8273		
<b>Catch</b>									
Swordfish	14	1	11		33	55	142	0	x
Bigeye Thresher Sh	7	3					69	0	x
Common Thresher	1							0	
Opah	2	3		3			2	0	x
Blue Shark	2		6	16			4	0	
Mako Shark			1					0	
Salmon Shark			1					0	
Mola Mola	1							0	
Oil Fish								0	x
Escolar							5	0	x
<b>Prohibited Species</b>									
Elephant Seal		1					1		

\*Information comparable to other activities was collected but unavailable at time of report. Only catch of swordfish shown.

Data Sources: Supplemental SWFSC ppt 2, Agenda Item K.5.b, March 2014; Agenda Item F.2.a, Supplemental DSBG ppt, March, 2016; NMFS Report, Agenda Item F.2.b, March 2016; and C. Sepulveda and S. Albers (personal communications).