

HIGHLY MIGRATORY SPECIES EXEMPTED FISHING PERMIT REPORTS FOR 2021

No.	Vessel	Owner/Operator
1	Addiction	Roach
2	Audax	Fuller
3	Bear Flag 2	Perez
4	Calypso	Lebeck
5	Chula	Foster
6	Circle Hook	Breneman
7	Defiance	Ellis
8	DJ	Mintz
9	Dominique Rose	Ashe
10	Elizabeth H, Pacific Horizon	Haworth, Honings
11	Emma Ray	Greyshock
12	Entrapment	Volaski
13	Epic	Lins
14	Espada	Perguson
15	First Light	Tharp
16	Fishtail	Graves
17	JB	Ford
18	Jonesita	Kirkpatric
19	Lil Jack	White
20	Olinka	Dirkse
21	Outerbanks	Athens
22	Patricia J	Jacobs
23	PIER summary	Sepulveda
24	Piky	Gerritsen, Minobe
25	Pilikia	Burke
26	Sandy Bea	Guglielmo
27	Saronga	Rippo
28	Sharon G	Herman
29	Spaniard	Hepp, Robertson
30	St Aniello	Ghio
31	Terlingin	Souza, Hutto
32	Tres Mujeres, DEA	Stephens

Zack Roach
F/V Addiction
DSBG 2021 Report

For the 2021 season the FV/Addiction conducted 3 sets of DSBG. Of those sets caught 1 swordfish 65 lbs and released a blue shark alive.

Observer coverage was for all 3 sets.

In regard to recommendations, we agree there should be more sets allowed. We feel that 15-20 sets can be managed responsibly by one boat. More gear will increase our area of coverage and expand our zone of fishing. Additionally, a larger fishing footprint of 5 miles area would allow for increased coverage.

Zack Roach

Summary of Deep-Set Buoy Gear Fishing operations for *F/V AUDAX* during 2021

Executive Summary

The exempted fishery permit (EFP) for Daniel and William Fuller to fish deep-set buoy gear (DSBG) targeting Swordfish in the southern California bight was approved in September 2018. Improvements continue to be made to both the vessel and gear to increase efficiency and fishing productivity.

Between October 28 and November 18, 2021, four two-day trips were undertaken for 8 total fishing days. Average trip duration was 37:12 hours (range: 36:45 – 37:45) and average set duration was 4:24 (range: 1:31 – 10:18) 659.9 total hook hours fished. Absolute catch-per-unit-effort of 1 fish per 66 hook hours, or 1.25 fish landed per fishing day. Although only squid was used for bait, previous experience indicates that mackerel is an effective swordfish bait.

Gear configuration

No gear modifications were made to gear or fishing operations during 2021.

Observer Coverage

An observer was assigned for three of the four fishing trips. Total fishing day coverage was 75% of fishing days.

Fishing Summary

All fishing was conducted during daylight hours where the gear was removed from the water well before sunset. A total of 10 Swordfish were captured during three of four trips. There was a total of 20 probable swordfish bites (determined from bait and/or leader damage), of which 16 were hooked (identified by strike indicator being up), and 10 of those landed. There were zero confirmed shark bites during 2021 fishing. However, there was extensive bait depredation by what is believed to be squid, where baits used in 42 of 150 (28%) sets were damaged and most likely not fishing effectively.

Fishery Interactions

During most fishing trips during 2021 it was common to be fishing in relative proximity (~0.5-3 miles) to other DSBG vessels. At no time was there any issue or conflict with any of those encountered and all interactions were professional. Generally, contact was either made by radio or directly boat side and efforts were made to ensure there was enough area for each boat to manage their gear.

During 2021 there was a continued increase in recreational effort and on any given day there would be >15 recreational vessels nearby. Most recreational fishers are courteous and avoid the gear, but there is a small proportion who do not, regardless of any interactions. Many of recreational fishers have deployed gear within 30 meters of DSBG. There were no entanglement issues with any other gear.

Considerations for 2022

More effort for 2022 is planned. During 2021 there was continued and consistently good bluefin tuna fishing, and with poor swordfish fishing reports, fishing effort was focused on bluefin.

Data

We maintain a detailed fishing log for every set made. This data is available for research purposes upon request.

Nathan Perez
F/V Bear Flag 2

2021 DSBG and NSBG Fishing Report

F/V Bear Flag 2 fished 53 days DSBG and 9 days NSBG during the 2021 season with success in both fisheries. Some days both DSBG and NSBG were fished together and successfully caught HMS species. This proved that both gears can be fished effectively together without gear loss and still be actively tended. We fished 10 sets each day with 1 bait per set and had about 30% observer coverage. This season proved to be difficult for most and seemed to have low catch rates for everyone. Being able to fish at night helped bring product in when fishing was slow. Although more data is needed in NSBG, the data so far shows that there is no bycatch at this time. Over time I think the NSBG may prove to be an essential permit to assist DSBG in being a more viable fishery. NSBG is the perfect complement to DSBG as both gears can be fished with relative ease.

F/V CALYPSO DSBG EFP 2021 FINAL REPORT

F/V Calypso engaged in the standard DSBG fishery from August to December, for a total of 15 Sets, 10 of which were observed.

Totals:

Captain Mark Lebeck:

10 days fished

5 days observed

1 Swordfish

Captain Tobin Rippo:

5 days fished

5 days observed

5 Swordfish

1 Bigeye Thresher Shark released

I had limited amount of sets due to Covid and concluded that it is a clean fishery and we had 0 bycatch.

My conclusion is that the fishery has potential and can be profitable during exceptional fishing times. When fishing is slow, I think the ability to use more gear is needed to keep this fishery viable.

Regards,

Mark Lebeck

FV Chula
John Foster

Starting fishing Aug. 6
End fishing Dec. 21st
Total sets 80
Total swordfish 66
8 Big eye Thrashers all released alive.
4 Escolar all released alive

Observer days-15
Buoy Gear, 1 hook per set because of tangles @ 1000 feet
Bait, Squid only with assorted colored lights.

