CASE STUDY

California Dungeness Crab Fishing Gear Working Group

The Nature Conservancy

CONTENTS

ABOUT THIS DOCUMENT

This case study explores the California Dungeness Crab Fishing Gear Working Group (Working Group) as a novel, collaborative model to address complex natural resource management issues in the face of changing environmental conditions.

The specific objectives of the case study include documenting the form, function, and experiences of the Working Group from 2015 to summer of 2020. This study conveys an accurate and transparent summary of the Working Group's achievements and challenges over this period, and evaluates key considerations and lessons learned to support use of this model to address large-scale natural resource management challenges.

Part I presents information related to the formation, structure, and activities of the Working Group; Part II summarizes the key considerations that emerged from the outcomes, successes, and challenges experienced by the Working Group. This case study is not able to comprehensively detail all aspects of the Working Group's experience, but intends to capture pivotal history and key takeaways. Information was gathered from several sources, including publicly available documents, many of which are hosted on the Ocean Protection Council (OPC) and California Department of Fish and Wildlife's (CDFW) websites, and via a series of informal interviews with a subset of Working Group members and advisors (Strategic Earth, 2020). Additional background information was provided by Rachelle Fisher and Kelly Sayce of Strategic Earth Consulting, who served as facilitators and administrators of the Working Group since its inception through December 2020. The Nature Conservancy (TNC), National Marine Fisheries Service, West Coast Region (NMFS-WCR), CDFW, and OPC staff also reviewed this Case Study. The research, interviews, and writing for this case study were led by Strategic Earth Consulting. This study was funded by TNC.

Strategic Earth and TNC wish to extend our deepest gratitude to past and present Working Group members and advisors who dedicated time and resources to establishing the Working Group. We also thank those who were willing to take the time to provide the insights that made this case study possible, especially since interviews took place in the midst of exceptional times.

For more information about the Dungeness Crab Fishing Gear Working Group, visit

opc.ca.gov/whale-entanglement-working-group/

and

wildlife.ca.gov/conservation/marine/whale-safe-fisheries

PART

I

History of the California Dungeness Crab Fishing Gear Working Group

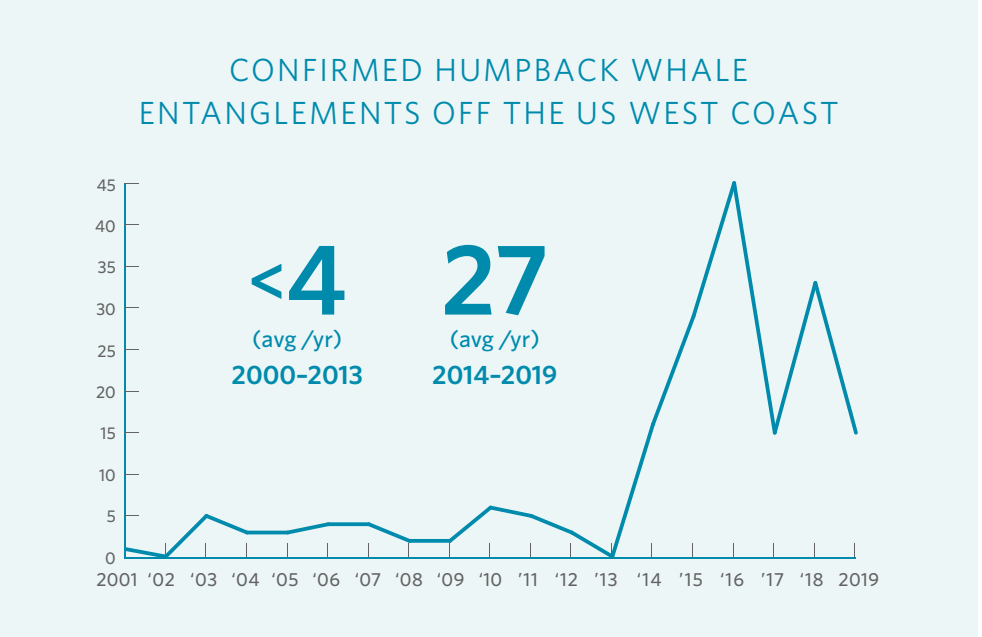
ORIGINS

A sudden increase in whale entanglements off the West Coast

Over the last decade, the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, West Coast Region (NMFS-WCR) has documented a marked increase in reported whale entanglements in fixed fishing gear off the West Coast.

While entanglements caused by fishing activities are not the only impacts to whales and other marine life, reported humpback whale entanglements in fishing gear that were confirmed shifted from an average of fewer than four per year between 2000–2013 to an average of approximately 27 per year between 2014 and 2019 along the West Coast (NMFS-WCR, 2020; Saez et al., 2020).

