U.S. West Coast Swordfish Meeting
May 11-12, 2015
Southwest Fisheries Science Center, Pacific Room
La Jolla, California

KEY OUTCOMES MEMORANDUM
FINAL – SEPTEMBER 1, 2015

I. Overview

NOAA National Marine Fisheries Service (NMFS) convened the U.S. West Coast Swordfish Fisheries Meeting May 11-12, 2015, in La Jolla, California. (See **Attachment 1** for a copy of the meeting agenda.) The two-day meeting focused on the following objectives:

- Consideration of existing West Coast swordfish fisheries while exploring complementary strategies for optimizing fishing for highly migratory species.
- Consideration of balancing sustainable fisheries with reducing bycatch and identifying potential ways to reach this goal.

This Key Outcomes Memorandum summarizes the primary results of the meeting. The synthesis focuses on summarizing main themes discussed at the meeting and presenting, in particular, the results of small-group discussions centered on generating participant feedback regarding: (1) the current state of swordfish fisheries; (2) possible gear and operational changes; (3) strategies for increasing demand for local and sustainable swordfish; and (4) exploring ways to optimize HMS fishing off the west coast while further reducing bycatch.

II. Participants

Approximately 50 participants attended the meeting. They included commercial fishermen, state and federal fishery managers and scientists, conservation organizations and research institutions, fishing advocates, as well as seafood consumers, seafood suppliers and restaurateurs. Heidi Taylor, of NMFS West Coast Region, Sustainable Fisheries Division, served as the meeting convenor. A Steering Committee comprising Heidi Dewar, Christina Durham, Lyle Enriquez, Christina Fahy, Judson Feder, Elliott Hazen, and Marc Saccucci helped plan and manage the meeting. Scott McCreary and Megan Vinett from CONCUR, an environmental dispute resolution firm specializing in marine resource and water issues, served as meeting facilitators. (A full listing of participants is included as **Attachment 2**.)

III. Meeting Materials

A handful of materials were distributed at the meeting. Materials provided – as well as all presentations delivered at the meeting itself – are available on the West Coast Region website at: http://www.westcoast.fisheries.noaa.gov/fisheries/migratory_species/2015_swordfish_mtg.html

IV. Key Outcomes

Below is a summary of the main topics and issues discussed during the meeting.

A. Welcome and Introductions

H. Taylor opened the meeting with a brief review of the meeting purpose: (1) consideration of existing West Coast swordfish fisheries while exploring complementary strategies for optimizing fishing for highly migratory species; and (2) consideration of balancing sustainable fisheries with reducing bycatch and identifying potential ways to reach this goal.

She emphasized that the meeting is intended to be an exchange of perspectives and not a decision-making forum. Bob Turner, NMFS West Coast Region Assistant Regional Administrator, Sustainable Fisheries Division, thanked attendees, emphasizing that participation is key in setting a good direction for this dynamic fishery. S. McCreary then reviewed the agenda and the ground rules for the meeting, emphasizing the goal to foster a conversation about inventing new options to strengthen the fishery.

B. Background Briefings and Presentations

The meetings included numerous presentations. Below is a quick synopsis of the primary topics covered during the presentations.

Reflections on 2011 Swordfish Workshops

SLUTH: Swordfish and Leatherback Utilization of Temperate Habitat
H. Dewar presented an overview of the history and impetus that lead to the development of SLUTH and the steps taken to the current Management Plan to reduce mortality of leatherback turtles in the swordfish fisheries and increase West Coast swordfish landings. This presentation examined multiple sources of leatherback mortality, describing the relationship between the U.S. West Coast swordfish fishery closures due to both bycatch and the realization that U.S. action alone cannot eliminate risks to leatherback turtles. She also conveyed the fishery perspective that decreases in landings directly affect local economies. H. Dewar noted that while data gaps remain, more work is being done to confirm and refine bycatch rates in foreign fisheries.

2011 Swordfish Workshop
H. Taylor summarized the 2011 Swordfish Workshop in San Diego. U.S. West Coast and Hawaii swordfish fishermen, Pacific Fishery Management Council members, NMFS and state agency members, NGOs, fishermen, chefs, restaurateurs, and others attended this meeting and shared diverse viewpoints on the social, political, economic perspectives on the West Coast swordfish.

Recommendations included developing and using better market strategies to inform the public on the health and management of the fishery, continuing research on new gear and gear modifications and techniques, using a more holistic approach to fishery management, and building partnerships to increase local success.

It was noted that limited resources are a challenge for robust research and public education.

Current Stock Status
T. Sippel presented an overview of the 2014 swordfish stock status conducted by the ISC Billfish Working Group. Using two surplus production models to analyze two stocks – the Western and Central Pacific (WCPO) and the Eastern Pacific Ocean (EPO) stocks – the studies concluded that the WCPO swordfish stock healthy condition, and has been for the past decade. EPO stocks reflect a chance that moderate overfishing occurred in 2012. T. Sippel described stock allocation procedures that supported the demarcation of a stair step-shaped delineation between eastern and western stocks. He noted that an integrated model would be a useful tool in the future to reduce the uncertainty inherent in the MCMC-based

model used to define the current boundary.

Swordfish Fishery Education & Background

Swordfish Fisheries Currently Under the Highly Migratory Species Fisheries Management Plan

K. Dahl addressed swordfish fisheries currently authorized under the HMS Management Plan. Fisheries are characterized by gear type. Of five gear types, three are most commonly used – pelagic longline, large mesh DGN, and harpoon. K. Dahl discussed general regulations as well as more specific regulations, including pelagic longline, which is prohibited in the West Coast EEZ, and specific closures for protected species that resulted in robust mitigation measures and the subsequent reopening. He also noted that state regulations complement the federal HMS regulations.

Bycatch Reduction in U.S. Swordfish Fisheries

R. Lewison, Ecology Professor at San Diego State University, described specific bycatch reduction measures in Atlantic and Pacific pelagic longline and drift gillnet fisheries. She reviewed some specific distinctions among bycatch reduction rules and gear modifications among these fisheries as well as the effectiveness of bycatch reduction in these swordfish fisheries.

These studies show that bycatch reduction is needed across all large-scale gear types, efficacy goes beyond successful experimental trials and into real-use technical performance, and stakeholder engagement and involvement is an important component of developing effective and sustainable bycatch reduction.

Cross-Fisheries Comparison of Bycatch with Various Gears

H. Gjertsen presented comparative studies by the California Ocean Protection Council and California Sea Grant of bycatch and economic metrics in U.S. swordfish fisheries. These studies are motivated by 1) issues raised about bycatch associated with the DGN fishery and the aim to compare it to other fisheries; 2) a request from the PFMC for alternative gear studies; 3) growing interest in deep-set gear (as in tuna fisheries); and 4) interest in developing a standardization of bycatch to address differences in small versus large fisheries to develop economic production standardization. H. Gjertsen emphasized that the growing data set is not complete given the differences in species compositions, abundances, target species, and other fishery-specific characteristics.