Summary of work and Data

FV Chula began the 2021 season on 8/6/21 and ended fishing on 12/21/21. Deep set buoy gear was fished for 80 days during this period. Each day 10 sets of gear were deployed. Each set of gear had 1 baited hook only. Each hook was set at a depth of 1000 feet and baited with a single squid. This effort produced 66 swordfish, 8 bigeye thresher sharks and 4 Escolar. The shark and escolar were all released alive in good condition. Observers were on the boat for 15 days providing nearly 20% coverage of all fishing days.

Conclusion and Comments

2021 was not a productive year for the Chula. It was difficult to find consistent fishing. Overall fishing conditions were good, the fish were not biting. With rising expenses, especially fuel cost, the 2022 fishing season may be challenging. Our recommendations would be to allow boats with link gear permits on the boat to deploy 15 sets of deep-set buoy gear with a single baited hook each day when appropriate. (We have not lost any gear) This would provide greater coverage and exploration of areas in the effort to find fish.

Final 2021 DSBG EFP Report for FV Circle Hook

I had one swordfish landing this season on December 21, 2021 (Landing Receipt Number: 199517E). This trip was a dual permit trip. I also fished using my limited entry fixed gear ground fish permit. We had multiple species on this landing, which included swordfish, sablefish, shortspine thornyhead, longspine thornyhead, aurora rockfish, and blackgill rockfish. By doing a dual fishery trip on the same boat on the same date, I found it is possible to manage both types of gear together in certain areas.

My recommendations include issuing permits to people/businesses whose sole income is based on commercial fishing. There are many different factors that affect the ability to make money harvesting this resource, such as market price, imported fish, fuel costs, closures, and regulations. I would recommend that this permit not be issued to those who simply are seeking to catch swordfish as a trophy. This permit provides me with supplemental income to my main fishery, groundfish which is a year round permit which provides the main source of my income.

I look forward to having the opportunity to do more dual permit trips when the swordfish return.

Thank you,

A handwritten signature in black ink, appearing to be 'SB', with a long horizontal line extending to the right.

Scott Breneman

RON ELLIS F/V DEFIANCE

DSBG EFP REPORT FOR 2021.
NOT MUCH TO REPORT THIS SEASON.
I HAD A VERY SLOW SEASON IN ALL.
I BUILT NEW GEAR AND IT SEAMED TO
BE FISHING RIGHT BUT I JUST
COULDN'T FIND ANY CONCENTRATION OF
FISH. I WISH I HAD A BETTER
REPORT

RE

4-20-22

Steve Mintz, FV DJ
2021 DSBG EFP Report

To NMFS and the Pacific Council:

The 2021 DSBG Season was definitely not one of the better seasons. We tried pretty hard but after 36 days fishing, 1st set was July 26, not counting days running in and out, we didn't come up with much. We set a total of 351 buoys, caught 23 swordfish for a total of 3,874 lbs., average weight was 168 lbs. The average weight definitely was an improvement over the previous season, we also caught 4 Bluefin Tuna on the gear plus 1 Bluefin on Rod & Reel which totaled 833 lbs. We had 1 Mako 270 lbs. and released 5 Big-Eye Thresher and 1 Escolar, alive and well. The total gross of all this effort was \$ 33,550.75. I'm not for sure exactly how much fuel we used, usually 75 gallons a day, plus crew wages, bait and gear expenses, groceries and just a few coolers of ice to refrigerate our bait as we use chilled seawater to refrigerate our catch. So, our daily gross, not even \$ 1,000. Not too profitable.

Being able to switch back to the drift-net seemed like our best option so with quite a bit more switching back work than anticipated, we were able to turn things around. In 24 days fishing, 1st set October 28, we grossed a total of \$75,252.10. That's around \$3,000 per day. We weren't getting rich but seemed like a much better way. I'm positive we used less fuel and no bait expense.

Since every year is different and there is absolutely no way to predict what's to come, we will be willing and look forward to try the DSBG again. I would like to be trying with the Link gear which we never got to try 2021. I believe this is a better way, but it requires 3 people to set. Crew was definitely a problem and hard to come by in the 2021 season.

I believe the DSBG could possibly be a more successful fishery if of course we had more fish but it needs to be opened up somewhat as it has proved itself to have little to no by-catch. How about more sets of gear like for instance 15 for the more experienced participants, more hours to fish like before the sun comes up till after dark, and being able to fish with-in 1 mile from the islands or mainland instead of 3 miles. I believe this could help our catching considerably.

Thank you for the opportunity.

Stephen Mintz

Robert Ashe F/V Dominique Rose 2021 DSBG Report

We received our DSBG permit in November of 2021 and were already underway in our lobster season. We were not able to fish the DSBG in November or December of 2021.

Robert Ashe

Ula Seafood

Sword report 2021
F/V Elizabeth H

For the 2021 season Elizabeth H made a total of 55 sets, 13 of these with an observer on board. In our efforts we were able to retain 60 swordfish with 1 rat released, 8 thresher sharks kept with 3 released, 1 escolar & 1 rockfish when a piece of gear dragged on the bottom. This effort was less than half of the previous years catch.

There were many days recorded in our logs with 0 strikes, a good portion of this season was a “feast or famine “ scenario. With rising fuel prices & vessel expenses, under present gear restrictions it makes it harder to make this fishery viable. The ability to use more gear when fish are around in commercial quantity would greatly benefit the fishery.

The low catch rates coupled with higher expenses made it not economically feasible to attempt DSBG fishing aboard the F/V Pacific Horizon this past year. The potential returns simply couldn't justify the larger vessel operating costs.

Fishing locally out of San Diego, we've noticed over the last couple of years the rapid increase of recreational boats attempting deep drop swordfish. While this in itself is not a problem as there is a robust sword population, we are concerned there may be potential for recreationally caught sword or shark being sold commercially. Without any reporting guidelines we have no way of knowing whether recreational fish are being kept out of commercial markets.

