FY25 WCR Section 6 Priorities

Leatherback Sea Turtles (Species in the Spotlight)

• Support health assessments of leatherback turtles on west coast foraging grounds and compare contaminant levels (e.g., persistent organic pollutants) to other well-studied leatherback populations. Support leatherback prey health studies, specifically biotoxin uptake of jellies during harmful algal bloom events.

• Develop measures/criteria for use in Habitat Conservation Plans (e.g., CA Risk Assessment Management Program). Expand measures/criteria to other fixed gear fisheries. Develop gear marking enhancement programs for all state fixed gear fisheries.

• Support fine scale aerial surveys and in-water captures (including satellite telemetry) for leatherbacks in central CA/OR/WA critical habitat.

• Support the use and development of EcoCast or similar habitat-use models by CA/OR/WA fishers (particularly longline exempted fishing permittees and CA/OR/WA Dungeness crab fishers) to avoid leatherback hotspots in the California Current. Facilitate collection of data to support fine scale mapping of fishing effort in fixed gear fisheries/fine scale surveys of leatherback sea turtles.

• Support leatherback conservation efforts, both locally and internationally.

• Support design and testing of innovative gear/fishing practices to reduce entanglements: on-demand fishing gear, weak point gear, multiple traps per line, deterrents, etc.

• Coordinate across Tri-State Dungeness Crab Management on monitoring of fisheries.

• Conduct outreach to ocean users (including recreational fishers) to identify and report sea turtle strandings to the regional stranding hotline, sightings for inclusion into the SWFSC database, and promote safe handling and release of entangled turtles through development of materials (e.g., stickers, wallet cards, brochures).

• Support derelict gear retrieval programs.

East Pacific Green Sea Turtles

• Participate in monitoring and assessment of habitat health (e.g., water quality in urban waterways, eelgrass/surf grass communities for green turtles).

• Support in-water captures/tagging (including satellite tags) of green turtles in the San Gabriel River, Seal Beach National Wildlife Refuge and San Diego Bay.

• Support citizen science efforts to monitor lesser-known bays/estuaries for presence of green sea turtles (e.g., Agua Hedionda, Mission Bay).

• Conduct outreach to ocean users (including recreational fishers, vessel operators, particularly in estuaries and bays) to identify and report sea turtle strandings to the regional stranding hotline, sightings for inclusion into the SWFSC database, and promote safe handling and release of entangled turtles through development of materials (e.g., stickers, wallet cards, brochures).

• Support derelict gear/marine debris retrieval programs, particularly in estuaries and the San Gabriel River.

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Olive Ridley Sea Turtles

• Conduct outreach to ocean users (including recreational fishers) to identify and report sea turtle strandings to the regional stranding hotline, sightings for inclusion into the SWFSC database, and promote safe handling and release of entangled turtles through development of materials (e.g., stickers, wallet cards, brochures).

• Support Olive Ridley conservation and management efforts, both locally and internationally.

• Support derelict gear retrieval programs.

North Pacific Loggerhead Sea Turtles

• Support aerial surveys in the Southern California Bight (during El Niño and non-El Niño years) and opportunistic tagging/tracking of individuals.

• Support the use of the "Temperature Observations to Avoid Loggerheads" website by California fishers in the Southern California Bight.

• Support North Pacific and South Pacific loggerhead DPS conservation and management efforts, both locally and internationally.

• Conduct outreach to ocean users (including recreational fishers) to identify and report sea turtle strandings to the regional stranding hotline, sightings for inclusion into the SWFSC database, and promote safe handling and release of entangled turtles through development of materials (e.g., stickers, wallet cards, brochures).

• Support derelict gear retrieval programs.

Southern Resident Killer Whales (Species in the Spotlight)

• Protect killer whales from harmful vessel impacts through enforcement, education and evaluation of killer whale vessel regulations (e.g. enforcement patrols, advertising Be Whale Wise in WA State fishing regulations pamphlet).

• Raise awareness about the recovery needs of SRKW and inspire conservation through education and outreach (e.g. Potential partnerships with WA Dept. of Transportation/WA State Ferries and NGOs, WDFW partnership in the Whale Trail)

• Protect important habitat areas from anthropogenic threats, including facilitating reporting of observations and photo-ID from fishing community and others during winter/spring and throughout range of SRKW (CA, OR, WA).

• Target conservation of critical salmon prey for the whales, including supporting research into abundance/distribution of Chinook off CA, OR, and WA in the winter.

• Improve our knowledge of SRKW health to advance recovery and support emergency response, including investigations of stranded killer whales and other marine mammals.

