



California Whale Entanglement Discussion Dungeness Crab Fishing Gear Working Group

2016-17 Fishing Season Recommendations and Summary of Key Themes, September 21-22, 2016

The following draft summary is currently being reviewed by Dungeness Crab Fishing Gear Working Group participants for accuracy. Once reviewed and approved by the group, it will be deemed “final” and made publicly available on the [Dungeness Crab Fishing Gear Working Group webpage](#) on the OPC website.

In September 2015, a Dungeness Crab Fishing Gear Working Group (Working Group) was convened to discuss and develop strategies for reducing the risk of whale entanglements in California Dungeness crab fishing gear. On September 21-22, 2016, the Working Group met to continue building on priorities and ideas developed in [July 2016](#), as well as initial recommendations that the Working Group identified in [October 2015](#).

The following summary captures key themes discussed by the Working Group and its advisors during the September 2016 meeting; it is not to be considered a transcript. Working Group 2016-17 recommendations and next steps are captured throughout the document ([blue](#)), and also summarized at the end as part of the “Next Steps” section of the summary. The summary, together with a [2016 Recommendations and Next Steps Memo](#), are available to inform the California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), the Ocean Protection Council (OPC), and the California Dungeness Crab Task Force (DCTF) on the topic of whale entanglements. This summary and associated recommendations will also be shared with the Fish and Game Commission and California State Legislature, along with fishing associations and leadership throughout California.

Key themes summaries are developed following all Working Group meetings, and are designed to provide Working Group participants with information to share and discuss with their peers, as well as inform ongoing discussions within the Working Group itself. Additionally, these summaries will act as a source of information for those interested in this topic. Information about the Working Group’s composition, charge, and activities are available at <http://www.opc.ca.gov/whale-entanglement-working-group/>.

The Working Group is unified in their collective support of thriving whale populations along the West Coast and of a thriving and profitable commercial and recreational Dungeness crab fishery. This collaborative group, comprised of commercial and recreational fishermen, environmental organization representatives, members of the disentanglement network, and state and federal agencies.

Meeting Goals

Goals for this meeting included:

- Introduce new Working Group participants, advisors, and observers;
- Review and discuss voluntary gear modification options and finalize recommendation(s) for the 2016-17 fishing season and explore voluntary/regulatory ideas beyond 2017;
- Review and discuss enhanced reporting options and develop short-and/or long term project outlines;
- Review communication outline and finalize implementation steps for the 2016-2017 fishing season;
- Discuss and confirm Working Group participation and involvement in the identified pilot projects (e.g. gear modification, enhanced reporting etc.) to be implemented in the 2016-17 fishing season; and

- Identify clear communication channels within the Working Group during 2016-17 fishing season, including responsibilities and expectations, to support implementation and evaluation of Working Group efforts and recommendations

Meeting Attendees- New Participants, Advisors, and Observers

- During the July 13-14, 2016 Working Group meeting, the role of observers and advisors was discussed and formalized in the [Working Group's charter](#).
 - Working Group observers are invited by Working Group participants. Advisors are invited by the facilitation team to serve as valuable sources of information to support Working Group discussions.
- Since July 2016, the Working Group has acquired three new/replacement participants: commercial fishing in Fort Bragg, commercial fishing in Monterey, and the US Coast Guard.

Working Group Cooperation and Confirming Goals

To help ensure the Working Group continues to work together collaboratively, the facilitation team requested the meeting begin with a discussion about participant's commitment to constructive internal communications and transparency.

- The Working Group discussed the importance of upholding a high level of transparency and fostering open lines of communication amongst Working Group participants. Whenever possible, Working Group participants requested to keep one another informed of parallel discussions and activities related to the whale entanglement issue, including external communications and other actions. The Working Group agreed that to be successful and productive, it is important to build trust amongst all Working Group participants.
- Working Group participants agreed to taking concrete steps to achieve substantial progress on addressing the risk of whale entanglements in Dungeness crab fishing gear. It was generally agreed that achieving zero entanglements over a fishing season is not likely achievable. However, reducing entanglements to as few as possible while still maintaining Dungeness crab fishing is the ultimate goal.
 - Working Group participants acknowledged that the Marine Mammal Protection Act has clear goals and benchmarks for takes of whales, including Potential Biological Removal and a Zero Rate Mortality Goal.
 - Recommendations developed by the Working Group should contribute to a steady decline of entanglements to maintain thriving whale populations, while also supporting thriving coastal fishing communities.
- To accomplish these goals, during the September meeting the Working Group agreed to confirm gear modification recommendations and best practices evaluation, develop a plan for distributing the Best Practices Guide, support NMFS efforts to interpret forensic data, and work with state and federal agencies to enhance available whale and fishing effort data to further inform co-occurrence.