Kris Honings
David Haworth
Nick Haworth

4/22/2022

To Whom it May Concern,

My name is Steve Greyshock with the fishing vessel Emma Ray.

Last year in 2021 I made six swordfish trips. caught 4 and lost 4.

Due to COVID-19 I had a hard time trying to find crew members which cost us quite a few days of fishing.

What I noticed last year while fishing for deep water buoy swordfish, is that it would have definitely been more helpful if we could have set out more gear. Limiting our gear to 10 pieces does not cover enough area to make it profitable. We had several days of blank fishing when we knew there were swordfish in the area.

In the country of Chile, boats that fish from the coast line out to 30 miles are restricted to certain size and amounts of gear. Boats that fish 30 to 60 miles are allowed more gear, and those 60 to 200 miles are allowed even more gear. This makes it more profitable especially for larger boats that have more operating expenses and also eliminates much of the conflict among fishermen. Also, I do feel strong that at the depths that we are fishing we should be allowed to use regular J hooks. We would have a better catch rate and not lose so many fish. As far as bycatch at that depth, it is next to nothing. And this J hook has been working successfully on the east coast of Canada so there should be good reason to adopt the same policy here.

And lastly, at current high price of diesel we need to find more ways to be profitable. Today, 1 swordfish on a 2 day trip is not sustainable.

Thank you for considering this data.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Greyshock", with a stylized flourish at the end.

Steve Greyshock

Andy Volaski F/V Entrapment 2021 DSBG EFP Report

I fished from June – September.

Trips – 6 total

Set 10 Buoys per trip with single hook

Swordfish -1

Bycatch – 0

Had some personal setbacks. Hope to fish more this season.

2021 Deep Set Buoy Gear Summary Report F/V EPIC

We fished 10 Days with 10 sets of gear per day. We used 2 hooks per line mostly squid with a few mackerel mixed in. we used green and blue lights. 1 fish was landed. I was unable to fish the season Due to a medical emergency that kept me in the hospital for two and a half months.

We didn't have many boats around us because our fishing days were pre season.

Recommendations:

To continue with a 30 hook maximum but more sets of gear to appropriately disperse the 30 hooks with 1-2 hooks per set.

I also recommend that NOAA work with California Fish and Wildlife on allowing deep set buoy gear to be fished within 3 miles of shore. We have found many areas within 3 miles that would be ideal for deep set buoy gear fishing.

Thank You

Nathan Lins

F/V EPIC

F/V Espada DSBG EFP Perguson 2021 Report

Due to COVID and the hardships to me and my family, we did not fish this year. With health restrictions being lifted, markets turning around, etc. we are looking forward be back fishing this year.

Thank You,

Tim Perguson

First Light Fish Co

Capt. Nick Tharp
1187 Coast Village Road, #287
Santa Barbara, CA 93108

C (805) 801-5750
nick@firstlightfishco.com

April 19, 2022

Chris Fanning
HMS Fishery Policy Analyst
WCR Long Beach, CA

Subject: 2021 DSBG EFP Report

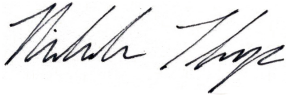
Hello Chris,

We did not fish the DSBG EFP in the 2021 season. The new boat took longer than expected to complete. By the time the boat was dialed in and the gear was built it was already November.

We look forward to fishing the DSBG EFP this summer and fall. From speaking with a few of our markets, we expect a price in the \$9 to \$12/lb range.

Please let me know if you have any questions.

Thank you,

A handwritten signature in black ink, appearing to read "Nick Tharp", written in a cursive style.

Nicholas Tharp

F/V Fishtail DSBG EFP Graves 2021 Report

I was unable to fish DSBG in 2021 for many reasons.

The challenges of Covid and the homeschool schedule with my kids, working weekends for regular income, and narrow weather windows near Santa Barbara all affected my inability to fish.

Additionally, my vessel has been undergoing extensive engine repairs for most of 2021, but I hope it to be repaired and ready for fishing in 2022. All of my gear is ready to fish.

I appreciate the opportunity to continue fishing DSBG in 2022 as a supplement to my other fisheries activities.

Sincerely,

Michael Graves

I got back to california in August 2021 after a great Bristol Bay salmon season. I heard from the other boats that catch numbers were down. So I decided to completely strip my boat and rebuild it. I'm still currently working on it and have not made a DSBG trip this year. I plan to start DSBG fishing again in August 2022 when I return from Alaska.

John Ford
4/26/2022

F/V Jonesita DSBG EFP Kirkpatrick 2021 Report

To whom it may concern:

As I did last year, I would again like to thank all those involved with the DSBG project for creating this program that I have been privileged to be a part of. It has been a great way for me to keep getting out on the water after a long career as a professional fisherman in different capacities. I built this small economical boat that fits this fishery pretty well. I do wish I had built a bigger fish hold for the good days so as to keep hitting a good spot instead of coming in unload , but it worked well enough for an old guy.

As with a lot of older fisherman, I have become more appreciative of a sustainable fishery and more opposed to the less selective methods that are getting phased out. It would be nice for this fishery for more restrictions on foreign long line fish that hurt the market on price and overall quality and damages the reputation of swordfish in general.

On the 2021 season, it was overall slower than last year, but I feel we made the most of it. We brought in 23 fish for 21 days of fishing. The size varied considerably, from 50 to 345 lb dressed. The big one took us 30 min to get it on the boat with the use of come-alongs! We made more money than last year while catching less fish due to a good price all year. We only had a few thresher sharks that were released unharmed. The biggest problem was an abundance of Humboldt squid at times, that wiped out all the baits and made us move off a good spot on several occasions.

The boat is in good shape and ready for the upcoming season. We are hoping for a better season and planning on closer to home fishing due to fuel prices. Thanks again. Let me know if you want more info, I think you got all my trip reports as required.