While the source of the gear causing many of the entanglements is unknown, commercial Dungeness crab fishing gear is a significant contributor to confirmed entanglements that occur and/or are reported in California. Due in part to the commercial Dungeness crab fishery's use of trap tags starting in 2013 that made identification of gear from this fishery easier, it has been the primary identifiable fishery implicated in recent entanglements. An increase in entanglement reporting may be partially attributable to increased public awareness about entanglements, as NMFS-WCR bolstered outreach efforts starting in 2013, including on how to recognize and report observed entanglement marine life (personal communication, Dan Lawson, 2015).



Source: NMFS WCR Whale Entanglement Data 1982–2019 https://oceanview.pfeg.noaa.gov/whale_indices/map

The Working Group works toward a shared vision to support thriving whale and sea turtle populations along the West Coast, and a thriving and profitable Dungeness crab fishery.

However, researchers suspect that a convergence of environmental and socioeconomic factors leading to more intensive overlap between humpback whales and fishing activity may explain the entanglement peak in California commercial Dungeness crab fishing gear in 2016 (Saez et al., 2020; Santora et al., 2020).
In California, entanglements have also been attributed to recreational Dungeness crab and other commercial fixed-gear fisheries, including Sablefish, Spot prawn, Spiny lobster, Rock crab, and gillnet fisheries (Saez et al., 2020).

In response to this increasing trend, a collaborative advisory body was established in California. The Working Group — a 20-member group made up of commercial and recreational fishermen, environmental organization representatives, members of the disentanglement network, and state and federal agencies — was first convened in September 2015. As outlined in the Working Group's charter (Working Group, 2020), the group focuses their work on designing and developing strategies to address a shared vision to support "thriving whale and sea turtle populations along the West Coast, and a thriving and profitable Dungeness crab fishery."

The Working Group was designed to drive its goals and priorities as an independent body, in partnership and collaboration with CDFW and NMFS-WCR as fellow Working Group members, as well as the OPC in an advisory and primary funding capacity. Agency staff were envisioned to co-develop strategies and innovations. Third-party administration and facilitation support has been utilized from the outset through the fall of 2020, and an Internal Planning Team composed of agency members and advisors has met regularly to plan and support the group.

The composition of the group was purposefully weighted towards resource users who were positioned to explore and develop innovations, and who could play an active role in procuring industry buy-in on group outcomes around the table.

The Working Group developed Project Teams — or subgroups — to advance key priorities around gear innovations, improving and expanding data, and external communications.

To ensure inclusion of perspectives across fishing grounds, a fishing representative was included from each of the major ports/port groupings throughout the geographic extent of the Dungeness crab fishery. Scientific advisors in key subject areas (e.g., marine mammals, forage and ocean conditions, ecological risk) were included to inform and guide discussions. Scientists were included as advisors rather than members to avoid conflicts of interest in requesting and allocating funds to support research and to ensure broad perspectives and expertise were taken into consideration during Working Group deliberations.

While the form and function of the group has shifted over time, including member turn-over, until the fall of 2020 the core attributes described above have remained in place.

Shortly after the Working Group was convened in 2015, Oregon and Washington established similar groups. These groups existed for a shorter period of time (i.e., 2–3 years) and helped inform their respective state's goals and objectives, which were then further developed and advanced by the Departments of Fish and Wildlife in each state.

Alternative Cooperative Models: Take Reduction Team & Dungeness Crab Task Force

Take Reduction Teams (TRT) are formal groups charged with development of a plan (Take Reduction Plan) to reduce fishery impacts on marine mammals under the Marine Mammal Protection Act (MMPA). They are designed to come to consensus on a Take Reduction Plan (TRP) within 6 months, and their multi-stakeholder composition is stipulated in federal regulation. While TRTs are convened by NMFS, the Working Group was convened by the state of California (in consultation with NMFS-WCR), and was considered a viable option to accommodate greater flexibility in group composition, objectives, and timelines.

The Dungeness Crab Task Force (DCTF) is a legislatively mandated body that advises the state on the management of the fishery (DCTF, 2020). The DCTF supported the formation of a separate group to ensure sufficient, dedicated attention could be paid to the complex issue of entanglement (DCTF, 2015).

This was also supported by CDFW, OPC, and NMFS-WCR, with the additional considerations that a Working Group could operate more flexibly and with more diverse representation than the legislatively-mandated structure of the DCTF, allowing it to be more responsive to the dynamic and time-sensitive nature of this issue.