Key findings include: buoy gear and harpoons produce lower bycatch, the CA DGN fishery is not a high-bycatch fishery compared to HI SSLL or the ATL LL fishery (which, notably, is Marine Stewardship Council certified). The CA DSLL fishery had lower bycatch than most fisheries included in the studies (other than CA HPN and ATL BG), and this approach shows promise with experiments needed in the U.S. EEZ.

Trends & Landings/Socioeconomic Overview of Swordfish Fisheries

S. Stohls compared economic performance of swordfish fisheries using production indicators at the global, North Pacific, and U.S. Pacific fishery levels. He showed trends

in global production (including catches, landings, revenues, and effort) from 1950 in the Eastern, Western and Central Pacific Ocean.

Most swordfish consumed in the U.S. is imported. The West Coast swordfish fishery shows comparatively low bycatch, though production has underperformed. Increased West Coast production could reduce swordfish contribution to the trade deficit, reduce the carbon footprint of swordfish delivery, and expand international production that meets U.S. management standards. A participant noted that sustaining political will is a key factor as scientific studies and conclusions lead to informed regulations and management actions. The hope for the findings of these studies is they could be presented to the Pacific Fishery Management Council.

Cost Benefit Analysis of Regulation

D. Squires presented a cost benefit analysis for the DGN swordfish fishery time-area closure, measuring gains and losses in consumer and producer benefits as well as bycatch. While there is no formal counterfactual model for bycatch in foreign production, time-area DGN closure resulted in loss of benefits to consumers and producers in the U.S. PFMC region. As well, he concluded that net sea turtle bycatch increased.

Drift Gillnet Fishery Management & Import Provisions

C. Fahy presented on DGN Fishery Management successes. Positive developments include the fishery's ability to take advantage of healthy swordfish stocks, addressing sensitive species concerns and eventually time-area closures. Other developments included the establishment of Take Reduction Teams, MMPA import provisions, gear modification and development, and new MSA provisions. This suite of regulations has proven successful for turtles and marine mammals though with negative economic impact on the U.S. DGN fishery. Participants posed questions on the potential for advancing with sanctions based on fishing practices in Mexico. Others queried about the prospect to revisit and revise the BiOp.

Summary of Exempted Fishing Permit Proposals & Council Actions

T. Sippel summarized 2015 PFMC permit applications. He highlighted applications, looking across proposed gear type, the proposed area for the permit, the proposed timeline, the amount of effort, and proposed observer coverage. He also noted the Council action for each application. A participant noted that it can be challenging to fund development and testing of new gear types with a 100% observer coverage requirement.

Exempted Fishing Permits Applicant Perspective – Swordfish movements, recent gear trials, and future experiments focused on West Coast fishery development

C. Sepulveda presented results of recent PIER studies to develop a low impact alternative gear type to augment the harpoon fishery. PIER studies have shown that swordfish are found at depths greater than 200m, which has supported development of deep set buoy gear (DSBG) in the DGN. Many participants supported the potential for DSBG use in the DGN and expressed need for more testing by experienced swordfish fishermen.

Monitoring Improvements

NMFS Electronic Monitoring Efforts

S. Freese presented the newly adopted 10-year plan by NMFS and PFMC, which aims to identify appropriate electronic technologies for specific fisheries. The three phases of the plan are intended to implement electronic technologies processes and initiatives, expand current projects and develop new and integrated databases, and implement advanced projects with improved technologies. This plan is designed to address and supplement observer coverage and near- or real-time reporting via electronic logbooks and fish tickets. S. Freese highlighted results of the groundfish electronic monitoring and the pending TNC HMS Salstonstall-Kennedy Proposal.

How NGOs Can Help

M. Stevens of The Nature Conservancy presented an NGO perspective on their role in supporting the swordfish fishery. She discussed tools that are changing the conversations about the fisheries also pose concerns. She noted that some marketing and media tools that can also impose high economic costs and present privacy concerns. Other promising strategies include using external funding sources, third party analysts of electronic monitoring data, and others. She noted that TNC's role is to help build partnerships to increase performance and conservation progress, not simply provide funding.

Grants and Funding Opportunities

L. Enriquez outlined five grant and funding programs for fishery management and improvement. Areas of program focus include electronic monitoring and reporting, aiding industry and NMFS collaborations to collect fisheries information, fisheries development, and gear modification and development to reduce bycatch. Along with providing application due dates and contact information, he noted that if participants have ideas for bycatch reduction, they are encouraged talk to NMFS staff to apply to the appropriate organization for funding.

Predictive Mapping Tools and Technology

Existing and Emerging Applications

R. Lewison presented predictive mapping tools to support managed target catches and economic viability while further reducing bycatch. The tool of dynamic ocean management is able to respond to shifting ocean conditions and use real or near-time data. These applications, many of which are still in development, are currently used for predictive mapping tools and habitat models with the aim to balance sustainable catch and bycatch mitigation all over the world.

C. Supply Chain Panel Discussion

Peter Halmay, Tuna Harbor Dockside Market, Jim Heflin, F/V Chula, Dave Rudie, Catalina Offshore Products, Shevis Shima, Chesapeake Fish Company, and Bill Sutton, Fisherman/ Restaurateur, served as panelists to discuss the swordfish supply chain. The following trigger questions served to structure the discussion.

- What do you see as the different markets for West Coast swordfish?
- What do you feel is the ideal balance of domestic and foreign swordfish supplies to the West Coast market?
- Where does the majority of your swordfish come from (i.e. fishery, region)?
- When does swordfish supply typically spike and peak? How does seasonality affect availability, price and product quality?
- Does local demand increase along with availability?
- Is the infrastructure in place to handle a potential future increase in landings and offloadings of swordfish to West Coast ports?
- What additional steps are needed to reinforce and reward sustainable fishing practices and differentiate between the various fisheries, both domestic and foreign?
- What marketing strategies can be used to reinforce and reward domestic operations?
- In your experience, do your consumers know or care where their swordfish comes from? What considerations are most important for consumers?
- What attributes of seafood most affect the determination of the price point? (freshness, quality, supply volume, catch location, seafood certification/traceability rating, sustainability, gear type, level of bycatch associated with fishery)?

Consumer Knowledge, Preference, and Driving Force for Purchase Decisions
S. McCreary opened the discussion, asking whether, "consumers know or care where their swordfish comes from? What considerations are most important for consumers?"

Panelists expressed the importance of local seafood to their customers with the caveat that price is the overriding consideration to most customers. Notably, and perhaps surprisingly, most Panelists asserted that relatively few customers ask about the source of the fish they buy.

One Panelist explained his need to include imported swordfish in his supply to offset the seasonality of local catch. This was viewed as an essential practice to offer a steady supply of swordfish to customers so as to maintain a stable market and repeat demand.

Other Panelists noted that customers benefit from direct conversations with fishermen, and Panelists agreed that local markets want to represent local fisherman. These conversations also convey the importance of these fishermen to the entire local community, which reinforces both the value of the fishery and underscores the availability of a fresh, high quality product.

Educating customers and the broader public remains an ongoing process. One point of access is through servers in restaurants who are in a position to educate customers on local species, seasonality of particular species in that area, and where and how it was fished. Some markets and their customers reflect more knowledge and demand for local swordfish, particularly harpoon caught swordfish, which can command a price premium.