Sincerely,

John Kirkpatrick 818-429-1940

EFP Report – FV Lil Jack, Matt White

My participation this season was limited unfortunately due to the oil spill, the Caldor fire and finally getting Covid. I was hesitant to fish in or near the oil spill area as an infraction would threaten my future participation in this fishery. I also questioned the marketability of a possible contaminated fish. Local markets in Newport were affected and sales were noticeably down. My vessel is small, slow and limited to day trips. I made a few trips all without observer coverage after the local closure was lifted. By then the fish had moved to San Diego and below Carlsbad. I only put the gear in the water once, as I could not find the conditions I was looking for. No fish were caught. I am hoping that this year will be better for us. I did fish on other boats and had landings. Regardless, I appreciate the opportunity to participate in this fishery and look forward to this season.

Observer Coverage : No observer coverage in the limited trips I took on all vessels this season

Recommendations: None

Thank you,

Matt White

F/V F/V OLINKA DSBG EFP Dirkse 2021 Report

Started fishing DSBG after albacore season so the first trip began on 10/21/21

We made a total of 6 trips varying from 4 -9 days, with 39 days of fishing effort in all,

We had an observer with us on a 6 day trip.

We fished 10 sets of gear each day with a single hook and squid for bait.

We landed 13 swordfish, average 115#, and had no bycatch at all.

We lost several fish by pulling them to early due to ship traffic in the area running through our gear, the container ships, tankers, and warships were an issue, I'm surprised we didn't lose any gear, they are oblivious to DSBG.

The gear is easy to set, haul back, and easy to move during the day if necessary,

we are still fine tuning and going through the learning curve.

We almost covered our expenses for the time fished, hopefully we can improve our catch rate in 2022 with more experience!

Doug Dirkse

04/22/2022
Chris Fanning

RE: DSBG/DSLBG EFP Yearly Report

Chris,

I did not fish the EFP for 2021 because my 19 year old crewman passed in May from myocarditis after receiving his second covid-19 vaccine. By the time I found a suitable replacement and train him sufficiently the season was about over. I am planning on fishing the EFP this summer.

Regards,

Tim Athens

FV Outer Banks

2021 FV Patricia J, Kent Jacobs

2021 was a slow fishing season for us with a total of 43 swordfish caught . we fished a total of 80 days from the Mexico/US border to Santa Cruz Island. We had many fish get away, hit the bait and not get hooked or get hooked for just a short time then come off, we caught only swordfish with the exception of 3 Thresher sharks that were released unharmed. We had 3 different NOAA/NMFS observers onboard for a total of 18 days. We had no interaction with other fisherman but we did have troubles with the ships that were wandering about aimlessly, they ran down 2 sets of gear broke off radar reflectors and lights and drug 1 swordfish for 3 miles. Fortunately we were able to retrieve the gear and the fish. Our other altercation was with a very aggressive large shark, it went after a hooked swordfish that was swimming near the surface the sword swam down and got away so the shark came after the buoys, even though it chewed through the ropes connecting the buoys we caught the swordfish. My all girl crew did a great job this season and are looking forward to the next one.

Thank you for this opportunity ,Kent Jacobs F.V. Patricia J

Pacific Fisheries Management Council EFP Summary Report

2015-2021 PIER Deep-Set Buoy Gear and Linked Buoy Gear EFP Updates

April 29, 2022

Prepared by: Chukey A. Sepulveda, PhD & Scott A. Aalbers, MS

Affiliation: Pflieger Institute of Environmental Research, PIER

Address: 315 Harbor Drive South, Suite B Oceanside CA. 92054; www.pier.org

Vessels covered under this report: F/V Gold Coast, F/V Three Boys, F/V Leah Gail, F/V Aurelia, F/V Spirit

PIER EFP Background: The Pflieger Institute of Environmental Research (PIER) initiated experimental deep-set gear trials to selectively target swordfish off southern California in 2011. This research has led to the development of both deep-set buoy gear (DSBG) and linked buoy gear (LBG). To assess gear performance and commercial viability PIER petitioned NMFS and the PFMC for an exempted fishing permit (EFP) for both DSBG (2015) and LBG (2018). Sepulveda (EFP Lead) and the PIER team have served as the manager of the EFPs, assuming tasks ranging from gear set-up, fisher training, collection and summarization of daily catch statistics and project reporting. For both EFP's, cooperative fisher training sessions were performed with all team members onboard both the PIER research vessel, as well as during dockside trials on respective EFP vessels. Training was intended to highlight bycatch mitigation features as well as participant responsibilities under the EFP terms and conditions. Cooperative fishers were selected based on willingness to participate in the research trials, availability during the fishing season and previous experience fishing for swordfish off California. EFP participants agreed to comply with all observation mandates stipulated by the West Coast Region Observer Program.

For the PIER-DSBG EFP cooperative vessels can only deploy DSBG and in the PIER LBG-EFP vessels have the choice to deploy either DSBG, LBG or a combination of both.

PIER-DSBG EFP Fishing Effort (2015-2021): To date all DSBG EFP sets have occurred from Santa Cruz Island, California (33.9°N/119.8°W) to the Mexican border (32.6°N/117.4°W). The majority of the sets have occurred within 30nm of the coast with relatively consistent set locations from year to year. Market price and proximity to homeport seemed to influence set activity the most, with trips typically lasting between 4 and 7d. As discussed in previous reports, EFP fishing effort has been largely concentrated within small areas of regional productivity.