Gear Modification Discussion and Recommendations

Voluntary Best Fishing Practices

Working Group participants identified modifications in gear set-up could have direct implications for reducing the risk and severity of entanglement events.

- Ocean users, including members of the fishing community, are seeing a shift in fishing practices towards increased surface line and the use of multiple surface buoys. Based on recent observed entanglements, NOAA whale experts and members of the disentangle network, together with discussions among all Working Group participants, see a potential correlation between the use of the excessive line that may

be slack, the extent of the surface line, and the number of trailer buoys contributing to whale entanglements. It was noted that the extent of this trend and its effects on entanglement risk is difficult to quantify and assess.

- The Working Group focused their discussions and recommendations on surface line until there is a better understanding of how different gear configurations affect subsurface line profiles and working loads (see *Gear Modification Testing* below).
- With this in mind, the Working Group has developed a number of best practices related to fishing operations and gear set-up for the 2016-17 fishing season, including:
 - **Minimize the number of buoys in a line set-up such that no more than one trailer buoy is used inside 30 fathoms water depth.**
 - **The line between the trap and main buoy should be taut.**
 - **The total distance between the main and final trailer buoy should be:**

RECREATIONAL	shortest as possible, max of 2 fathoms (12ft)- <i>at any depth</i>
COMMERCIAL	
Inside 30 fathoms water depth	shortest as possible, max of 3 fathoms (18ft)
30-50 fathoms water depth	shortest as possible, max of 4 fathoms (24ft)
Outside 50 fathoms water depth	shortest as possible, max of 5 fathoms (30ft)

- **No excess lines should be floating at the surface.** Floating line should only be between the main buoy and trailer.
 - **When changing set location across depths, adjust the length of trap lines** by adjusting shots (i.e., measured length of line) to maintain taut vertical lines.
 - **Avoid setting gear in the vicinity of whales** whenever possible.
 - **Maintain gear to ensure lines and buoys are in good working condition** and will not break under natural conditions causing gear to become lost or irretrievable. Lost gear contributes to marine debris and increases the risk of whale entanglements.
 - **All gear should be clearly marked** consistent with applicable regulation. All gear should be maintained so markings are clearly legible to facilitate correct identification of the origins of the gear involved in entanglements.
 - **Use the minimum amount of scope** required to compensate for tides, currents and weather, as necessary. Whales are more likely to become entangled with slack lines, which can potentially create a “floating snare”.
- The Working Group agreed that the best practice recommendations will be voluntary for the 2016-17 fishing season. Regulatory changes may be considered in the future once the best practices have been evaluated and there is a better understanding of the industry’s compliance with the recommendations.

Measuring Success

- The Working Group will take steps to evaluate both the level of implementation and the effectiveness of the best practices for both compliance and any changes that might be observed in the amount of gear

involved in future entanglements (i.e., length of fishing line). Evaluation will help inform future recommendations and/or management action.

- Evaluation will include informal conversations with peers, survey questions, utilizing The Nature Conservancy's (TNC) Gear Recovery Program photograph tool to help capture noncompliance, documentation/analysis of entangled whales historically and during the 2016-17 fishing season, collaboration with the disentanglement network to learn what is being observed on the water, and periodic on-the-water gear checks by CDFW Enforcement. The group discussed the realities of how far these types of evaluation can go to determine the effect on the risk of entanglements.
 - **Tom Dempsey will investigate the utility of TNC's Gear Recovery Program photograph tool to evaluate noncompliance.**
 - **CDFW will work on an evaluation/sample design for Enforcement to survey gear during regular patrols.**
 - **NMFS will document/analyze entangled whales (historically and during the 2016-17 fishing season) relative to the Working Group's recommendations for gear set-up.**
- NMFS provided the Working Group with an initial review of historical whale entanglement images that were evaluated estimating the length of line that may have been involved in a given event. The evaluation criteria NMFS staff used was determining what percentage of entanglements may have involved a buoy set-up with a maximum total distance of five (5) fathoms of line between the main and final trailer buoy.
 - During this initial review, NMFS found that much of the data was inconclusive and only a small fraction of the images captured gear that was in clear conflict with draft best practices recommendations.
 - It may not be possible to evaluate forensic data to measure the effectiveness of the best practices, however NMFS will continue to explore the idea and fine-tune the review to reflect the Working Group's final recommendations. NMFS continues to be interested to work with Working Group participants to evaluate forensic data to improve its accuracy.