Intersection of Supply and Demand as Overriding Price Driver
Time again, Panelists emphasized that the interaction of supply and demand drives price. A participant asked to what degree quality of the fish affects price and if there are widely recognized quality differences between imported and domestic swordfish. Panelists expressed the view that there can be all different grades of fish no matter the source, depending on

seasonality of the fishing (if the fish was caught after a feeding or spawning season) and how the fish was handled (experience of the fisherman, how it was kept cold, etc.). There can be better control over quality with local fisheries because information on where, when, and how the fish was caught and handled is available.

Value of Traceability and Labeling
The Panel considered the value of traceability and explicit labeling, especially in response to competition from frozen products sold at lower price points, and how to better convey information on quality to consumers on a larger scale. One Panelist noted that his business is testing traceability on a pilot basis. He expressed a conviction that customers should drive that effort, not a government mandate. Another participant noted that traceability is important for his market niche. He and other fishermen call ahead to markets with what they have caught and when they will be at the market, and this has helped them develop a niche market with repeat customers while maintaining a good price. One Panelist suggested that traceability could require a significant investment, and is only one component of consumer preference. Other Panelists noted fishmongers sell fish that they are proud of and would eat themselves, so traceability can be redundant.

Dealing with Seasonality
Market seasonality is a reality in the seafood business. One Panelist expressed the need to accustom customers to the concept that "available fish" are those landed by the fleet, so that if local swordfish are not available on a given day, the retailer can educate the customer on other locally available species. This marketing strategy can help develop healthy portfolios for fishermen while educating the public.

Panelists discussed the need to balance their supply, however, and supplementing with imported or farmed products addresses demand during fishing off-seasons and appeals to lower price points. Panelists also cited the potential role of new methods of processing fish and preserving quality over longer time periods – up to 3 or 4 months – and how this could fill in seasonal availability gaps with local product.

Marketing and Public Outreach
One Panelist confirmed that if presented with increased availability of locally caught swordfish, his company and others would do their best to promote it. He also echoed the role of participants in the restaurant sector – especially servers' ability to tell the story of the fish to help educate customers and thereby increase demand for local swordfish. One participant noted that as deep set buoy gear takes off, it might require a thoughtful "branding effort"; the term is harder to say than "harpoon caught".

One Participant noted that new social media tools were highlighted as progressively effective in increasing sales; he finds that email blasts, Twitter and Facebook messages posted when local swordfish are landed can help drive local demand.

Infrastructure Capacity Given Increased Landings
The Panel considered whether there is sufficient infrastructure in place to handle potential future increases in landings of swordfish in West Coast ports. One Panelist opined that even if the

supply doubled or tripled, that volume would not pose undue stress of existing infrastructure.

Summertime Demand Presents Opportunity
Another Panelist noted that summertime (corresponding with vacations) shows the highest demand for local fish, and this could provide a window for buoy-caught local fish to develop a niche market.

Messaging Around Gear Type
Some participants noted negative messaging around swordfish had impacted the swordfish business despite the reality of reduced bycatch in the DGN. Some campaigns against specific gear types and practices have generalized to all swordfish fisheries.

One Panelist noted that when customers ask a fisherman about his gear type or how the fish was caught, that fisherman relies on government agencies to convey a scientific picture of the fishery and the fishing methods. He suggested a one-page flier be developed by NMFS to describe and depict why the fish they are selling is good fish. Participants noted and appreciated that NMFS is putting more money and effort into FishWatch, and that they have recently launched a new, mobile-friendly version of the website.

One participant suggested NGOs would be interested in promoting low bycatch swordfish, namely those caught with harpoon or buoy gear, and helping develop sustainable fishery labeling.

An alternate view was that promoting harpoon and buoy-caught fish as "good" or "sustainable" could imply an inappropriate pejorative judgment that other fishing methods are "bad." NMFS has put substantial effort into studying and confirming that DGN fishing is not negatively impacting the sustainability of the fishery and has dramatically reduced bycatch of listed species. Participants and Panelists broadly expressed the need for positive marketing of local, California, and U.S. caught swordfish across the board.

Positive Messaging Tools and Concepts
A participant suggested that NGOs could do more to partner with fishermen and other players in the supply chain to communicate the science behind the positive achievements of the fishery. The Sustainable Seafood Initiative was suggested as a potential avenue. Noting that MSC certification must precede the Sustainable Seafood Initiative certification, one Panelist stated that this was a weak incentive, as maintaining MSC certification carries a high ongoing expense. Commodity Commissions (modeled similarly to the salmon and trawl commodity commissions supported by the Department of Agriculture in Oregon) were suggested for fishermen and processors to work collaboratively to move forward on positive marketing and public education.

Final Panel Remarks
Panelists concluded that the fishery management is best done based on strong science, and affirmed the importance of continuing to support and manage the California swordfish fishery. Panel members agreed on the promise of deep set buoy gear to augment harpoon caught fish and support the local market. Panelists expressed appreciation for scientists who work directly with the fishery. One suggested that a positive message is that these scientists are doing an excellent

job with their research and management of the fishery. The swordfish fishery and the new RFPs are showing high potential, and with the right marketing and upkeep of experienced crews and boats, the swordfish fishery could become a more sustainable industry.

D. Facilitated Discussion: Strategies to Sustain West Coast Swordfish Fisheries and Reduce Bycatch

A wide-ranging plenary discussion on strategies to sustain West Coast swordfish fisheries underscored the broad agreement that deploying new methods of fishing with new gear types, as well as new uses or configurations of existing gears, can help the fishery demonstrate how it has improved fishing and decreased bycatch.

Some participants urged setting realistic expectations for the extent of bycatch reduction that can be achieved in U.S. West Coast fisheries; there is a limit to how much can be done to decrease bycatch while maintaining the fishery.

Some participants asked for clarification on the definition of bycatch, and specifically how bycatch statistics reflect caught and released-alive animals. Bycatch has both a biological and ecological definition when non-target species are discarded at sea.

Others advanced the concept of a social value inherent in the term bycatch. These speakers made a corresponding argument that bycatch could be viewed by some as "morally wasteful." Several participants suggested that the concept and components of bycatch need to be better explained in public education efforts.

There was an overarching expression of support for U.S. fisheries, specifically an increase in U.S. West Coast swordfish landings and recruitment of younger fishers into the fleet.

One participant suggested developing a unified, simple message of support for U.S. seafood from the suite of stakeholders. Others expressed a continuing need to see more selective fishing gear replacing DGN and longline gear in order to continue to reduce bycatch.

Much attention was focused on the concept and challenge inherent in documenting international transfer effects. Participants called out significant data gaps in international fisheries catch and bycatch numbers. More robust foreign fishery data sets and clearer understandings of impacts of transfer effects are needed to inform decisions by both the PFMC and Congress.

Participants broadly expressed support for several concepts 1) using available resources wisely, including available funding and information, 2) basing fisheries management on sound science, and 3) acknowledging progress that has already been made in the fishery. There is broad support for and commitment to improve the fishery with smarter fishing with the use of innovative gear types and predictive mapping, among other improvements, celebrating successes, and providing a clear, unified message to the public on the value of the fishery.