In 2021, the PIER DSBG and LBG EFP's resulted in less than half of the previous year's effort with only 135 DSBG sets performed (in 2020 the team performed >290 sets; Figure 1). Overall, there have been 1,641 DSBG sets made by the PIER EFP's since 2015, resulting in more than 16,000 pieces of gear deployed within the Bight. Over the course of the EFP's, lost gear has not

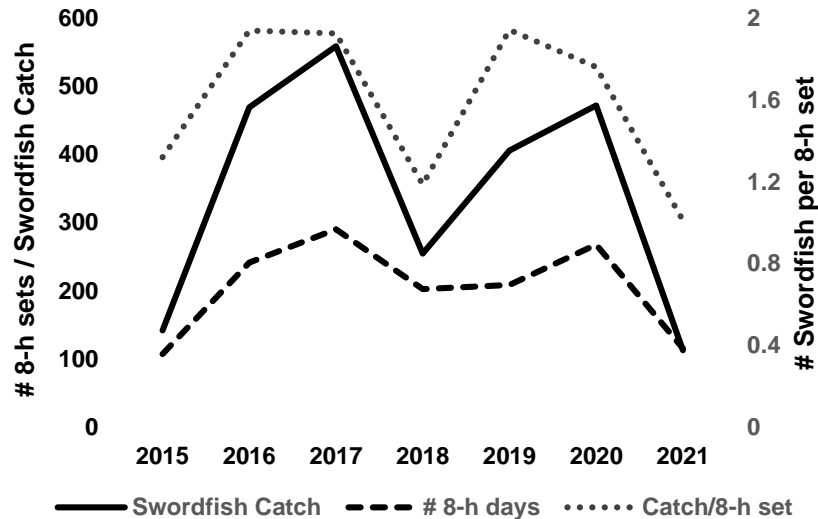


Figure 1. Swordfish catch, effort (#8-h sets), and CPUE (#swordfish/8-h set) values from the PIER DSBG-EFP from 2015-2021.

been an issue to date, as there has only been one piece not recovered and it was due to a mechanical breakdown. Daily gear soak times continue to vary among vessels with seasonal averages ranging from 6.8 to 7.4 h/set (collective mean = 7.1 h/set). To allow for inter-annual comparisons between vessels and to account for short sets (2-4hr sets), catch rates were standardized in a similar manner to previously published reports (i.e., catch/8-h fishing day). To date, the collective standardized effort for the PIER DSBG EFP is 1,435 8-h fishing days. Similarly, because nearly all sets consisted of the deployment of 10 pieces of DSBG (mean=9.86 pieces/set), fishing effort was normalized to a full 10 buoy compliment, yielding a comprehensive effort estimate of 1,405 standardized 8-h fishing days.

Rationale behind reduced effort in 2021: Based on EFP group consensus, reduced EFP effort in 2021 was likely due to reduced local swordfish availability. This was also supported by slow swordfish fishing for the harpoon, DGN and neighboring Mexican longline fishery. This contrasts previous years when low market price was the driver for curtailing EFP activity. In 2021 ex-vessel price remained relatively stable throughout the entire season (Discussed below).

DSBG Catch: Swordfish continue to make up more than 90% of the total PIER DSBG EFP catch (n=2,417), with bigeye thresher sharks (*Alopias superciliosus*; n=211) comprising an additional 8% of catch. Other marketable species caught during the EFP trials include opah, escolar and mako sharks. Non-marketable species made up the remaining 1% of DSBG catch and primarily consisted of blue sharks (*Prionace glauca*; n=23). Although target catch rates varied by vessel and

year, mean standardized annual catch rates (averaged across all EFP vessels) ranged from a low of 1.0 swordfish per 8-h day in 2021 to a maximum of 2.0 swordfish per 8-h day in 2019 (mean=1.7 swordfish/8-h d; Figure 1), which was equivalent to an annual catch rate of 0.8-1.7 swordfish per set (mean=1.5 swordfish/set). The maximum catch rate by an individual EFP vessel occurred during the 2019 season with 3.3 swordfish per standardized 8-h day or 2.6 swordfish per non-standardized set. Although cooperative fishers had the option to deploy up to three hooks per piece of DSBG, nearly all sets continue to consist of a single baited hook positioned at the terminal end of the gear. Collectively, buoy catch rate averaged approximately 0.15 swordfish per individual piece of DSBG, which was equivalent to 1 swordfish on every 6.7 pieces deployed. To date the highest daily catch rate was 11 swordfish caught during a single set day using 10 pieces of DSBG.

In 2021, the collective mean catch rate dropped below one swordfish per DSBG set for the first time since the EFP was initiated in 2015. As discussed above, EFP fishers primarily attributed the low catch rates to reduced local availability within the SCB. Unlike previous seasons when regional concentrations remained accessible, within relatively established areas, in 2021 swordfish aggregations were difficult to locate and track from one day to the next. Additionally, when one vessel found an aggregation it was not long before multiple vessels set the same area causing the catch to quickly diminish. This trend is also suggestive of reduced local volume.

DSBG EFP Observation: Collectively, 509 set days have been observed by NOAA-certified monitors (31%) since 2015, with observer coverage maintained above 20% for all PIER DSBG EFP vessels. Observer placement and coordination was more complicated during the 2020 and 2021 fishing seasons due to Covid-19 restrictions and fisher concerns over carrying onboard observers.

In 2021 the team performed a general comparison of cooperative fisher logbook and NOAA observer records to assess data similarities and agreement. The comparison yielded high agreement between the datasets with minimal differences found over the course of the entire EFP period (± 1 swordfish, ± 1 common thresher shark, ± 2 escolar, ± 2 Pacific hake). This supports the commitment and thoroughness of the EFP participants.

All PIER-DSBG EFP vessels continue to perform check in and out procedures (with NOAA, CDFW, and PIER) and vessels continue to furnish PIER with detailed activity logs. To more accurately assess non-observed trips, catch and bycatch were reported daily to PIER via a mandatory call in procedure and verified through: (1) observer records, (2) logbook and landings receipts and in 2021, (3) electronic monitoring records (EM). Since 2016, all catch has also been monitored with

fish ID tags affixed to the collar of each landed swordfish to provide markets, processors and consumers increased transparency and product traceability.

2021 LBG EFP Activity: Fishing in 2021 was the slowest experienced since the beginning of all deep-set trials. Catch performance was down considerably which led to reduced effort from all vessels. In 2021 we observed vessels either remain tied to the dock, engage in other fishing activities or take skeleton crews and shorter trips which lead to the use of DSBG over LBG. From EFP group discussions, crew availability also severely influenced fishing activity in 2021. It was difficult for captains to maintain one steady crew member (needed for DSBG) and nearly impossible to identify the crew needed for LBG (2 crew members). The need for a second crew member and lack of catch in 2021 resulted in minimal LBG interest. Additionally, because LBG deployments require 100% observer coverage and DSBG does not, in 2021 fishers often chose not to set LBG in an attempt to avoid the additional burden associated with taking an observer on every trip.