WORKING GROUP HISTORY

PHASE 1
Initiation
APR 2015 – OCT 2015

FUNDING GAP
NOV 2015 – APR 2016

PHASE 2
Innovation
MAY 2016 – MAR 2019

- SB1309 Directs Formalization of RAMP
- Surface Gear Regulations implemented (14 CCR §132.6)
- Working Group Creates Ropeless Gear Innovations Guidelines

PHASE 3
Compliance & Implementation
APR 2019 – PRESENT

- Statewide Gear Recovery Program Implemented (14 CCR §132.7)
- Commercial Gear Marking Program Implemented (14 CCR § 122.1, 125, 126.1, 180.1, & 180.5)
- RAMP Regulations Implemented (CCR) Title 14 §132.8

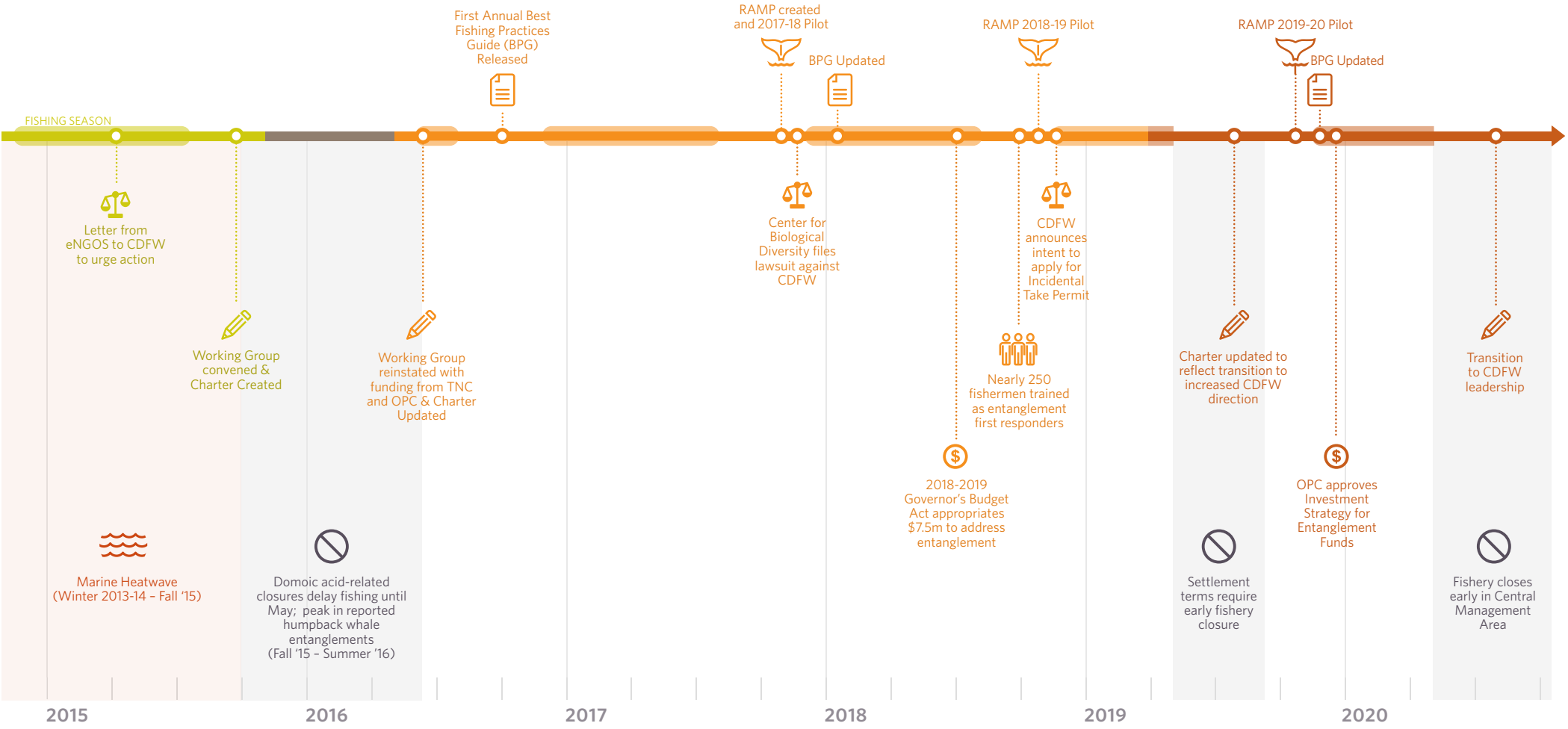


Photo Lyman/NOAA MMHSRP (Permit #932-1489)

PHASE 01

THE WORKING GROUP HISTORY

Working Group Phase I:

April 2015 – October 2015

In Spring 2015, the state of California received a letter from environmental organizations encouraging action to address violations of the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) specifically related to confirmed entanglements in commercial Dungeness crab fishing gear. CDFW, in partnership with OPC and NMFS-WCR, held a public meeting in August 2015 with industry, environmental groups, researchers, and others to discuss the issue of whale entanglements (OPC, 2015a; OPC, 2015b). A key outcome was a recommendation to establish the Working Group (DCTF, 2015).