E. Breakout Group Deliberations

Conveners structured five concurrent breakout groups to spark forward-looking discussions related to the U.S. West Coast swordfish fishery. Each of the five breakout groups was composed to bring together a balanced range of perspectives within each group. Composition of the five groups was arranged so to foster cross-interest discussion.

The topics used to structure the breakout sessions and crosscutting themes and ideas are summarized below. Full reports back from each group are included as Attachment 3.

Breakout Session 1 Topics:
1: What is the value of having a swordfish fishery off the West Coast?
2: Is the current state of the swordfish fishery sustainable?
3: What are the major challenges facing the swordfish industry?
4: What are the most promising strategies to meet and overcome those challenges?

Crosscutting themes and ideas:
Participants noted significant value in having a local swordfish fishery, citing its contributions to the local economy, culture and history, its characteristic of lower-bycatch relative to both the historic DGB fishery in California and imports, its role in providing high nutrition food to the community, and its comparatively low carbon footprint relative to imported fish. Participants also affirmed the contributions of the fishery to fisheries science. Catch data, gear development and testing, and other data collected by active fishermen add to the data stream for scientific research and innovation for fisheries worldwide.

Mixed Views on Sustainability of the Fishery
Participants responded to the question of sustainability from the perspective of both biological sustainability and sustainability of the fleet. Participants conveyed and readily acknowledged mixed views on the sustainability of the DGN fishery due to bycatch concerns. Yet, it was widely recognized that the swordfish stock itself is sustainable at current and higher potential levels of effort.

Challenges in Recruitment to the Fishery
Given the very low rate of new entrants, the fishery is aging, which leads to concerns about the longevity of the fishery. Some speakers noted that gaining access to the PLCA and removing threats of closures could increase the economic viability and fleet sustainability.

Major challenges facing the fishery included concerns again over the aging fishing cohort in the U.S. fleet along with the inconsistency of a local supply of swordfish, consumer misconceptions and misinformation about food safety and fishing practices, and growing competition with lower-priced, imported fish.

Array of Cost Stresses and Sources of Uncertainty
Regulatory and fishery management and operational challenges were also widely noted. They include increasing costs of observer coverage, gear, and fuel, as well as the difficulty to balance

economically sustainable catch with low bycatch. The PLCA closure was also cited as a major challenge to the fishery.

Diverse Organizational Missions Relative to the DGN
Another challenge noted is the high tension and low trust between the fishermen and some members of the NGO community. Importantly, NGOs have to date adopted a range of stances toward the DGN fishery.

New gear development to diversify gear portfolios among fishermen was considered a promising strategy to overcome some of the challenges in the fishery. As well, deploying new gear types was cited as a potential avenue to reopen the PLCA to swordfish fishing with an acceptable level of bycatch.

Additional strategies to address challenges in the fishery included increasing constructive dialog across stakeholder groups and maintaining full representation in management, developing relationships for a common understanding of ecological and economic issues to resolve, and working together to consider and develop import policies. Dynamic ocean management and predictive mapping are tools that show promise to advance both ecological and economic characteristics of the fishery. Another promising resource is funding available under new RFPs.

Breakout Session 2 Topics:
1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?
2: How can organizations and individuals in the supply chain support a robust swordfish industry?
3: How can we build and grow partnerships?

Crosscutting themes and ideas:

New Technologies and Methods Highlighted
Breakout groups widely cited smart deployment of vessels and gear using predictive mapping and pooled electronic information, faster development of more selective gear types (deep set buoy gear, daytime DGN with shorter set times, actively tended longlines), deterrent devices (illuminated nets, pingers), and advancement of avoidance research as the gear and technologies that could increase fishing opportunities and minimize environmental impacts. Advancing improved post-catch fish techniques to enhance product quality was also widely supported as a positive development.

Value of Positive Marketing
Participants maintained that public education and outreach through positive marketing and branding strategies, including "California-caught" labeling, and building relationships with NGOs for positive messaging and correlated funding opportunities as ways the supply chain could support the swordfish fishery. Participants also discussed contributions to conservation efforts and further management research into whether there is potential for modifying or reopening the PLCA as positive ways to support the fishery.

Naming Areas of Agreement is an Asset
Breakout groups offered that explicitly naming, confirming, and acknowledging areas of agreement can be an asset for the fishery. Participants noted that for organizations active in discussions on the future of the DGN fishery, a stance that involves active trust and respect for still-divergent opinions among stakeholders could help foster and grow partnerships.

Building on this Meeting Through Collaborative Work Teams
Collaborative work through work teams, task forces or commodity commissions to 1) develop marketing and branding strategies, 2) spread the burden of research and innovation, and 3) work toward common goals of responsible representation of scientific information were also supported as positive ways to shape working partnerships.

Again, a detailed synthesis of each group's deliberation is included as **Attachment 3**.

F. Future Actions and Commitments

The meeting concluded with participants engaging in a brief discussion on next steps needed to carry the conversation forward.

There was broad agreement that the fishery provides many benefits, from providing a healthy local food source to bolstering the domestic economy. There was also broad support for investment in trainings, positive marketing, and public education; new gear research and development with low bycatch rates; existing gear modification to decrease bycatch; observer coverage, and electronic monitoring. Additionally, there was broad support to built cross-interest relationships to work together to move the fishery forward to provide a local source of sustainable supply to meet demand.[1]

A four-person work team prepared the following Draft Consensus Statement. The team drafted text during the meeting and further discussed, edited, and confirmed it shortly after the meeting.

[1] As the purpose of this meeting was to foster a thoughtful discussion, our use of the term "broad based agreement" and "broad support" captures the overall sense of the group but is not meant to express unanimity. As noted above, participants expressed a range of views about the fishery--from strong support for strengthening existing fishing methods to strong support for transition away from DGN gear.

Draft Cross-Interest Consensus Statement

Four participants representing fishermen, industry, NGO, and academic science perspectives drafted this statement. The full group of attendees has not endorsed it.

As a group of stakeholders, we are fishermen, fish buyers, fisheries managers, government, academic and independent scientists, NGOs, and concerned citizens of the U.S. West Coast swordfish fishery. We acknowledge the diverse perspectives of the stakeholder group and have agreed as a productive first step to recognize the following areas of consensus:

- We are committed to an economically viable, ecologically responsible and sustainable swordfish fishery in California.
- Fresh local swordfish is an abundant resource and valued ecosystem benefit that we should support, promote and celebrate.
- The future of the fishery is in jeopardy because of the aging demographics and low recruitment of new entrants into the fishery.
- The potential for in-water injury and mortality of species of conservation concern and discards is a serious problem that will require ongoing attention and innovative solutions.
- We recognize and acknowledge that substantial progress has been made to improve the ecological performance and accountability of this fishery. This includes:
    - Effective implementation of bycatch reduction measures (time/area closures, pingers, extenders, etc.),
    - Significant reduction in protected species bycatch since 1997 (POCTRT begin?),
    - Continued fisher and industry engagement in fisheries management,
    - Proactive history of protections for turtle nesting beaches, solutions workshops, and other activities to promote understanding and protection of endangered species globally,
    - Ongoing documentation of the fishery through 25 years of observed fishing trips.
- We recognize the importance of innovation in the form of new gear development and testing (e.g. buoy gear, deep-set longline, harpoon) as well as integration of science and technology to support fisheries management (e.g. dynamic ocean management). Electronic monitoring and other innovations for efficient and timely data collection are also a key element to fishery innovation.
- There is a clear need to support local, sustainable swordfish sales, and to develop new markets for non-target but marketable species. Building markets or supporting market access for non-target/marketable species is an important way to reduce discards.
- There is also a clear need to inform and educate consumers on the ecological and economic impact of the global swordfish supply chain.
- Moving forward, participants agree to respective dialogue, fair and accurate use of data, and using best science to inform management decisions.