Best Fishing Practices Guide Communications

- The Working Group agreed to updating the 2015-16 Best Practices Guide to reflect the 2016-17 best fishing practices recommendations. All communications materials, including the guide, will be publicly available on the Working Group's [webpage](#).
 - **The Communications Team will develop a [2016-17 Best Practices Guide](#) based on the Working Group's recommendations, including a gear set-up diagram, by October 3, 2016 (COMPLETE).**
 - **Commercial and recreational fishing participants on the Working Group will reach out to their peers through port meetings, email, message boards, upcoming events (e.g. Coastside Fishing Club members dinner (COMPLETE), and fleet week) to share the 2016-2017 Best Practices Guide.**
 - **CDFW will mail the 2016-17 Best Practices Guide and Whale SOS stickers to all permit holders (COMPLETE).**
 - **Copies of the Best Practices Guide will be printed on waterproof paper and circulated to U.S. Coast Guard, port liaisons, gear shops, fuel docks, fishing landings, etc.**
- Successful voluntary compliance with the best practices and broad outreach of the 2016-17 Best Practices Guide is dependent on effective and inclusive outreach and communications with the Dungeness crab industry. There was general agreement that outreach must occur at a number of levels, including fishing participants on the Working Group promoting the best practices amongst their peers.

- Some Working Group participants requested support in communicating with their port/peers. Other Working Group participants offered to help support those outreach efforts and Strategic Earth is available to help as needed and appropriate.
- **The Communications Team will update talking points and PowerPoint slides to reflect Working Group input to help support these conversations as needed (COMPLETE).**
- **CDFW will investigate the feasibility of Enforcement placing a notification on gear that is not in compliance with the 2016-17 best practices.**
- **A best practices support letter will be developed for fishing participants to share with their peers and respective port/fishing associations for signature to show support for the Best Practices Guide.**
- **The facilitation team will share the 2016-17 Best Practices Guide with Oregon and Washington with the hope they will also adopt the Best Practices and encourage their fleets to also fish responsibly.** This step will help ensure that out-of-state vessels that come to California are aware of the recommended best fishing practices.
- In addition to the above strategies, other tools may also be effective in communicating best fishing practices including showing fishermen photographs of entangled whales. The idea of developing a “whale safe” crab certification was also mentioned.

Gear Modification Testing

- To gain a more thorough understanding of the correlation between whale entanglements and gear set-up both above and below the surface, the Working Group expressed support for NMFS and its partners voluntarily testing gear configurations during the 2016-17 fishing season.
- The Working Group expressed support for [two federally funded Bycatch Reduction Engineering Program \(BREP\) projects](#) under development and funded by NMFS, which are expected to be implemented during the 2016-17 fishing season. Information gathered during these projects will be brought back to the Working Group for review and consideration.
 - **Survey:** A survey tool will be circulated to West Coast Dungeness crab fishermen prior to the start of the Dungeness crab fishing season to understand how gear is being set-up (e.g. if leads are used, how much slack used at various depths, etc.). This information will inform the experimental design of the line profile project.
 - Working Group participants expressed interest in reviewing the draft survey prior to circulating to the entire fleet to help fine-tune questions. There was a suggestion to include a question or two about the fleet’s knowledge of the 2016-17 Best Practices Guide, as well as ideas for how to circulate the survey tool (e.g. mail with permit tags, send to harbor masters, etc.).
 - **Fishing participants on the Working Group will help promote fishermen involvement in a “gear survey” so researchers can gain a better understanding of the types of gear set-ups currently being used.**
 - **Depth recorders:** Fishermen will assist in testing different gear set-ups to evaluate line profiles by voluntarily putting depth recorders on their lines to understand what the line profile looks like underwater based on different set-ups. Additionally, fishermen will be involved in studies that will test load strengths of different types of fishing line.
 - Working Group participants suggested a number of line profile experiments they would like to see testing, including investigating weighting the line between the main and trailer buoy to reduce the surface line, understanding how the use of and distance

between “shots” impacts line profile, testing the use of lighter line, consideration of breakaway links, etc.