Over the course of two in-person meetings, the Working Group developed a series of recommendations focused primarily on short-term voluntary strategies to reduce humpback whale entanglements to be implemented during the 2015-16 fishing season (Working Group 2015a, 2015b). Despite a pause to the group's formal activities from November 2015 to April 2016 due to a lack of funding, Working Group members expressed interest in continuing to coordinate and some Working Group members continued to make progress toward moving the recommendations forward through conversations with their peers and informal testing of alternative gear (Working Group, 2016a).

Photo Lyman- NOAA HIHWNMS/MMHSRP (Permit #18786)

PHASE 02

THE WORKING GROUP HISTORY

Working Group Phase 2:

May 2016 – March 2019

The Working Group's operations resumed in May 2016. TNC and OPC both contributed funding for the Working Group's operations from 2016 to 2019, supported via a two-year OPC grant to TNC as well as additional funding sources obtained by TNC. The group's charter was updated to reflect refinements in group operations and membership, while its priorities established in 2015 to better understand the relationship between whale distribution and fishing activities remained (Working Group, 2016b). Additionally, activities were expanded to consider blue whales and leatherback sea turtles. The group held an average of two to three in-person meetings per year, in addition to regular conference calls over this period.

In 2017, the Working Group began to develop a framework to monitor and respond to entanglement risk in real time – called the Risk Assessment and Mitigation Program (RAMP) (Working Group, 2018a, 2018b). This marked a shift in the group's activities and the expansion of their innovations-focused work to now include assessing and mitigating entanglement risk. The development and piloting of the RAMP was the cornerstone of the Working Group's efforts during Phase II, and all Working Group priorities related back to informing the development of the RAMP (see Key Outcomes and Products for more information).

PHASE 02

Between Summer 2017 and Spring 2019, legal and legislative activities took place that significantly influenced the focus and functioning of the Working Group. In response to the increase of entanglements in commercial Dungeness crab gear in 2016, the Center for Biological Diversity (CBD) filed a lawsuit against CDFW (CBD v. Bonham, 2017). See Litigation, Settlement, and SB 1309 for additional information.

Litigation, Settlement, and SB 1309

On October 3, 2017, CBD filed a lawsuit against CDFW regarding the California commercial Dungeness crab fishery (CBD v. Bonham, 2017). The Pacific Coast Federation of Fishermen's Associations (PCFFA) intervened on the industry's behalf in spring of 2018. A settlement was reached in March 2019, which stipulated requirements for management of ESA-listed marine species (i.e., Humpback whales, Blue whales, and Leatherback sea turtles), mandated Working Group activities and CDFW's initiation of the ESA Conservation Planning and Incidental Take Permit (ITP) process. The settlement required a closure of the fishery when specified triggers were met, with certain requirements in place until RAMP regulations are in place and/or an ITP is issued. The Working Group was not party to the litigation.

SB 1309 (McGuire, 2018) amended Fish and Game Code Section 8276.1, requiring CDFW to develop regulations. These regulations were intended to formalize a protocol to evaluate and respond to potential risk of marine life entanglement, based on the RAMP program and informed by consultation with the Working Group. Until regulations were in place, SB 1309 also provided the CDFW Director with temporary authority to restrict the take of commercial Dungeness crab if a significant risk of marine life entanglement exists, in consultation with the Working Group.

Photo Lyman- NOAA932-1905

PHASE
03

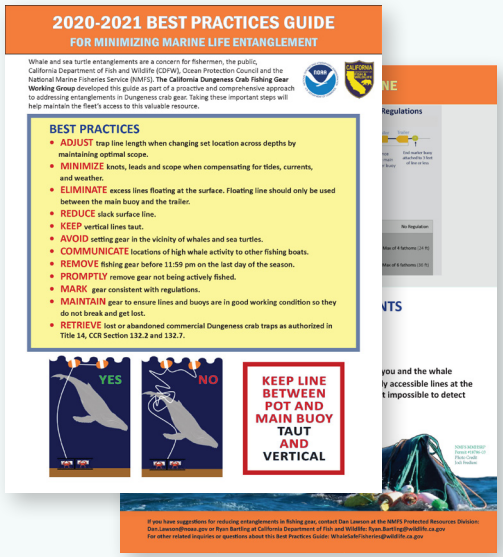
THE WORKING GROUP HISTORY

Working Group Phase 3:

April 2019 – Summer 2020

The commercial Dungeness crab fishery was closed early statewide on April 15, 2019, due to settlement requirements between CDFW and CBD. At this time CDFW began taking a more pronounced role in setting the Working Group's priorities and directing its operations, including through the allocation of two additional "whale safe fisheries" staff. With this, the Working Group priorities shifted towards supporting CDFW in meeting the state's settlement requirements, as well as legislative requirements to formalize the RAMP in regulation. The shift in priorities resulted in limited capacity to further develop innovations to improve the RAMP. The Working Group significantly updated its Charter to reflect roles and responsibilities. This case study encompasses the history of the Working Group through summer of 2020, prior to the finalization of the RAMP regulations and prior to the 2020– 2021 fishing season.