Collaborative Ideas for Progress:

Develop a fact sheet with basic fishery stats that support this statement (include stats such as U.S. portion of north Pacific swordfish catch is 3% of the total).

Better use of social media, publications and science to pro-actively encourage further progress.

Consensus statement drafting team: Melissa Stevens (NGO), Rebecca Lewison (scientist), Dave Rudie (fish buyer), John La Grange (fisherman).

V. Potential Ways Forward

The discussions and breakout sessions generated the following potential ways forward. To convert this list of concepts into a more intention strategic plan, leads for each task must be identified:

- Share FishWatch information/website/fact sheets more broadly with the public
- Ensure that FishWatch more fully represent West Coast fisheries and species
- Work to improve education of the public regarding responsible fishing, selecting a responsible product, health risks of consuming fish, etc. (FishWatch falls under public education)
- Initiate a campaign to promote California Fisheries as responsible and balanced, with the inclusion of specific "California Caught" labeling
- Develop and implement stronger policies and regulations guiding the importation of SWO and other species of fish
- Continue to support and invest in innovations: exploring other fishing methods and opportunities as well as employing latest technologies to monitor/map and reduce/prevent bycatch
- Advance research and data gathering to develop more robust statistics and analysis around bycatch statistics in the following three arenas: 1) to what extent do the numbers for bycatch assume that bycatch of all species is likely to produce mortality; 2) assess whether some bycaught species could be marketable and sellable?; and 3) examine whether bycatch of some species does not pose a significant impact because of their robust population or because the species does not have endangered or threatened status
- Develop and implement more widespread and frequent training on use of new gears
- Continue to explore how DSBG could be a viable option for the DGN fishery
- Foster a cooperative partnership among fishery stakeholders to build trust, focusing on common ground and collaborative projects to move forward on protecting all aspects of the fishery. A first step toward this cooperative partnership was drafting of "The Cross-Interest Consensus Statement" included in this memorandum.
- Explore and invest in fostering a better understanding of the economics of the fishery and the transfer effects from foreign fisheries
- Develop a working relationship with Mexico to be able to gather data, share information, fill in data gaps, and build an understanding of bycatch rate comparisons, transfer effects, and gear improvement opportunities
- Improve visibility and access to available government funding for fishers and new gear development
- Improve electronic logbooks and monitoring to move out of pilot phases and into daily use to help address observer coverage costs
- Organize and convene two new cross-interest stakeholder committees to (1) prioritize funding for gear research; and (2) develop positive messaging and outreach strategies for U.S. caught swordfish.

Questions or comments regarding this summary should be directed to Heidi Taylor at NMFS or Scott McCreary with CONCUR. Scott can be reached 510-649-8008 or scott@concurinc.net.

ATTACHMENT 1: MEETING AGENDA

Agenda
U.S. West Coast Swordfish Fisheries Meeting
May 11-12, 2015
Southwest Fisheries Science Center, La Jolla, California

Objective: Stakeholders will consider existing West Coast swordfish fisheries while exploring complementary strategies for optimizing fishing for highly migratory species. This conversation will take into consideration balancing sustainable fisheries with reducing bycatch and identify potential ways to reach this goal.

Monday, May 11, 2015

8:00 am – 9:00 am	Arrive and Register
9:00 am – 9:30 am	**Welcome** • Meeting Purpose and Welcome (*Heidi Taylor*) • Introductions, Agenda Overview & Ground Rules (*Scott McCreary*)
9:30 am – 10:00 am	**Swordfish Fishery Background** • SLUTH: Swordfish and Leatherback Use of Temperate Habitat (*Heidi Dewar*) • A Summary of the 2011 Swordfish Workshop (*Heidi Taylor*)
10:00 am – 10:45 am	**Swordfish Fishery Education & Background** • Current Stock Status of Swordfish in the North Pacific (*Tim Sippel*) • Swordfish Fisheries Currently Authorized Under The Highly Migratory Species Fisheries Management Plan (*Kit Dahl*) • Bycatch Reduction in U.S. Swordfish Fisheries (*Rebecca Lewison*)
10:45 am – 11:00 am	Break
11:00 am – 12:00 pm	**Swordfish Fishery Education & Background** • Comparing Bycatch and Economic Metrics in U.S. Swordfish Fisheries (*Heidi Gjertsen*) • Trends In Economic Performance of Swordfish Fisheries (*Steve Stohs*)
12:00 pm – 1:15 pm	Lunch Break *12:30 pm Tribute to Pete Dupuy*
1:15 pm – 3:15 pm	**Swordfish Fishery Education & Background (*Continued*)** • Cost Benefit Analysis of Regulation (*Dale Squires*) • Drift Gillnet Fishery Management Success, with Implications for Seafood Imports (*Tina Fahy*) • A Summary of Exempted Permit Applications to the PFMC in 2015 (*Tim Sippel*) • Update on Exempted Fishing Permits - Swordfish Movements, Recent Gear Trials, and Future Experiments Focused On West Coast Fishery Development (*Chugey Sepulveda*)
3:15 pm – 3:30 pm	Break

3:30 pm – 4:00 pm	**Monitoring Improvements** • NMFS Electronic Monitoring Efforts (*Steve Freese*) • How NGOs Can Help (*Melissa Stevens*) • Overview of Requests for Proposals (*Lyle Enriquez*)
4:00 pm – 4:45 pm	**Predictive Mapping Tools and Technology** • Existing and Emerging Applications (*Rebecca Lewison*)
4:45 pm – 5:15 pm	Wrap Up (*Scott McCreary*)
6:00 pm –	Optional Evening Networking Activity

Tuesday, May 12, 2015

9:00 am – 9:30 am	Recap and Frame Topics (*Scott McCreary*)
9:30 am – 10:30 am	Supply Chain Panel Discussion (*Peter Halmay, Jim Heflin, Dave Rudie, Bill Sutton, Shevis Shima, Moderated by Scott McCreary*)
10:30 am – 10:45 am	Break
10:45 am – 12:00 pm	Facilitated Discussion: Strategies to Sustain West Coast Swordfish Fisheries and Reduce Bycatch (*Scott McCreary*)
12:00 pm – 1:15 pm	Lunch Break
1:15 pm – 2:15 pm	**Building and Strengthening Partnerships** Facilitated Breakout Session Groups Topics: - What is the value of having a swordfish fishery off the West Coast? - Is the current state of the swordfish fishery sustainable? - What are the major challenges facing the swordfish industry? - What are the most promising strategies to meet and overcome those challenges?
2:15 pm – 2:30 pm	Break
2:30 pm – 2:45 pm	Report-Out From Breakout Groups
2:45 pm – 3:45 pm	**Building and Strengthening Partnerships** Facilitated Breakout Session Groups Topics: - What gear or technologies could increase fishing opportunities and minimize environmental impacts? - How can organizations and individuals in the supply chain support a robust swordfish industry? - How can we build and grow partnerships?
3:45 pm – 4:00 pm	Break
4:00 pm – 4:15 pm	Report-Out From Breakout Groups
4:15 pm – 5:00 pm	**Next Steps**