- *Workshop*: A workshop will be hosted by Pacific States Marine Fisheries Commission in 2017 to showcase the results of the projects and further discuss gear design, potential modifications, and information needs related to gear configurations to reduce the risk of entanglements across the U.S. West Coast.
 - To increase participation at the workshop, Working Group participants suggested hosting it in the spring (ideally March 2017) being mindful of shrimp and salmon openers and the Pacific Fisheries Management Council meeting. **NMFS will circle back with the Working Group on the timing of the workshop.**
- **NMFS, in collaborations with BREP project leads, will contact fishermen (including Working Group participants) to support the design and implementation of these research projects. Working Group participants are open to serving as liaisons to the fleet for testing these projects.**
- **Information on these projects will be organized in a spreadsheet and shared with Working Group participants as it is available. Any fishermen interested in participating in the projects should contact the facilitation team, and/or NMFS.**

Enhanced Reporting to Inform Co-occurrence of Whales and Fishing Effort

- The Working Group has identified data collection that will build a more comprehensive and finer-scale understanding of the co-occurrence (or overlap) between whales and fishing effort as a priority.
 - To date, the majority of data on the distribution of whales along California’s Central Coast has been collected in June-November. Limited data is available, however, for whale patterns during the height of the Dungeness crab fishing season (December-May).
 - Additionally, there is limited fishing effort data during the Dungeness crab fishing season in California, with the exception of coarse landings data.
- To help address data gaps, the Working Group recommended and developed initial outlines for a number of pilot projects to enhance the collective understanding of co-occurrence, all designed to be implemented during the 2016-17 fishing season (pending funding), and continued and built upon in subsequent years pending Working Group consideration of the results.
 - *Fishing Effort Data Through Electronic Monitoring*: Fishing effort data is needed to understand the locations and densities of trap gear in relation to whales. From a management perspective, this data is useful to understand where the risk of entanglement may be elevated, how gear is deployed, and how that may affect entanglement risk, economic impacts of response efforts, fishing behavior, etc. This information will also inform the types of management responses to entanglement events that are likely to be successful in reducing entanglements, and how such responses might be tailored to minimize impacts on fishing.
 - The group discussed the importance of confidentiality when collecting fishing effort data, particularly if data was shared in real time which could identify specific fishing locations and influence competition. Concerns were expressed about using tools that make information publicly available (e.g., AIS), and the Working Group agreed not to pursue the use of [Global Fishing Watch](#) in 2016-17.
 - Working Group participants recognized that electronic data logging technologies would be utilized by CDFW in the future. With this in mind, it will be important to ensure any data logging tools the Working Group pilots should be electronic and projects should be designed in partnership with fisheries managers.

- Fishing participants agreed to work in partnership with CDFW and TNC to help to coordinate 10-15 boats conduct a series of pilot tests on 2-3 different types of data loggers, including [TNC's e-catch program](#), [West Coast GSI](#), and a tool currently being piloted by Pacific States Marine Fisheries Commission (PSFMC).
- **CDFW and TNC will lead development of the pilot methodology, with the goal to gain a more comprehensive understanding of useful mechanisms to collect fishing effort data based on feasibility, costs, quality of data, etc.**
 - **TNC will update the e-catch program to include trap location information and will work with CDFW to determine how to ensure the program is also useful to fisheries managers.**
- All project outlines will be shared with the Working Group for review and consideration. Results from these projects will be made available to the Working Group in advance of their Spring 2017 meeting to inform future discussions and potential 2017-18 recommendations.
- *Analysis of Historical Data to Inform Whale Behavior Patterns:* To help address the gaps in humpback and blue whale data between the December-May months, Southwest Fisheries Science Center (SWFSC) introduced a project to the Working Group for consideration.
 - Dr. Jarrod Santora's project, *Understanding & Forecasting Whale Distribution During Crab Season in Central California*, will compile and synthesize existing ocean condition data, prey distribution patterns, and whale sightings details. This information can be used to evaluate and develop whale distribution and forecasting models to potentially predict and identify areas of greater risk for entanglements.
 - Once the information is compiled and an initial review of the data has been completed by the project leads, information will be shared with the Working Group to determine the quality of the data and the value of further processing and integrating the information to create maps of existing data relative to historical entanglement patterns and evaluate capabilities to forecast whale distributions based on ocean conditions and prey distribution.
 - The Working Group agreed to allocate an initial \$30,000 for the OPC funding (if approved) to conduct the first step (compilation), which will take place in late 2016/early 2017. If the Working Group agrees to the merits of step 2 (processing and integration), an additional \$30,000 in funding could be used to advance this effort.
 - **The Working Group's science advisor, Karin Forney, in collaboration with Dr. Santora and NMFS, will develop an outline of the whale data analysis project to share with the Working Group and prospective funders, including a list of deliverables that can be completed for an initial \$30,000.** Based on funding availability, it is anticipated this project will commence in early 2017.
- *Surveys to Collect Fishing Effort and Whale Data:* The Working Group discussed the value of designing and conducting a number of surveys during the 2016-17 fishing season to collect data on fishing effort and/or whale distribution, to the extent possible and as funding is available.
 - **Aerial surveys** were identified as a tool to document distributions Dungeness crab fishing gear (primary) and whales (secondary). Based on two prior aerial surveys conducted by Working Group participants ([May 2016](#) and [July 2016](#)), this tool can provide a snapshot of an overlap between whales and Dungeness crab traps in a particular area at a specified time.