KEY OUTCOMES & PRODUCTS



Guidance for Best Fishing Practices

One of the first products from the Working Group was a best fishing practices guide to share guidance on gear configuration to minimize entanglement risk to whales. These best practices have been widely adopted by crab fishermen in California as well as Oregon and Washington, and have been updated and distributed to the fleet annually since 2016. Best practices were designed through discussions with fishermen, whale researchers, and disentanglement experts (including agency staff), and served as the premise for surface gear configuration regulations governing the amount of line and number of buoys permitted at the surface (14 CCR §132.6). Working Group members have also been active in testing a range of gear innovations. In February 2019, the Working Group developed guidelines for successful ropeless gear innovations to prioritize efforts that are enforceable, economical, fishable, reliable, safe, and minimize adverse impacts to marine life.

Photo ©David Hills Photography

Fishermen Trained as First Responders

From 2016 to 2018, there was a concerted effort to raise awareness and build a stronger network of "eyes on the water" to spot and respond to entanglements. Through in-person trainings sponsored by TNC, nearly 250 fishermen both within and outside the Dungeness crab fishery became Level 1 and 2 first responders in NOAA's whale entanglement response training, and entanglement reporting instructions are included in the best practices guide (NMFS-WCR, 2019).

Photo NMFS MMHSRP (Permit #18786)

Securing Resources for Science and Scaling

Working Group recommendations have resulted in funding from various philanthropic and state sources being directed to specific research and pilot projects, including the synthesis of available forage and ocean conditions data to inform the development of a humpback whale distribution model and piloting of solar loggers to provide data on fishing effort distribution. The 2018-2019 Governor's Budget Act included a $7.5 million General Fund appropriation to OPC to address whale and sea turtle entanglements. In alignment with the Strategic Plan to Protect California's Coast and Ocean, OPC developed and unanimously approved a strategy which provides a comprehensive approach to reduce the risk of entanglement in California fishing gear and guides investment of the General Fund appropriation (OPC, 2019). The strategy is informed by and aims to build on the success of the Working Group and could support other fixed-gear state-managed fisheries.

Regulation Changes

The Working Group has played both direct and indirect roles in informing additional new regulations designed to reduce the risk of entanglements. The Working Group unanimously supported, and provided specific guidance for, the following:

- Statewide gear recovery program to help avoid entanglements in lost or derelict gear (14 CCR §132.7; Working Group, 2017a).
- Gear marking requirements for all fixed-gear fisheries in California to assist with improving entanglement forensics and understanding the cause and source of entanglements (14 CCR §122.1, §125, §126.1, §180.1, and §180.5; Working Group, 2018a).
- Restrictions on commercial Dungeness crab surface gear allowances (i.e., limiting the number of buoys and length of line permitted at the surface) (14 CCR §132.6).

Photo ©Ralph Pace Photography

Risk Assessment and Mitigation Program (RAMP)

Comprehensive research showed links between increased reported entanglements and changes in whale behavior spurred by changing forage and ocean conditions (Santora et al., 2020). Informed by this and other research, the Working Group created a first-of-its-kind adaptive framework for assessing and reducing whale entanglement risks in real-time.

The RAMP was based on evaluating four risk factors:

Forage/Ocean Conditions

Whale Distributions *(updated in 2019 to marine life)*

Location and Extent of Fishing Effort

Recent Entanglements *(Working Group, 2018b)*

Through the RAMP, CDFW, in partnership with the Working Group, monitors real-time data throughout the fishing season to identify and respond to conditions of elevated risk. The RAMP has been informed by a varied and evolving set of data inputs ranging from vessel and aerial survey data on whale and turtle presence to ocean temperature patterns. Many of these data sources have been developed or improved through Working Group activities.

In early 2019, the Working Group was honored by the Joint Committee on Fisheries and Aquaculture, a committee of the California State Legislature, with a resolution honoring the group's work, including the development and initial piloting of the RAMP. At the time of development of this case study, CDFW was developing a regulatory package to formalize the RAMP in regulation by November of 2020 (Code of Regulations (CCR) Title 14 §132.8), noting that some significant departures from the RAMP framework and process as piloted had been made in the development of the regulation text.

PART

II

Exploring the Working Group Model

KEY CONSIDERATIONS

In reflecting on the Working Group's history and outcomes, four themes have been identified that can act as a guide to those considering pursuing a similar collaborative model to address emerging natural resource management challenges:

1

External Drivers:
factors that create enabling conditions and can help or hinder progress

2

Working Group Model:
fostering innovation

3

Power of Relationships:
building and maintaining trust and credibility

4

Equipping the Working Group for Success:
key resourcing considerations

For each consideration, lessons are summarized on the next pages based on the learning and experiences of the Working Group; best practice guidance has been shared in the conclusion. Select anonymized direct quotes from Working Group member interviews are included.