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<u>**Guadalupe Fur Seals**</u>

• Support funding the collection and analysis of biological samples from stranded animals.

• Support satellite tracking of rehabilitated and released animals.

• Support genetic testing of suspected hybrid animals on California's Channel Islands.

• Support monitoring/tagging/tracking Guadalupe fur seals throughout California's Channel Islands.

• Cooperate with Mexico on research (status/abundance on Mexican islands) and conservation/recovery planning.

• Enhance rehabilitation facilities in Oregon and Washington to facilitate care of Guadalupe fur seals.

• Support derelict gear retrieval programs.

<u>**Large Whales**</u>

• Support collection/processing of biological samples for genetic ID of entangled whales. Specifically, to identify distinct population segments and determine impact of fishery entanglements on ESA listed populations of Gray whales and Humpbacks.

• Enhance disentanglement response and awareness. Train state personnel, building up caches of disentanglement gear, supporting outreach to fishing industry on entanglement issue: reporting, promoting best practices, developing solutions, etc.

• Support design and testing of innovated gear/fishing practices to reduce entanglements: on-demand fishing gear, weak point gear, multiple traps per line, etc.

• Develop gear marking enhancement programs for all state fixed gear fisheries.

• Develop measures/criteria for use in Conservation Plans (e.g., CA Risk Assessment Management Program). Expand measures/criteria to other fixed gear fisheries.

• Coordinate across Tri-State Dungeness Crab Management on monitoring of fisheries. Facilitate collection of data to support fine scale mapping of fishing effort in fixed gear fisheries/fine scale surveys of marine mammals.

• Support derelict gear retrieval programs.

<u>**White Abalone (Species in the Spotlight)**</u>

• **Increase the production of captive-bred white abalone to support outplanting efforts.**

• **Maintain and monitor the health of the captive broodstock in order to improve spawning success** through participation in a shared partner database that tracks program progress and through research that informs how to improve reproductive readiness of broodstock and results in reliable spawning and rearing methods.

• **Contribute toward expanding the geographic range of outplanting efforts** through assessments of additional potential outplanting sites, building partnerships, and contributing additional resources and expertise.

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• **Increase outplanting success by identifying the factors that are most important in improving outplant survival** with an emphasis on collaboration with outplant partners to study field-based growth, survival, and movement and to monitor health so that future outplanting strategies are designed to maximize long-term survival in the wild.

• **Develop and implement outreach and education messages among partners.**

<u>Black Abalone</u>

• **Population and Habitat Restoration:** Expand transplanting and habitat restoration (removal of fouling organisms) efforts to increase local densities of black abalone at key locations throughout California; include monitoring and genetic analysis to assess survival and recruitment.

• **Captive breeding and outplanting tools:** Evaluate the efficacy of and develop reliable methods for captive propagation and larval/early post-settlement field planting to increase local densities and enhance reproduction and recruitment.

• **Disease research, monitoring, and management:** Support studies on withering syndrome, including the biological effects of WS-RLO effluent on wild populations, whether there is a genetic basis for disease resistance, and the geographic distribution of disease resistance (e.g., bacteriophage, genetic resistance).

• **Emergency response:** Provide hands-on field training on emergency response plans and protocols for black abalone; support updates to these plans/protocols and maintenance of emergency response go-kits. Establish and maintain recipient sites (field sites and captive facilities) for emergency rescue and relocation of black abalone.

• **Oil/Dispersants effects:** Evaluate the effects of different types of oil and dispersants on different life stages (larval, juvenile, and adult abalone) and their habitat and protocols to clean and care for abalone exposed to oil and/or dispersants.

• **Enforcement:** Develop a database to track and report on past/current enforcement cases and violations (e.g., abalone species and number; condition, status, and disposition) and develop resources for enforcement partners, including protocols for handling live abalone and dead specimens

• **Outreach and education:** Work with resource management agencies and recovery partners to address the ecological and cultural importance of black abalone and share key messages regarding threats and recovery needs, including the threat of poaching and how to report to CDFW.

<u>Sunflower Sea Star</u>

- Monitoring of adult, juvenile, and larval stars both at prior survey sites (especially pre-2013) and systematically over a broad range via trawl, visual survey, plankton tow, or other novel methods.
- Evaluating growth and development to determine growth rate, age at first reproduction, longevity, and other fundamental biological parameters needed to model population status.
- Isolating causes, and identifying triggers resulting in outbreaks, of sea star wasting syndrome.
- Evaluating habitat-specific distribution patterns and behaviors (e.g., feeding, spawning) to identify key habitats for consideration as Critical Habitat.