- The U.S. Coast Guard expressed interest in supporting aerial surveys and stated that U.S. Coast Guard planes may be available to support the Working Group's efforts. A request would need to be made to the Coast Guard, including the number of hours, geographic area, etc. that will be needed for the project. Working Group participants agreed this offer would help maximize resources.
- Options for survey design must consider costs, scale, etc. In an effort to maximize survey value while minimizing costs, a small area could be sampled. For example, the area between Point Piños and Point Reyes may be most cost efficient since that area captures the highest density of whales most years. The survey could also be used to locate entangled whales.
- The Working Group discussed conducting 3-5 aerial surveys during the 2016-17 fishing season. Costs for an aerial survey of Central California were estimated between \$8,000-\$10,000 per survey; however costs could be reduced by in-kind support.
- **Vessel-based surveys** combined with tagging studies can document distribution and density of whales and gear, and document behavior of whales around gear. The survey could also be used to measure the success of compliance with the Best Practices Guide. Whale watching vessels, National Marine Sanctuary vessels, etc. could be utilized for this effort to help decrease costs associated with the survey.
 - Point Blue shared results from a recently completed vessel-based project looking at whales, prey, and crab traps collected by a research cruise along transects from Cordell Banks to Monterey Bay. There may be opportunities to utilize this information to inform similar studies.
 - A vessel-based survey requires additional discussion and coordination to be successful.
- **NMFS, CDFW, SWFSC, the U.S. Coast Guard, Working Group's science advisor, and Working Group participants will begin to evaluate options for designing the survey-based projects which may include aerial surveys, vessel surveys, etc. on a timeline such that the surveys would begin at the beginning of the fishing season and continue periodically throughout.**
- **NMFS will reach out to the Coast Guard to share information about the Working Group's goals.**
- **Strategic Earth will discuss next steps with the U.S. Coast Guard outlining project needs for the aerial survey.**

Pending & Potential Funding Opportunities

The Working Group discussed a number of pending and potential funding sources to support Working Group recommendations and next steps.

- A staff request for \$200,000 (Proposition 84 funds) in support of the Working Group's activities will be presented to the OPC on Monday, October 17, 2016¹. TNC has matched this funding request with an additional \$75,000 in funding. If approved, these funds will support implementing priority pilot research projects as identified above, communications and outreach, and additional Working Group coordination and administration over a two-year period.

¹ On October 17, 2016, OPC approved a staff request for \$200,000 (over two years) to support the Working Group's efforts.