1 External Drivers: factors that create enabling conditions and can help or hinder progress

External conditions have a strong effect on the motivation of stakeholders to come to the table, availability of resources, ease of organizing participants, and ability to build relationships. This section describes two key external drivers that greatly influenced the formation and priority setting of the Working Group — political will and existing organizations and relationships.

Political will to engage on a particular natural resource management issue may fast-track progress toward some goals while hindering others. The will of decision makers can be influenced by public interest, threat of litigation, available funding, legislative action, and legal mandate(s).

- **The broad appeal of marine mammals** and their federal legal protections were leveraged to create the requisite public pressure and political will to form the Working Group and encouraged both state and private funding over several years. The California State Legislature allocated funds in 2019 to secure additional CDFW staff support and capacity and allocated additional funds to OPC to help address the issue of marine life entanglements more broadly.
- **Litigation,** and subsequent legislation and settlement, drastically changed the focus of the Working Group. Specifically, it fast-tracked the implementation of a risk assessment tool under development by the Working Group, while limiting capacity for other innovations-based work. It also influenced the state's priorities and led to additional resources (e.g., funding and staffing) allocated to addressing the issue of entanglements.
- **Resources to support research** on 'charismatic megafauna' and federally listed species tend to be more available, local scientists and other specialists were already engaged in the issue, and data and expert guidance were available to the Working Group since its inception.

Existing organizations and relationships within the relevant stakeholder groups can create key efficiencies in the development of a new collaborative body by providing established infrastructure, relationships, and experience in natural resource management.

- **The existence of a cooperative industry body** — the California Dungeness Crab Task Force (DCTF) — meant that the California Dungeness crab fishery was more organized than many other fixed-gear fisheries in California. This was a factor in CDFW's decision to engage this fishery first, as it created an efficient pathway for designing a group with industry credibility.
- **Established facilitation and administration** — Strategic Earth Consulting, the neutral third party responsible for administering and facilitating the DCTF, was invited to play a similar role (i.e., Administrative Team) on the Working Group. The established relationships between Strategic Earth and prospective Working Group members created efficiencies by leveraging trust and credibility among the diverse membership.

2 Working Group Model: fostering innovation

Successes and challenges of the Working Group through shifts in priorities underscore the importance of aligning a group's composition, operational model, metrics of success, and roles and responsibilities related to its charge.

SUCCESSES

Composition:

The Working Group was effectively designed as a 'think tank' - bringing together experts from diverse perspectives to engage in creative and innovative thinking:

- Anchoring group membership with fishermen increased the credibility of Working Group solutions and buy-in from the broader fishing fleet.
- The inclusion of agency staff as group members fostered a collaborative "bottom up" culture that valued the expertise of all Working Group members and advisors.
- The direct engagement of scientific experts as advisors fostered greater understanding and trust in available information. The role of advisor rather than member alleviated potential conflict of interest when making recommendations for research funding priorities, though some members have expressed concern over the inability for expert advisors to participate in decision-making for other official recommendations.

SUCCESSES

Operational flexibility:

The ability to administer the group under flexible formats and timelines promoted open dialogue and generation of innovative solutions that garnered broad buy-in. Development of annual reflections documents by the Working Group has helped inform long-term planning considerations and priorities. The group's charter has been revised regularly to uphold group order, operational transparency, and to reflect changes over time.

Nimble structures:

Project teams helped advance work more flexibly and on faster timelines by mobilizing smaller groups of self-selecting participants. The ability of the group to hold closed door meetings- an option not available to the DCTF- has been crucial to promoting open dialogue within the group by insulating members from public scrutiny or repercussions from peers for comments or positions taken during meetings.

> "Project teams are useful when it's necessary to dig in deeper—a smaller group of folks is helpful so you're not waiting around for the whole group."

> "Having consensus as our goal was a strong place to be in when we were in a creative and exploratory place. Progress was slower than folks would have liked, but I was prepared for a slow steady march toward progress. I think progress is hard to measure, and we've made more than folks realize, but it's hard to recognize."

CHALLENGES

Metrics of success:

It is challenging to evaluate the Working Group's success in carrying out its vision of "thriving whale and sea turtle populations along the West Coast, and a thriving and profitable Dungeness crab fishery." Available data show a decrease in reported and confirmed whale and turtle entanglements since a peak during the 2015-16 fishing season (CDFW, 2019). However, it is unclear whether these outcomes are directly or indirectly attributable to the activities, products and strategies of the Working Group.

Shifts in function:

The model designed for innovations work (i.e., the composition of the group weighted towards commercial fishermen) failed to support the group's transition to a management recommendation-making body. Specifically, the approach to decision making shifted from consensus for innovations (none opposed) to majority/minority voting for RAMP recommendation development. In voting, the relative representation from each sector was more consequential in decision-making and reinforced positions, perceived biases, and divisions across members.