ATTACHMENT 2: PARTICIPANT LIST

FIRST	LAST	AFFILIATION
Scott	Aalbers	Pfleger Institute of Environmental Research (PIER)
Tara	Brock	The Pew Charitable Trusts
Gary	Burke	Commercial Fisherman of Santa Barbara
David	Crabbe	Buccaneer Fishing
Kit	Dahl	Staff Officer - HMS Pacific Fishery Management Council
Heidi	Dewar	NMFS, Southwest Fisheries Science Center
Gerard	DiNardo	SWFSC/Consultant
Lyle	Enriquez	NMFS, West Coast Region, Sustainable Fisheries Division
Tina	Fahy	NMFS, West Coast Region, Protected Resources Division
Judson	Feder	NOAA/Office of the General Counsel
John	Foster	F/V Chula
Steve	Freese	NMFS, West Coast Region, Sustainable Fisheries Division
Heidi	Gjertsen	NMFS, Southwest Fisheries Science Center
Jonathan	Gonzalez	U.S. Fisheries Advocate, eatUSseafood.com
Peter	Halmay	Tuna Harbor Dockside Market
Doyle	Hanan	Hanan & Assoc. Inc.
Don	Hansen	Dana Wharf Sportfishing
David	Haworth	Fisherman
Craig	Heberer	NMFS, West Coast Region, Sustainable Fisheries Division
Jim	Heflin	F/V Chula
Elizabeth	Hellmers	California Department of Fish and Wildlife
Michelle	Horeczko	Highly Migratory Species Project Supervisor, CA Dept. of Fish and Wildlife
Kirt	Hughes	Washington Department of Fish and Wildlife
Suzy	Kohin	NMFS, Southwest Fisheries Science Center
Donald	Krebs	F/V Goldcoast
John	La Grange	Commercial Fisherman
Rebecca	Lewison	San Diego State University
Arthur	Lorton	F/V Sea Haven
Scott	McCreary	CONCUR
Huff	McGonigal	Fathom Consulting
Sarah	McTee	Environmental Defense Fund
Jacqueline	Meyer	California Ocean Protection Council Fisheries Policy Analyst
Tim	Mulcahy	F/V Calogera
John	O'Sullivan	Monterey Bay Aquarium
Nathan	Phillips	Catalina Offshore Products
Dave	Rudie	Catalina Offshore Products
Marc	Saccucci	NMFS, West Coast Region, Sustainable Fisheries Division

Cyreis	Schmitt	Oregon Dept. of Fish and Wildlife
Chugey	Sepulveda	Pfleger Institute of Environmental Research (PIER)
Geoff	Shester	California Campaign Director Oceana
Shevis	Shima	Chesapeake Fish Company
Tim	Sippel	NMFS, Southwest Fisheries Science Center
Dale	Squires	NMFS, Southwest Fisheries Science Center
Melissa	Stevens	The Nature Conservancy
Stephen	Stohs	Southwest Fisheries Science Center
Bill	Sutton	Fisherman/Restaurateur
Heidi	Taylor	NMFS, West Coast Region, Sustainable Fisheries Division
Barry	Thom	NMFS, West Coast Region, Deputy Regional Administrator
Bob	Turner	NMFS, West Coast Region, Assistant Regional Administrator Sustainable Fisheries Division
Megan	Vinett	CONCUR

ATTACHMENT 3: SUMMARY OF BREAKOUT SESSION DELIBERATIONS

Breakout Session 1

Group 1:

Topic 1: What is the value of having a swordfish fishery off the West Coast?

- Economics benefits:
  - Create Employment (fishermen/crew/fuel dock/marine store/boatyard
- Generate a multiplier effect/indirect expenditures
- Proximity to the resource (compared with the more distant HLL fleet)
  - Social (recruitment of new fishers)
  - Experience (e.g., dining)
  - Nutrition
  - Public appreciation/education
  - Sense of community
  - Tourism
- Ocean – resources, reduce transfer effect
- Research & educate fisheries elsewhere/innovation
- Stock assessment

Topic 2: Is the current state of the swordfish fishery sustainable?

- Swordfish stock is sustainable at current effort (& higher levels)
- DGN is economically sustainable within a portfolio of fisheries
- Economics would be improved by access to the PLCA
- Mixed views on whether the DGN fishery is sustainable, due to bycatch concerns
- Conduct research on post-release mortality and stock status of released animals
- Harpoon is a fishery of opportunity, valuable within a portfolio

Topic 3: What are the major challenges facing the swordfish industry?

- Too few younger (or anyone) fishers are entering the fishery (low recruitment, longevity)
- Variation in Oceanic conditions variation (la Niña/la Niño); biological association with oceanic condition; need funds to acquire data, stock assessment of protected species
- Changing industry/image to the public
- Competition from imports/free-trade agreements
- Misinformation disseminated on risks posed by mercury in swordfish/health issues
- Restrictive fishery management and added costs to monitor (a particular challenge is unobservable vessels)
- The PFMC process seems based on politics, not science
- The Fleet is small/not enough capability/coverage to find the fish
- Unintended "victim of future success": bycatch of protected species has already been much reduced; protected species w/ recovering protected species

Topic 4: What are the most promising strategies to meet and overcome those challenges?

- Development of gear modifications development
- Innovation and experimentation around of new gears
- Support dynamic ocean modeling
- Marketing for smaller scale fisheries

  - Use the "farm to table model" to support local swordfish
  - Learn from the Pete Dupuy model (Ventura harbor)
- Emphasize labeling/traceability linked back to the vessel

Group 2:

Topic 1: What is the value of having a swordfish fishery off the West Coast?

- Enhances the image of San Diego as a "seafood city" (applies to other West Coast ports)
- Locally caught fish is good for tourism
- Yield positive Economic effects (employment, expenditures)
  Avoid Fishers' cultural loss / loss of preferred livelihood
- Strengthens market for locally-sourced food
- Lower fossil fuel footprint than imports
- Shorter supply & transportation chain makes available a high quality product at lower delivery cost
- Less bycatch than imported swordfish
- Local control over externalities of swordfish production

Topic 2: Is the current state of the swordfish fishery sustainable?

- Target species
  - Yes, with proper management of the healthy stock
- Non-target species
  - Outlook for some by caught species is poor, although bycatch in the U.S West coast fishery is low
  - The bycatch problem cannot be by shutting down WC fisheries
  - Bycatch mitigation is an ongoing priority
  - Can we find markets for some currently discarded species?
- Economics
  - Yes; fish are available and market demand is ongoing
- Demographics
  - Aging fleet with low recruitment of new participants

Topic 3: What are the major challenges facing the swordfish industry?