- **The Working Group will develop a letter of support for this funding request to be shared as part of the OPC staff recommendation package. This support letter will also be shared with fishing and port associations with the goal to have them also issue letters to support the OPC's authorization of funding Working Group activities.**
- CDFW sees value in submitting an Endangered Species Act [Section 6 Conservation](#) proposal to support data collection to improve understanding of co-occurrence, including humpback whales and leatherback sea turtles². The deadline for the 2016 grant is early October 2016 and a 25% match of funds is required.
 - CDFW indicated they may need additional detail of what should be included in a Section 6 proposal is needed (e.g. the design of enhanced reporting projects). The Working Group strongly supported this proposal, and Working Group advisors committed to providing information and working with CDFW to ensure a proposal could be submitted.
 - CDFW may also submit a proposal for a [Saltonstall-Kennedy Grant](#) to support these projects. The deadline for Saltonstall-Kennedy proposals is December 9, 2016. All proposals developed by CDFW will likely include other fisheries other than Dungeness crab.
 - Working Group participants expressed support for CDFW submitting a Section 6 grant proposal with an enhanced reporting project that may include aerial surveys, vessel-based surveys, or both. The Working Group also acknowledged that CDFW may need to consider more than one species (e.g. whales and Pacific leatherback sea turtles) in the proposal to ensure its success.
 - **CDFW will work with the Working Group's science advisor to outline potential projects that could be included in the proposal including whale distribution data, gear research, etc.**
 - **The Working Group expressed willingness to develop a letter of support for a CDFW Section 6 proposal.**
- Other funding sources to support Working Group activities were also identified. These include potential collaborations with the Oregon Dungeness Crab Commission, and in-kind contributions of the Monterey Bay National Marine Sanctuary's vessel and grant writing support and Working Group participants' time.
- Working Group participants were encouraged to think about other funding sources and support opportunities. The Legislature recently allocated \$100,000 for entanglement response.

Communications

- The Working Group agreed that all 2016-17 recommendations and next steps will be communicated to the Legislature, California Fish and Game Commission, CDFW, NMFS, OPC, and the DCTF.
 - **Strategic Earth will draft a [2016 Recommendations and Next Steps Memo](#) for the Working Group's review and approval. Once finalized, Strategic Earth will circulate it to the respective agencies and decision makers in advance of the 2016-17 fishing season.**
 - Additionally, the efforts of the Working Group will be conveyed through updates at the September Tri-State Dungeness Crab Committee meeting, the October 4, 2016 Joint Committee on Fisheries and Aquaculture hearing, and other state gatherings.
 - Press releases may also be an effective form of communication, which can be informed by the talking points developed by the Working Group's Communications Team. There was an acknowledgement by some Working Group participants that the media has not been interested in telling the story of the Working Group to date. There may be a new opportunity to solicit media at the start of the 2016-17 fishing season.

² CDFW decided not to submit a proposal to the U.S. Fish and Wildlife Service through their Traditional Conservation Grants Program (Section 6 Grant Program) this Fall, and is looking to partner with the Pacific States Marine Fisheries Commission to develop and execute a Sections 6 grant in 2017.

- Recognizing that fishermen and others outside the Working Group may be interested in participating in pilot projects, communications materials are needed to convey information related to pilot projects. Information that may be suitable to highlight includes the status of the projects, contact information for project leads, purpose and goals of each project, etc.
 - **Strategic Earth will develop a tracking sheet to help Working Group participants follow the progress of each pilot project.**
 - **Additionally, Strategic Earth will work with project leads to develop 1-sheets and talking points on each pilot project to help convey key information to fishing audiences and others.**
- The Working Group also identified a number of other communications channels that are suitable for sharing details about the Working Group's activities, including email lists (e.g. CDFW, DCTF, port associations, etc.), text messages, Channel 16 announcements, broadcasts, regular mail, etc.

Additional Topics Under Consideration

Entanglement Response

- Working Group participants discussed concerns with the capacity of the West Coast entanglement response network. Specifically, the Working Group considered how it could help maximize the network's capacity and ability to provide timely response to entanglement events during the 2016-2017 fishing season.
 - The Working Group acknowledged that response to entanglements and the prevention of entanglements are equally important. However, the Working Group has prioritized their efforts in the prevention of entanglements as opposed to response to events. If there are fewer entanglements, less response is needed.
 - The Working Group would like to receive periodic updates from NMFS on entanglement events during the 2016-17 season, especially if there are unusual occurrences (e.g. sea turtle entanglements, etc.). Should action be needed to address excess entanglement events in-season, CDFW is prepared to take action, in coordination with NMFS, to address such events.