LBG Effort outside of the PIER EFP: Although not included in the PIER LBG EFP, in 2021 PIER reached outside of its own EFP and assisted other vessels with LBG rigging and training. Two non-PIER EFP vessels were assisted and trained on the use of LBG in 2021. This training resulted in the collection of additional catch and performance data. As in previous years, PIER also performed research sets using LBG in 2022. Although the research vessel catch rates were also reduced compared to previous years, the PIER LBG research catch rate was higher than both the PIER-DSBG and LBG EFP's in 2021.

LBG EFP Findings to date: From the research and EFP data collected to date, it is evident that LBG results in a similar catch composition as DSBG and that catch rates per section can be higher when using LBG (Sepulveda et al., in preparation). However, given the added costs associated with LBG (i.e., additional crewmember, bait, gear set-up and retrieval time), fishers have been relying more upon DSBG than LBG. Aside from added costs associated with LBG deployments, we also believe that vessel size and areas fished have also had an impact on LBG use. Because PIER chose the same vessels that also participated in the DSBG EFP, it may be that smaller vessels are less comfortable with LBG and have grown comfortable setting in areas that are more conducive to DSBG (i.e., near high spots and bathymetric features). Additionally, fishing activity in the recent years has largely been concentrated along the coast in areas where DSBG may be better suited given its maneuverability. Based on research set activity from 2016 to 2021, we remain confident that offshore conditions are better suited for gear that is linked.

Market Dynamics: During most seasons, market price for deep-set swordfish has started at around \$8/lb. during the summer months and proceeded to drop below \$5/lb. by the end of the fishing season. Considering that there has also been reduced volume from the CA DGN fleet over the past several years, the price reductions observed in the later portion of the season are likely due to increased foreign market volume (i.e., Mexico, Ecuador). Over the course of the EFP, price for DSBG-caught swordfish reached an all-time low during the 2020 fishing season, with an overall average price of \$5/lb. Cooperative fishers ceased all deep-set fishing operations in December, 2020 when ex-vessel price fell below \$4/lb (primarily due to Covid-19 restrictions resulting in reduced restaurant demand). In contrast, swordfish price reached a record high during 2021, with an overall average of \$8/lb across the entire season. The consistently higher price throughout the 2021 season was thought to be related to reductions in the supply chain of fresh imported seafood from foreign ports, the growing local demand for deep-set swordfish and reduced local volume. In 2021 fishers also observed a slightly larger average swordfish size (~155 lbs. vs ~137 lbs. dressed weight) which slightly helped mitigate the overall slow season.

Social Interactions: Several PIER DSBG EFP vessels reported multiple conflicts/interactions with other EFP and deep-drop sport fishing/charter vessels in 2021. The interactions typically entailed setting too close to one another and crowding over a particular area or feature. EFP group discussions over the social interactions centered on concerns over what will happen when the fishery increases in size, as these problems were already manifesting when there were less than 30 active commercial deep-set vessels fishing. In 2021 it was common to have multiple sets of DSBG drifting in close proximity to each other, especially when swordfish aggregated along small frontal edges or near coastal features. At times this resulted in verbal confrontations and in some instances gear tangling. Discussions regarding the ideal or suggested distance requirements between vessels (sport and commercial) were common in 2021. In 2021 the EFP observed a growing number of recreational deep-drop fishers, including the presence of a new charter fleet. In November, 2021, Southern California also had its first deep-drop recreational swordfish tournament, a sign that recreational effort is growing and that resource competition is increasing within the Bight.

Associated Work: Throughout the EFP trials, PIER has worked with cooperative fishers to communicate EFP progress, summarize logbook data, place observers on vessels, and provide routine reports to HMS managers. In addition, PIER has continued to refine gear designs (DSBG, LBG and XLBG), assess swordfish stock structure and address other research questions relevant to fishery management. In 2021 PIER also tested the use of electronic monitoring systems aboard DSBG and LBG vessels to assess performance and feasibility. PIER will continue to provide

updates to stakeholders, NMFS, the PFMC and its Advisory Bodies throughout the duration of DSBG and LBG EFPs.

**Pacific Fisheries Management Council Summary Report
2020 EFP DSBG Season
F/V PIKY
James J. Gerritsen, Gregory K. Minobe**

Summary Of Work Completed

The F/V Piky fished a total of 6 trips during the 2021 DSBG season, from dates 13 Oct. - 03 Dec. Within those separate trips, 24 sets of 10 pieces of gear were made (standard DSBG). Of those sets, the gear soaked on average between 7 and 8 hours per day and with 1 hook per piece of gear. Also 6 sets of linked gear were made with 30 hooks per set. Those sets also soaked for 7 to 8 hours. 11 swordfish were landed using linked gear and 29 swordfish were landed using standard DSBG gear. In total, 40 swordfish were landed, 1 bigeye thresher shark released alive. General area fished as far north as the vicinity of Catalina Island to as far south as the vicinity of the US, Mexico border. From +3 NM to +-100NM offshore. Primary bait used was squid and mackerel.

Trip breakdown as follows: Trip #1: 10/13/21-10/20/21

Days fished: 7

Swordfish Landed: 12 (1425lbs.)

Bigeye Thresher Shark: 1 released alive.

No other bycatch.

Trip #2: 10/23/21-10/25/21

Days fished: 2

Swordfish landed: 3 (393lbs.)

No other bycatch.

Trip #3: 10/27/21-11/01/21

Days fished: 5

Swordfish landed: 2 (159lbs.)

No other bycatch.

Trip #4: 11/05/21-11/09/21

Days fished: 4

Swordfish landed: 1 (135lbs.)

No other bycatch.

Trip #5: 11/13/2021-11/20/2021

Days fished: 7

Swordfish landed: 13 (1934lbs)

No other bycatch.