- Current level of regulation is challenging for participants, could reduce West coast production
- Aging participant cohort with few new participants
- Time area closures are not most effective bycatch reduction strategy for economic viability
  - What alternative would work better than PLCA closure?
- High gear costs / risk of lost investment / fuel costs
- An uneven playing field in the market place vs. imports (foreign fleets are subsidized / have limited observer coverage / weaker management / less enforcement)
- Swordfish has public image challenges; sometimes characterized as unsafe (mercury loads), overfished, and caught with high bycatch gears
- Consumers may have had bad retail experience with swordfish from cheap sources and poor quality, leading to declining demand

Topic 4: What are the most promising strategies to meet and overcome those challenges?

- Consider new management and fishing strategies that might enable re-opening PLCA to swordfish fishing with an acceptable bycatch level
  - Diversify gear portfolio
  - Support EFPs to figure how to fish with lower bycatch rates
  - Keep U/S. fishers on the water to allow innovation
- Develop and communicate better documentation of bycatch and regulations of foreign imports
- Consider best, most effective policy tools in international arena (import ban, intl. agreements, other?)
- Develop rational solutions to bycatch management, given the demand for fish will not go away
  - Solutions that would account for ecological and economic problems across the ecosystem and entire supply chain
  - Need common understanding among constituents of both real ecological and economic problems to resolve

Group 3:

Topic 1: What is the value of having a swordfish fishery off the West Coast?

Desirable product with ecological, societal, and industry related benefits

- People want fresh fish; swordfish and tuna are highly desirable
  - Swordfish is easy to cook
  - It is healthy protein choice over terrestrial sources or fish species/stock that are less abundant
  - Swordfish associated with saleable bycatch
  - Reinforces a connection to the ocean and the environment
- Benefit to local economy; jobs, supports infrastructure, promotes working waterfronts
- Biological - scientific data stream; there is an efficiency of scale associated with the fishery versus scientific platforms alone; catch data are highly valuable if not essential for stock assessment
- Develop a diversified portfolio of fisheries provides greater certainty for income

California swordfish offer fresh, high quality fish with a low carbon footprint

Topic 2: Is the current state of the swordfish fishery sustainable?

Chose not to tackle this in light of challenge agree on definition

Topic 3: What are the major challenges facing the swordfish industry?

- Balancing by-catch, profitability, and gear-types
- Inconsistency/mismatch of local availability and supply
- Addressing consumer misconceptions about swordfish; local versus imported - quality, price, fresh-frozen, ecological impact, contaminants concerns (mercury)
- Importation of lower cost, inferior product

Topic 4: What are the most promising strategies to meet and overcome those challenges?

- Strive for accurate data reproduction
  - No more cherry picking of the data

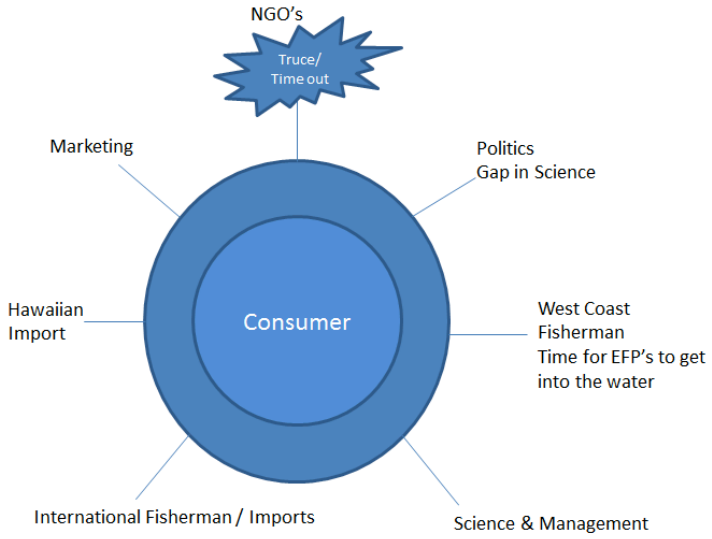
- Increase awareness through public outreach/ education/ reports
- Use Dynamic ocean management
    - Increase selectivity and reduced undesirable bycatch
- Promote constructive dialogue across stakeholder groups
    - Points of common agreement
    - Issues where stakeholders can agree to disagree and move forward
- Ensure adequate representation in management – seat at the table
- Promote domestic product as best choice

Next Steps/Potential Action Items:
Connecting consumers to the ocean and the environment has larger scale ecological and societal benefits – a key theme for outreach and education.
Remove barriers to innovation - explore and innovate effective gear types.

Group 4:
Topic 1: What is the value of having a swordfish fishery off the West Coast?

Topic 2: Is the current state of the swordfish fishery sustainable?

Topic 3: What are the major challenges facing the swordfish industry?



1. Recognize and deal with the gap between science and policy/science and politics
2. Engage the challenge of international imports
3. Time to allow EFPs to get in the water
4. Address and reduce the tension between [some] NGOs and west coast fleet

Topic 4: What are the most promising strategies to meet and overcome those challenges?
1. Pursue fast track testing and deployment of buoy gear
2. Buy back latent permits, then use proceed to:
    - Fund observers

    - Fund gear research
3. Establish Two committees/working groups
    - Prioritize use of funds for gear research
    - Promote U.S. caught SWO; develop positive messaging
1. Allow voluntary reduction of DGN effort or catch (consider trades for DSBG)
2. Diversify gear, products, price points, seasons
3. Consider that future freezing could help stabilize product quality

Group 5:

Topic 1: What is the value of having a swordfish fishery off the West Coast?

- Support Fresh local swordfish in the market
- Maintain jobs and a fishing culture and history

Topic 2: Is the current state of the swordfish fishery sustainable?

Not currently sustainable from a fishery participant perspective. No fishermen recruitment into the fishery
Not a resource issue, no overfishing going on with the stock fished here
Mix of stocks – may be some overfishing of the EPO stock, but not currently overfished
Removing the threat of banning banned would increase and stabilize permits value

Topic 3: What are the major challenges facing the swordfish industry?

Import price
Access to fishing grounds
Misinformation
Concerns about mercury
Sensitive species interactions
Regulatory constraints (gear restrictions)
Consistency of supply of US caught fish
Mixed Public perception
PLCA
An Insufficient degree of fishery organization

Topic 4: What are the most promising strategies to meet and overcome those challenges?

- Develop Additional gear options
- Support greater fishery organization
- Reconsider permit transfer restrictions
- Allow California longline fishing (find support for EFP)
- Create Access to the PLCA (may be connected to latent permit reduction and performance standards?)
- Accessing the PLCA may need to be done initially through an EFP, which needs to include changes to standard operations including FMPs
- Predictive mapping
- Potential to fish during the day down deep with a net?

Breakout Session 2:

Group 1:
Topic 1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?

