

# RAMP: Working Group Review of Risk Assessment Factors, June 2018

Core Factors	Mid-season Risk Assessment	Objective Criteria to Indicate Elevated Risk	Guiding Questions	Information Available as of June 5, 2018	Comments/Notes	Next Steps
Entanglements in CA Dungeness crab fishing gear	Moderate	Any season/offseason where 5+ humpback whale entanglements occurred within the CA Dungeness crab fishery, or there were months of 2+ entanglements reported with CA Dungeness crab gear after the season ended.	Were there more than two entanglements reported with CA Dungeness crab gear during the month of May?  Were there more than 5 humpback whale entanglements reported with CA Dungeness crab gear during the 2017-18 season thus far?	Current entanglement data, 2017-18 season from National Marine Fisheries Service (NMFS):  In 2018, there have been 21 whale entanglements reported to NMFS, 18 have been confirmed. Of those 18 confirmed reports, 6 were reported in May in California waters (plus 3 unconfirmed) involving 4 humpback whales, 1 gray whale, and one fin whale. There have also been three (3) confirmed entanglement reports in Washington.  During the 2017-18 fishing season, there have been 2 confirmed humpback whale entanglements California Dungeness Crab commercial gear. One in December 2017, where gear was set in Monterey, CA, and a second that was observed in Monterey but after speaking with the gear owner, we learned that the gear was set in the Crescent City area.	During the June 5, 2018 discussion with the Working Group, NMFS confirmed that most of the gear involved in the entanglements is unidentified, with one report involving CA Dungeness crab gear. There does not appear to be a specific area, or "hotspot", where entanglements have been observed, with reports spanning from Crescent City south to Ventura in California, and as well as from Washington.	Entanglements will continue to be tracked by NMFS and updates will be shared with the Working Group, CDFW, and the broader fleet. The Working Group will be reconvened if entanglements continue to occur and/or if there are other risk factors that indicate a change as of June 5, 2018.
Fleet dynamics	Low	To consider a number of factors throughout the season that would influence/inform the concentration and/or distribution of CA Dungeness crab fishing gear. Factors include:  Delays: Any delay (domoic acid, quality, market, etc.) that causes the season to start beyond February 1 in either management area.  Other fisheries: Availability of other fisheries to transition to during the Spring months (e.g., salmon, shrimp, groundfish, etc.)  Location of crab & location/concentration of gear  Pricing and available markets	How is pricing/markets affecting the spring fishery? What is known about the number of fishermen still active and/or number of pots in the water as we look ahead to the end of the season (June 15 and July 15)? Have/are CA Dungeness crab fishermen switching to other fisheries (e.g., salmon, shrimp, groundfish, black cod)?	Fishermen on the Working Group provided an overview of the current status of fishing effort in California. While fishing activity continues to decrease, particularly in the Central Management Area which closes on June 30, and CDFW confirmed that price is generally holding at between \$7-\$9/pound. While not in large numbers, there are fishermen that plan to fish until the end of the season, including those fishing in the Northern Management Area, which closes on July 15.	Fishermen have observed an ebb and flow of whale concentrations over the past few weeks, with high numbers at the end of May. Over the past week or so, fishermen on the call reported seeing fewer whales, specifically in the Central Management Area.	To help get a further idea of fishing effort, the Working Group recommended CDFW and Strategic Earth reach out to buyers to learn how many boats they are buying crab from, and to get an estimate on the amount that is being landed. Additionally, an advisory will be developed and shared with the fleet - as well as other CA fixed-gear fisheries and the OR and WA Whale Working Groups - to encourage those who are no longer fishing to remove their gear from the water immediately.
Forage/ocean conditions	Moderate	Low krill, high anchovy abundance and density; El Niño; or high diversity of species, especially if there is a delay in the season.	Are there indications of anomalous ocean/forage conditions occurring during the 2017-18 fishing season?	Jarrod Santora, Associate Researcher at the University of California, Santa Cruz and Working Group advisor, provided an update on the current distribution and abundance of krill and anchovy, which are key forage species for humpback whales. As anticipated, preliminary data from the NOAA-NMFS Rockfish Recruitment and Ecosystem Assessment Survey is showing that upwelling has continued resulting in a very good krill year, particularly around the shelf and canyon areas. This would indicate that humpback whales, as well as blue whales, will likely be found in high concentrations off canyons.  Data shared on 6/5: <a href="http://bit.ly/MayRockfishRecruitment">http://bit.ly/MayRockfishRecruitment</a>	Jarrod reported that, as suggested in his earlier reports to the Working Group, anchovy populations are showing up in some concentrated areas in high numbers along the coast. While patchy in distribution, this could bring humpbacks closer inshore, putting them at increased risk of entanglements. Fishermen are requested to share what they are seeing on the water related to anchovy schools with Jarrod ( <a href="mailto:jsantora@uccs.edu">jsantora@uccs.edu</a> ).	Forage/ocean conditions will continue to be tracked into the spring months by Jarrod, including the continuation of the rockfish/krill survey in June. Updates will be shared with the Working Group and the broader fleet.
Concentrations of whales	Moderate	The following criteria have been developed when considering relative risk of entanglements for season humpback whale migration patterns:  High: running average >20 whales present Moderate: running average 5-20 whales present Low: running average <5 whales present  Averages considered over sustained period of 1 week	Are whale concentrations moderate to high as of June 5? Are whale concentrations expected to be high in the near future (i.e., days)?	Karin Forney, Research Biologist with the Southwest Fisheries Science Center and Working Group advisor, presented a snapshot of seasonal humpback whale distribution information since 2012. This information can serve as an indicator for humpback whales' seasonal migration and anticipated departure from California feeding grounds. As of June 4, 2018, the 7-day composite running average of whale sightings in the southern Monterey Bay area has been about 10-20 whales per half-day trip. This is within the moderate range.  Monterey Bay Whale Watch data: <a href="http://www.montereybaywhalewatch.com/slstcurr.htm">http://www.montereybaywhalewatch.com/slstcurr.htm</a>  Worked up Monterey Bay Whale Watch data: <a href="http://bit.ly/June2018WhaleData">http://bit.ly/June2018WhaleData</a>	Karin confirmed that the numbers being reported are lower than during the past few years. Available data appears broadly consistent with the pre-season expectation that more whales might end up feeding on krill in deeper/more offshore waters (beyond the regular area of operation of MBWW). But whales also appear to be using nearshore waters regularly this spring, likely following the anchovy.	The agencies and whale researchers will continue to compile and analyze available data on whale concentrations (Monterey Bay Whale Watch, the Applied California Current Ecosystem Studies (ACCESS) and Oceanic Society). Additionally, 1-2 aerial surveys are planned for the Central Management Area in June (weather dependent). Updates will be shared with the Working Group and the broader fleet.