Trip #6 11/28/2021-12/04/2021

Days fished: 5

Swordfish landed: 9 (1242lbs)

No other bycatch.

Observer Coverage

Prior to each of the 6 trips departing, proper 48 hr notification was made to the West Coast Region Observer Program. Observer coverage was sparse due to Covid restrictions. On our first trip we had to return to port on the first day of the trip to drop off the observer due to sea sickness then resume the trip without an observer. We had one trip with observer coverage on 10/27-11/01(BGLB-0368). We were not able to obtain observer coverage for the rest of our trips. It was explained to us that due to COVID-19 restrictions, observers were not available to be dispatched to our vessel as each observer was assigned to a vessel in order to mitigate spread of the virus. After each successful attempt to report to the Observer Program we were

instructed to depart w/o observer onboard in hopes that the next trip an observer would be made available.

Conclusion/Recommendations

If we were to make any comments or recommendations, we would suggest the opportunity to use more pieces of gear when fishing Standard DSBG. We generally fish one hook per piece of gear in order to minimize tangles and ensure confidence that our gear is fishing effectively. It is our opinion that the current 10 pieces of gear are properly managed and serviced. An increase of gear allowed per vessel would increase our potential catch thus making the fishery more economically viable. Thank you for the opportunity to participate in the EFP DSBG program.

Sincerely,

JJ Gerritsen, Gregory Minobe.

Attn: Chris Fanning

April 30, 2022

The 2021 DSBG season was comprised of 19 total days fished, spread over 4 months. An average of 7.5 sets of gear each day combined with 6.2 hours of average soak time. Total number of fish landed was 7, adding up to 222lbs average weight. Observer coverage was minimal with 4 days total time on board. Single hook leaders and squid were fished on each set of buoy gear deployed.

In addition, the 5nm footprint along with the 3nm limit regulation would best be expanded allowing for more coverage and less stacking of gear on or near other vessels. The thought is for a larger spread allowing for more space away from others when fishing gets tightened up in one single area. For us, this would allow more ground to cover once our gear is set and thus concentrate on the harpoon fishery rather than bounce around or drift all day tending to gear that's clearly been proven to not have any bycatch of protected species. The days that offer up excellent sight fishing also allow for long distance visual monitoring of gear that's bit and needs to be checked and/or hauled up.

Thank you for continuing your study and pursuit of a viable swordfish fishery for all.



Sean Burke
F/V PILIKIA

To who it may concern, this is Nick Guglielmo on the vessel Sandy Bea. this was my second year of the deep water set gear for Swordfish. Due to my experience of over 40 years of fishing, this is the cleanest fishery I ever been involved in. After all my sets I had 0 bycatch. I feel there is a lot more for me to learn. I am excited to be in the fishery and hope this year will produce a lot more swordfish for me. thanks for the opportunity.

F/V Saronga 2021 Final Report

F/V Saronga engaged in the Standard DSBG Fishery from November to December, 2021, for a total of 9 sets, 4 of which were observed. I believe this fishery has been proven clean enough to no longer warrant required observation under the current restrictions.

Totals:

8 DSBG swordfish

No by-catch

I believe the DSBG fishery has potential, but that the gear limit should be raised to 30 buoys per boat, with some more consideration given to night-set Buoy Gear allowances, as seen on the East Coast with higher success rates. With the current restriction to 10 buoys, I don't believe there have been enough encounters with non-target species to disqualify experimentation with a higher capacity, and I don't believe the fishery in it's current state will financially sustain a commercial vessel long term, leading to an underutilized American resource.

Even in just a few sets this year, I did encounter sport fishermen in small skiffs setting up within 150ft of our buoys.

Max Rippo

FV Sharon G, Blake Hermann buoy gear EFP report 2021

In 2022 we made a total of 15 sets of 10 buoys each. Average soak time was just over 6 hours. No swordfish were caught, however several were seen on the surface during this time, and harpooned. No other bycatch was hooked. Observer coverage was roughly 20%.

Only possible recommendation to make would be an increase in total gear spread, currently set at 5 nm with a 3 mile extension from nearest buoy.

2021 Deep set buoy gear report
F/V Spaniard

Interesting year for us up here in Santa Barbara. As we predominantly fish the backside of the Channel Islands. We had not heard of much going on with swordfish in our area. Our first 2 trips in late July and early August saw cooler off green water and nothing was happening, water was dead of life, and no action for us.

Watching the sea temp charts, we started to see a body of warmer water move in. The last 2 weeks of August, that had some life in it and it also held some fish. It lasted about 6 weeks then the water turned green and cold. We fished for another two trips into November and it was over.

Anyways we had 14 sets this year for 6 fish, and lost 2. We had 2 days of observer coverage. For the first time we had a couple of other buoy gear boats fishing around us. It did not seem to crowded around us, but we kind of stayed focused in one area rather than explore as we did not see a big body of water. Our gear worked well and we basically set 10 pieces of gear each day with one hook baited with a squid. Only change we might make is to make our gear more visible. We received \$6.50-7.00 per pound for our fish. Only regrets was that the couple weeks the fishing was good, we both had other commitments.

We fished 7 2-day trips for a total of 14 sets of 10 pieces of gear. A single hook baited with squid and a blue or green light. Our observer coverage was low 14 percent (2 days out of 14) but the observer was pulled from our second trip to be on a new boat. Our 6 buoy gear swordfish averaged about 150lbs and we had no by-catch. We were able to do this along with our harpoon fishery with no problems.

Fred Hepp and Sean Robertson

FV St Aniello

Romolo Ghio

4/24/2022

The 2021 season I took a fall in June right when White Seabass was to open the first week or June. I tripped and hit the cement with the side of my left eye and face and head. I took time off and in the end July started getting all my deep set buoy gear and all the etc. needed. I built all the gear by mid September and then the fuel bladders that I ordered came in. Started down on boat in late September and it took a couple months to get tanks done. By then it was already December and I didn't get a chance to go out for a set. This year 2022 we will be ready to go July, Aug, Sept, Oct, Nov and Dec.