- Gear technologies: differential illumination (avoid attracting sea turtles); electromagnetic forces (sharks); change existing configuration (e.g., deeper nets, reduced soak time?)
- Consider impacts of new gear technology on target species
- Satellite derived SSTs, environmental covariates etc. and association w/ swordfish (getting info when offshore) – improved technology
- Develop and deploy improved monitoring technology (increased accountability)
- Develop and deploy improved pingers to deter whales
- Identify approved Non lethal deterrents to reduce depredation of catch
- Find a way to allow longlining in the EEZ

Topic 2: How can organizations and individuals in the supply chain support a robust swordfish industry?

- Support a community-based approach
- Look for ways to ease permitting of sales (city support for open markets) (e.g., Pike's market)
- Pursue funding opportunities (use grants to leverage private investment)
- Assess broader opportunities for fishermen to sell their fish
- Develop additional cold-storage techniques and infrastructure
- Explore options for labeling to improve CA-based seafood without getting MSC certification (need standards, which might be a challenge)
- Develop a branding or message for "California-caught fish" – market w/ other fisheries

Topic 3: How can we build and grow partnerships?

- Form Task Forces to tackle individual challenges
- Need sponsor/facilitator (neutral party)
- Support innovations (huge agreement on this front)
- Commit to avoiding speaking ill of groups or individuals/opinions
- Conduct Training on operation of new gear (e.g., buoy gear)
- Develop messaging products (1-pager fact sheets)
- Make new gear available to CA-based local fishermen
- Look for ways to "Have the other side give more than the fishermen always giving up (put burden on other groups to be innovative, trust fishermen)
- Build trust among stakeholders active on DGN fisheries issues/Respect divergent opinions

Group 2:
Topic 1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?

- Gears are DGN, LL, HPN, DSBG

    - What is needed to get past aversion among some constituents to DGN and LL gears?
    - Information technologies (e.g. Dynamic Ocean Management, TurtleWatch etc.)
- Develop improved fish preservation techniques to enhance product quality
- Continue gear experiments to reduce bycatch

Topic 2: How can organizations and individuals in the supply chain support a robust swordfish industry?

- U.S. west coast swordfish fishery is currently not robust
    - Currently relying on imports, ATL, and HI producers to meet local west coast demand
- Support a review of the PLCA closure and consider alternative management strategies to current time-and-area closure
- Educate consumers on the qualities, benefits and advantages of locally caught swordfish

Topic 3: How can we build and grow partnerships?

- Seek common ground between entrenched positions on the nature of economic and ecological problems that need to be resolved
- Pursue collaborative projects between constituent groups to build trust and pursue mutually agreeable solutions

Group 3:

Topic 1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?

Support things we have talked about:

- Buoy gear
- Longline
- Dynamic ocean modeling/management

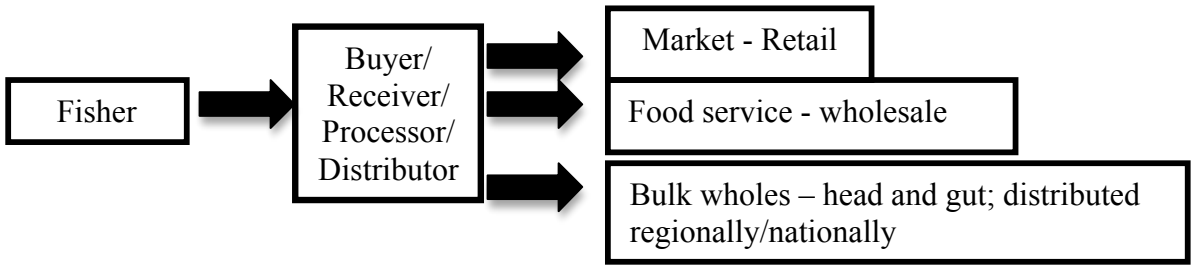
Advance newer ideas:

- Sink gillnets to fish into the 250-300 meter depth; below the layer where the majority of undesirable by-catch
- Information and data pooling communication to avoid priority protected species encounters
- Utilize drones to spot fish that are basking
- Systematic survey efforts to increase understanding of distribution

Topic 2: How can organizations and individuals in the supply chain support a robust swordfish industry?

Marketing/Branding – promotion of local fish

- Advance partnering between fishers and dealers
    - Cooperatives, Dockside sales, etc.
- Build relationships between NGOs and industry to promote and communicate areas of agreement
- Support education and outreach to counteract misconceptions and promote desirable catch



Topic 3: How can we build and grow partnerships?

- Embrace areas of agreement as a starting point
- Emphasize accurate and responsible representation of scientific information
- For imports, partner to support:
  - Better understanding of imports
  - Identify countries/fisheries of concern
  - Create mechanisms to limit or ban those with by-catch concerns
- Develop market for under-utilized by-catch species

Group 4:

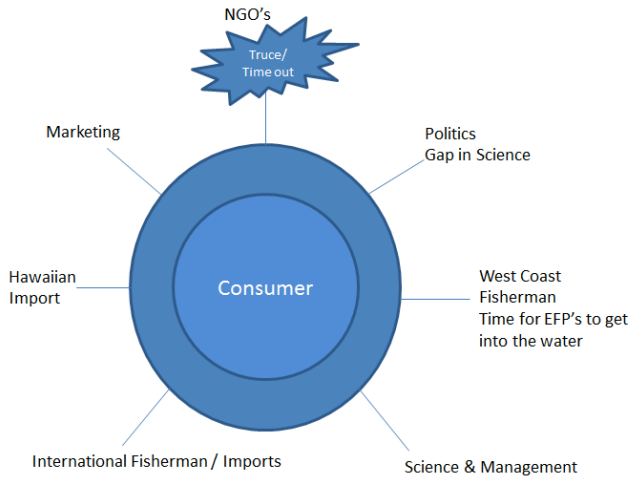
Topic 1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?

1. Use smart deployment based on dynamic ocean management
   - Need to test this – fishing vessels or charter planes
2. Support avoidance research
   - Illuminated nets: different vision turtles, sharks, whales
3. Use detection devices = active fishing

Topic 2: How can organizations and individuals in the supply chain support a robust swordfish industry?

1. Expand outreach, education
   - Positive messaging
   - Direct marketing
   - Communicate transfer effect
2. Support organizations that contribute to rebuild/recover species in areas where populations (e.g. Indonesia, Mexico)
3. Use promotions to raise funds to support conservation, research etc. (e.g. "tax at the plate", "adopt a beach")
4. Communicate and share best practices
5. Involve OR and WA in the process
   - Can lessen demand for foreign imports

Topic 3: How can we build and grow partnerships?



Collaborative work toward collective goals

Group 5:

Topic 1: What gear or technologies could increase fishing opportunities and minimize environmental impacts?

Longline

- Longline = less marine mammal interactions
- Experiment with and expand short-set shallow-set LL

DGN

- Experiment with daytime DGN fishing at greater depth
- Use shorter set times (fish moving on the slack tide)
- Use Actively tended, short DGN set time could allow for access to PLCA?
- Experiment with different pingers

DSBG

- Experiment with expanded DSBG (5 miles)
- Use predictive mapping

Topic 2: How can organizations and individuals in the supply chain support a robust swordfish industry?

Not addressed

Topic 3: How can we build and grow partnerships?

Not addressed