Navigating a positions-based culture:

Collaborative and cross-interest recommendation making became increasingly challenging to uphold. This was primarily due to external pressures as a result of outcomes of the legal proceedings and the potential for significant economic impacts to the industry. As the implications of Working Group management recommendations moved from voluntary to mandatory, stakes were elevated and members' positions were more inflexible.

Diversity, equity, and inclusion considerations:

There are barriers to participation for some sectors that create inequities within the group. For example, there has not been compensation available to Working Group members, which has disproportionately affected participants who are not salaried (i.e., fishermen). While the Working Group brought together diverse sector-level perspectives and was designed to accurately reflect the fabric of fishery participants and stakeholders, there was not a deliberate effort to include women or Black, Indigenous, and People of Color as Working Group members or advisors.

> "It would be nice if fishermen were paid for time given to Working Group responsibilities. It's tough to take time off to help with this issue, since it takes away from making money."

3 Power of Relationships: building and maintaining trust and credibility

Strong relationships are core to consensus-building and broadly supported outcomes across sectors that typically hold divergent positions. This is particularly the case when addressing complex and challenging topic areas. Key considerations include relationship building, managing power dynamics between decision-makers and affected stakeholders, and internal and external communications.

SUCCESSES

Relationship building:

Creating diverse opportunities for relationship-building — such as gear demonstrations by fishermen and informal socializing at in-person meetings — fostered shared learning, trust, and empathy between members and advisors that allowed them to take a broader perspective and work constructively to find common ground.

Value of skilled facilitation:

The independence of the Working Group was upheld through employment of a neutral facilitation and administration team with existing stakeholder relationships and knowledge of the fishery. Trust in the facilitation team has been key to progress through difficult circumstances and discussions.

> "The in-person Working Group meetings are far and away the best things we've done. They have been the brightest moments of this experience for me. Coming together in person led to relationship building, which made way for progress."

SUCCESSES

Credible external communications:

Working Group members have been effective community liaisons for conveying Working Group activities and outputs. The efforts of the fishermen on the group has generated broad acceptance of outputs such as the best fishing practices guides. Use of a dedicated and independent webpage and direct sharing of recommendations memos with state agency and legislative leaders has transparently and effectively advanced Working Group funding and legislative priorities.

> "The public is excited to hear about what's being done [about whale entanglements], especially about ropeless gear and the trap retrieval program. In my experience, the info I share is received significantly better when fishermen are involved in giving the info — the audience is interested in hearing directly from the fishermen."

CHALLENGES

Managing external messaging:

Due to its diverse composition, the Working Group has struggled to agree on a unified message to share with target audiences, including the media, to highlight their progress, achievements, and challenges. Additionally, press releases, conversations with the media, advocacy campaigns, and other public communications that criticize and undermine the Working Group's efforts have led to direct conflict within the group. Members advancing separate mission-driven communications from outside the group can deteriorate relationships and dynamics within the group.

Relationship maintenance:

Due to limited capacity and COVID-19 impacts (i.e., no in-person meetings) recently there have been fewer opportunities to build and foster relationships. This has noticeably diminished trust across members and advisors, particularly for newer members, and contributed to some loss of common ground reached over previous years of work. This demonstrates the need for prioritizing investing in relationship building over time and through turn-over.

Balancing power dynamics:

The model to independently set Working Group priorities fostered a motivating bottom-up culture, centered around shared priorities between managers and members. However, the confidential nature of settlement discussions that did not include the Working Group, and subsequent settlement and legislative requirements, led to a shift towards a top-down approach to priority setting. Members have expressed frustration over this shift in roles, with diminishing trust amongst members who question if their efforts will meaningfully affect outcomes, and if the state will be responsive to Working Group recommendations.

Building support for outcomes:

The Working Group's lack of trust, agreement on, and common understanding of data has contributed to an inconsistent and inefficient deliberation process, and has undermined the credibility of the Working Group's recommendations.

> "Finding the right data sources that are validated and trusted, and knowing what each data source allows and doesn't allow is critical. Trust needs to be established in the data sources, so that this can't be used as an excuse to not look at the data."

4 Equipping the Working Group for Success: key resourcing considerations

The availability of resources for administration of the group and fulfilling key Working Group-identified priorities — such as data to improve the RAMP — have greatly affected the productivity of the group towards meeting its charge. This section includes considerations around available resources to advance priorities and strategic planning processes to evaluate, adapt, and plan ahead.

SUCCESSES

Resources for administration and facilitation:

Funding has been available since the group's inception through fall of 2020 to support third-party administration and facilitation. This level of support has helped cultivate relationships, as outlined in the Power of Relationships section above, and provided crucial organizational capacity unavailable within the agencies convening the Working Group or by its volunteer members. Administrative support has been key to the group's productivity and development of credible and timely outputs.