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- Documenting fishery-specific bycatch rates of sunflower sea stars and evaluating how handling stress affects individual survival, as well as disease susceptibility.
- Educating the public about the plight of sunflower sea stars, and other species affected by the sea star wasting syndrome pandemic, to engender conservation buy-in and support.

<u>Green Sturgeon</u>

• Long-term support for population monitoring:

a) Continue monitoring annual abundance of spawning adults and subsequent larval/juvenile green sturgeon in the Sacramento, Feather, and Yuba Rivers; support DIDSON/side-scan sonar surveys and associated telemetry.

b) Maintain existing acoustic receiver arrays throughout West Coast spawning habitats, migratory corridors, and major foraging estuaries.

c) Increase tagging efforts for subadult and adult green sturgeon: many of the long-life battery tags (Vemco, V16) died in 2020, which caused a major loss of small-scale movement and migration data for researchers and managers.

d) Increase/support juvenile green sturgeon abundance quantification, survivability, distribution and habitat use in the San Francisco Bay, California Central Delta, Sacramento River, San Joaquin River, and associated major tributaries

e) Directed research on the distribution and habitat use of green sturgeon in the Sacramento River Basin, Central Delta, Coastal Bays and Estuaries, and the San Joaquin River Basin

f) Develop and implement estimates of recruitment (mark-recapture age-0/age-1) and effective population (genetic analysis of age-0/age-1).

g) Develop fisheries-dependent subadult/adult abundance estimates (PIT tag mark recapture).

h) Develop and implement tools that help resource managers utilize tracking data and monitoring results (e.g., open databases with telemetry data available in a user-friendly format) to inform management decisions.

• Research on the effects of the following on green sturgeon:

a) Diversions and water operations: effects in the Sacramento River and Delta (e.g., Delta Cross Channel gates) on larval/juvenile green sturgeon; identify areas of high entrainment and impingement risk based on the distribution of diversions and the distribution of larval/juvenile green sturgeon.

b) Habitat modification and/or restoration: effects of actions like levee alteration/floodplain connectivity on green sturgeon recruitment and growth, and water management on green sturgeon habitats as well as growth and survival.

c) Flow and temperature: effects of flow and temperature regimes on early life stages of green sturgeon in the Sacramento River. For example, direct field monitoring would assess early life stages, recruitment,

and cohort success. Ideally, this would result in the development of temperature and flow targets in accessible spawning, incubation and rearing habitats.

d) Diet and/or Contaminants: effects of non-native/invasive species on growth rates of larval/juvenile green sturgeon; identify major contaminants based on diversity group that cause developmental abnormalities in larval/juvenile green sturgeon.

Eulachon

• Conduct a genetic baseline analysis of eulachon spawning subpopulations to determine subpopulation-population structure of eulachon throughout the range of the DPS

• Conduct annual in-river spawning stock biomass surveys in spawning areas with a high-to-moderate spawning frequency to develop long-term, high-resolution abundance estimations for each subpopulation of eulachon.

• Conduct a genetic mixed stock baseline analysis of eulachon in the marine environment.

• Develop an ocean ecosystem indicators model of eulachon marine survival in the California Current Ecosystem to determine how short-term and long-term variability in ocean conditions affect eulachon abundance and productivity for each subpopulation.

• Develop and implement an at-sea survey method to create a reliable index of eulachon abundance in the marine environment.

• Develop outreach and education strategies regarding the ecological, economic, and cultural values of eulachon; foster stewardship of the marine ecosystem; expand funding and research partnerships; and increase involvement of existing regional and international organizations.

Yelloweye Rockfish and Bocaccio

• Kelp monitoring, research, and recovery efforts as outlined in the Puget Sound Kelp Conservation and Recovery Plan. This includes all species of kelp, not just bull kelp.
• Evaluation of proposed aquaculture plots within the DPS prior to cultivation, and throughout the first several years, to describe fish use, habitat alteration, and ecological impacts.
• Monitoring of adult (i.e., ROV) and young-of-the-year rockfish (i.e., scuba surveys) to describe patterns in distribution, abundance, size, and age.
• Prevention and removal of derelict fishing gear, including pots, lines, and nets, and bycatch reduction research for actively fished gear.
• Popularizing and working with partners to increase use of fish descenders in recreational bottomfish and halibut fisheries. Pursue requirement to use descending devices in salmon fisheries.
• Monitoring bycatch in the recreational halibut fishery.
• Facilitating trans-boundary assessments using shared tools (e.g., ROVs) in waters of the Salish Sea.
• Promoting and conducting laboratory studies to better understand the early life history and development of rockfish, and stressors that affect/limit growth and survival.
• Conducting genetic and demographic studies to evaluate validity of the bocaccio DPS.