Improved Gear Marking

- The Working Group discussed the need to develop better gear marking across all fixed fishing gear types to help more readily identify the type of gear involved in entanglements, particularly in light of the low percentage of entanglement events through 2016 in which the fishery can be identified. In the Dungeness crab fishery, all commercial and recreational buoys are required to be clearly marked. Additionally, commercial traps have a CDFW-issued tag near the buoy ("trap tags").
 - Working Group participants recommended investigating the costs associated with printing both sides of commercial Dungeness crab trap tags to improve gear identification efforts. The Working Group may also consider recommending fishermen mark both sides of their buoys as a best fishing practice in the future.
 - **CDFW will investigate the cost and feasibility of printing both sides of the trap tags.**

Lost Fishing Gear Recovery Program

- In October 2015, the Working Group expressed support for establishing a statewide program to recover lost fishing gear to reduce the risk of whale entanglements. Currently, the DCTF, in partnership with CDFW, continues to address this topic and Senate Bill 1287 which was signed into law by the Governor in September 2016.

- **The Working Group continues to support the DCTF's efforts on addressing this issue, and will issue a statement of support for a statewide, industry-led lost gear recovery program as part of the [2016 Recommendations and Next Steps Memo](#).**

Other Fisheries

- Participants recognize the importance of communicating the Working Group's activities with other California and West Coast fisheries, and to potentially inviting other fisheries to participate in the Working Group's recommendation making process.
 - The Working Group acknowledged that each fishery operates differently and solutions identified for the Dungeness crab fleet may not be appropriate for other trap or fixed-gear fisheries. There was general agreement, however, that all trap or fixed gear fisheries should be sufficiently marked so they can be easily identified.
 - **Strategic Earth will share the Best Practices Guide, [2016 Recommendations and Next Steps Memo](#), and other Working Group products and communications materials with other fishing leadership.**

Working Group Communications & Activities During the 2016-2017 Season

- The Working Group discussed how to maintain open lines of communication and coordinate on implementing recommendations and next steps during the 2016-2017 fishing season.
 - Being mindful of Working Group participants' time, the facilitation team will try to keep Implementation Team calls to one hour and focused smaller project teams, depending on the topic. Prior to the season opener, there were requests for calls focusing on communications activities and further fleshing out the details of enhanced reporting projects.
 - **Strategic Earth will help coordinate conversations about all projects with project leads and Working Group participants through regular email updates and periodic coordination calls.**
 - **Strategic Earth will utilize the October 20 Implementation Team call scheduled in the agenda and will work with participants to schedule additional calls as needed.**

Next Steps

In addition to any next steps identified above:

- A summary of key themes will be developed and circulated to the Working Group for review, prior to making it publicly available on the OPC website.
- Strategic Earth will work to keep the Working Group participants, observers, and advisors informed on all of the efforts of project teams and the collective group.

Working Group Participants

Jim Anderson, *Commercial Fishing, DCTF Member*
LCDR Jason Brand, *Coast Guard – Absent on September 21*
Tom Dempsey, *The Nature Conservancy*
Calder Deyerle, *Commercial Fishing – Absent on September 21*
Tom Estes Jr., *Commercial Fishing*
Gerry Hemmingsen, *Commercial Fishing, DCTF Member*
Christy Juhasz, *CDFW Marine Region – Absent on September 21-22*
Kathi Koontz, *California Whale Rescue*
Doug Laughlin, *Coastside Fishing Club*
Dan Lawson, *NMFS*
Bob Maharry, *Commercial Fishing*
Tom Mattusch *CPFV Owner/Operator*
John Mellor, *Commercial Fishing*
Kristen Monsell, *Center for Biological Diversity*
Brian Nolte, *Commercial Fishing*
Dick Ogg, *Commercial Fishing*
Kevin Pinto, *Commercial Fishing*
Andy Roberts, *CDFW Enforcement – Absent on September 21*
Lauren Saez, *NMFS*
Geoff Shester, *Oceana*
Andrea Treece, *EarthJustice*

Advisors

Alicia Amerson, *Lt. Governor Gavin Newsom’s Office*
Pieter Folkens, *California Whale Rescue – Absent on September 21-22*
Karin Forney, *SWFSC*
Karen Grimmer, *Monterey Bay National Marine Sanctuary*
Phil Pritting, *Englund Marine*

Observers

Ryan Berger, *Point Blue*
Aliya Rubenstein, *TNC*

Additional Attendees

Peter Kalvass, *CDFW Marine Region*
Sonke Mastrup, *CDFW Marine Region*
Robert Puccinelli, *CDFW Enforcement*
Holly Wyer, *OPC*

Facilitation Team

Rachelle Fisher, *Strategic Earth Consulting*
Sierra Helmann, *Strategic Earth Consulting*
Kelly Sayce, *Strategic Earth Consulting*