Leveraging partnerships for greater resources:

A key to the Working Group's success has been due to the leveraging of in-kind and financial resources of members and advisors to advance priorities. As examples, science advisors regularly contribute data voluntarily to support the RAMP, and TNC has leveraged staff and financial resources to support collaborative research. Fishing representatives on the group have volunteered to test gear modifications and reporting tools. The OPC has provided numerous grants to advance Working Group priorities and state and federal agencies have provided in-kind support, such as hosting the Working Group website and offering extensive staff time (e.g., data collection via aerial surveys).

CHALLENGES

Resource timelines:

Improvements to data quality, availability, and accessibility have been ongoing priorities for the Working Group. Advancements have rarely occurred at the pace desired by the group to meet its goals, in many cases due to funding timelines and dedicated capacity to pursue grant opportunities and manage projects.

Tradeoffs in time allocation:

As a primarily volunteer body, the Working Group has limited capacity to advance numerous priorities. The new and intensified requirements for implementing the RAMP and other settlement requirements reduced available capacity for planning and innovations priorities. The lack of subsequent progress on these now secondary priorities has led to frustration on the part of many Working Group members.

Planning under uncertainty:

Funding was initially allocated in the form of short-term grants that did not allocate resources to develop a long-term vision, including reliable funding, for Working Group operations. TNC and OPC, who provided short-term funding, envisioned the group eventually managed — in part or in full — by CDFW. Recently, resources were allocated to support a transition to greater CDFW leadership, and there is uncertainty in future allocation of resources to support administration of the group as an independent body.

> "I'm surprised the Working Group has held together. It's a testament to the members, a testament to the commitment of the agencies, and especially a testament to the facilitation team.... The best thing for the group is to be at the table with everyone."

> "The Working Group is a good forum to bring things forward in real time, but because of the settlement, we are not seeing movement in areas except what is directly related to settlement requirements."

Conclusion

The Working Group's activities have produced numerous innovative solutions and catalyzed research that has helped to position the West Coast as a leader in entanglement risk science and management.

The Working Group's efforts to develop the RAMP have led to an improved and shared scientific understanding across sectors of entanglement risk and related causes, as well as greater availability of information to support management. The development and implementation of the RAMP has also inspired the Working Group to create entanglement risk reduction tools, including widely accepted voluntary and mandatory gear requirements and greater on-the-water capacity to respond effectively to entanglement incidents.

The Working Group represents a novel approach to addressing an urgent natural resource management challenge. This can serve as a model for how a collaborative approach can be designed to foster innovative solutions to complex natural resource management challenges. Experience of the Working Group highlights several key best practices for use of this model in other natural resource management contexts:

- Align representation with goals, decision-making processes, considerations around bias, and the scope of the group's charge.
- Establish and document clear roles, responsibilities, with consideration for existing power dynamics and resources that may affect equity within the group.
- Ensure the group can be sufficiently resourced, with consideration for the value of skilled neutral facilitation and administration, data and research resource needs, participation requirements, and relationship building and maintenance.
- To uphold a collaborative culture and credible outputs, ensure a safe space for members to express their ideas without fear of repercussions, minimize processes (i.e., voting structures) that can lead to reinforcing divisions across sectors, and seek agreement on how information will be assessed and consistently applied in decision-making to uphold credibility.

- Incorporate diverse and flexible work structures, such as opportunities for small groups to advance initiatives outset of the full group setting.
- Uphold clear, consistent and transparent communication structures internally, and tailor external communications to be reflective of the diverse perspectives of the group and the related audiences they are looking to reach, ensuring content is framed through a neutral lens.
- Develop clear goals and metrics of success related to the group's efforts, link, where possible, to the agreed-upon vision and ultimate outcomes (e.g., entanglement risk reduction and thriving fisheries), and establish clear opportunities for the group's progress to be independently evaluated.
- Intentionally leverage new and existing resources to maximize impact and longevity of the group's ability to advance their charge, including building on strategic partnerships, available information and data, and political will.
- Assess key considerations iteratively — before convening the group and throughout its operation — to ensure the Working Group model, operations, and resourcing remain well-aligned with its charge, group and individual priorities, and external drivers.

> "Personally, [I've] grown quite a bit from being involved with the Working Group — well worth my time. Happy that we are all able to sit in same room [and] work on common goals. Before this, my involvement in fisheries politics was mostly aggravating. Everyone sitting off to themselves, glaring at each other, not trusting each other. Even amongst fishermen. Happy that we have transcended that."

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The Nature Conservancy

For more information about the Dungeness Crab Fishing Gear Working Group, visit

opc.ca.gov/whale-entanglement-working-group/

and **wildlife.ca.gov/conservation/marine/whale-safe-fisheries**

For more information about TNC's work to make the sea safer for whales, visit

nature.org/SafeWhalesCA