Sincerely Romolo Ghio

St Aniello

2021 deep set buoy gear report F/V Terlingin

F/V Terlingin deployed 33 sets DSBG in result landed 15 swordfish and, also 8 big eye thrashers and 3 blue sharks which were successfully released unharmed.

Gear set up

F/V Terlingin DSBG is set up with the mainlines being 1,000 feet depth with one 20 foot leader and one 16/0 circle hook which we attach at the 8 pound weight and 2 lights, 1 flashing and 1 steady.

Bait used

F/V Terlingin use squid and mackerel some set fished half squid and half mackerel.

Recommendations

F/V Terlingin we feel that 15-20 sets of DSBG can be manageable (especially with a good pair of binoculars) keeping most set in full sight. If given the opportunity to set more DSBG it would be beneficial to set different depths, color lights, length of leader during slower parts of the season, after all we only use one hook on each line resulting in just 10 baits. We have experimented with using 2 hooks on one line which resulted in massive tangles. Also this season we saw an influx of sport deep drop boats we have not had any entanglements yet, However with so many boats fishing same area we feel they deplete the school faster that gives us less chance to make a catch of multiple fish.

F/V Terlingin would like to thank everyone involved with DSBG program and giving us the opportunity to participate in this amazing fishery

Owner/operator David Hutto

Operator Jordan Souza

F/V Terlingin

Dr. Tracy, Chairman Anderson, PMFC, HMSMT, HMSAS
Executive Director PFMC
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Portland, OR 97220
503-820-2299
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Dear Dr. Tracy, Chairman Anderson, PMFC, HMSMT, HMSAS

PFMC, HMSHT

This is the 2021 annual report for DSBG fishing efforts under the EFP issued to Ben and Jack Stephens pertaining to the F/V Tres Mujeres (33ft. trawler) and DEA (24ft. trailerable skiff)

Tres Mujeres

In 2021 F/V Tres Mujeres engaged in 15 days of fishing effort using standard DSBG combined with other gear types to target primarily swordfish and any other marketable species. 15 sets were made using 10 pieces of gear each day for each set (some were hauled and re-set). Each piece used a single hook at bottom of gear configuration. Squid was the primary bait used on 100% of the gear.

During the 15 total days fished, 4 days were with observable coverage which amounted to 27%. Labor cost of observers was covered by NMFS. Over those 15 days 5 swordfish were landed, and no other species were landed or released.

Total pounds landed – 832lbs.

*The **Gross** revenue for fish landed: \$6,500.75

DSBG swordfish average price per fish - \$1,300.15

Average price per pound - \$7.81

**Fourth year primary operating expenditures which included the basic fuel & oil, bait, ice, tackle, crew, food (observer included) far exceeded revenues which is one reason the vessel did not operate as many days as previous years.

**NOTE: That even though average price per pound increased from 2020, overall revenues were not nearly as high as projected due to fewer days fished in part because of personal injury. Also, a lower per trip average of fish landed which lead to fishing efforts being diverted to not just other fisheries such as lobster and longlining(for Ben), but other career opportunities (completing a Bachelor's degree for Jack) as well.*

*** NOTE: Expenditures do not account for the overall cost of operations. This does not represent operational cost like safety equipment and inspections, boat repairs, slip and insurance fees.*

DEA

In 2021 F/V DEA did not fish due to personal injury, inoperable repairs to vessel. In addition, low catch and poor market demand affected decision on viability to economically make it worth fishing. Efforts were shifted elsewhere.

In analyzing the data from both vessels and comparing their efficiency and effectiveness, 2021 was a season that did not yield as much catch/revenues as hoped. 2021 was an unpredictable year mostly due to injury and per unit catch effort.

Moving forward, we would like to continue to pursue fishing the standard DSBG in 2022 in order to record further data that will continue to help determine the economic viability of using standard DSBG to target swordfish using both larger multi-day vessels vs. 1-2 day smaller fishing vessels.

As an endnote we would like to point out that 2021 commercial DSBG fishing season continued to be significantly impacted by the influx of sport/recreational fisherman. As the season progressed and more and more recreational fisherman participated in the “Deep Drop” fishing and small fishing grounds became highly competitive with a concentration of recreational fishing vessels. This opened the door for a whole host of conflicts:

1. Recreational vessels setting gear in close proximity to CF resulting in gear conflict and competition for same concentration of fish selecting multiple baits.
2. Recreational gear’s surface footprint (horizontal line attached to their gear) extends upward of ½ mile behind their vessels. This becomes a danger to both navigation and entanglement of protected marine species which CF are scrutinized for and have to fish a vertical line with minimum surface footprint (usually less than 5 yards).
3. Often there is a > 10:1 ratio of Rec vessels to CF vessels. Each rec. vessel fishes 2-3 lines and can bring aboard 2 fish **per** angler. (some vessels have 6+ anglers. = 12+ fish harvested a day). This leads to overfishing by recreational anglers and drives the illegal sales of fish and does NOT promote a sustainable fishery.
4. **Recreational vessels using illegal harpoons to assist in landing their fish and use on surface swimming Swordfish and Bluefin Tuna.**

This DSBG method/fishery was designed and tested within the commercial swordfishing fleet to help **augment** the harpoon and DGN fisheries. It should be kept solely as a commercial fishing method/fishery. Allowing recreational fisherman to use practices and techniques that CF use to land swordfish and bluefin tuna would be a grave mistake. By allowing recreational fisherman to use harpoons and spears to assist in landing these species will support more illegal activities and blur the lines between CF and recreational fishing permitting and legal regulation. Lastly, allowing “Deep Drop” fishing and the use of power assisted reels, recreational fishermen **are not** truly practicing “sport” techniques and harvest more fish than they can reasonably personally consume in one year thus opening the door for continued illegal sales of “sport” caught fish.

Dave Stephens

Ben Stephens

Jack Stephens

F/V Tres Mujeres & F/V DEA