

DRAFT
West Coast Region
Recreational Fisheries Implementation Plan
2016-2018

A Note from the Regional Administrator for Fisheries in [region] and the [region] Fisheries Science Center Director(s)

Dear West Coast Anglers,

It is our pleasure to share with you the West Coast Region's Recreational Fisheries Implementation Plan (Implementation Plan) for 2016-2018. This Implementation Plan builds on the accomplishments and progress made under the Region's Recreational Fisheries Action Agenda (Action Agenda) for 2014-2105, and is a living document meant to serve as our commitment to continuing the close working relationship that has been established with you, our valued west coast recreational fishing stakeholders. This partnership is vital to ensure that the needed science and pro-active management is in place to foster economically viable and sustainable recreational fisheries and the habitat that supports them, now and into the future. This Implementation Plan is consistent with the goals of our National Recreational Fisheries Policy and Implementation Plan¹, and it is designed to be a discrete list of action items aligned with the National Oceanic and Atmospheric Administration (NOAA) Fisheries' mission and budgetary resources. Its purpose is to both complement existing science and management processes and add value to NOAA's commitment to recreational fisheries issues.

Recreational fishing on the U.S. West Coast presents a vast array of quality fishing opportunities in both state and Federal waters. From the United States-Mexico border in the south to the United States-Canada border in the north, with approximately 1,300 miles of coastline in between, these waters support a broad range of marine life, including Bluefin and Albacore tuna, Chinook and Coho salmon, and many species of groundfish. Each year, anglers from all across the United States and the world visit our ports and communities and support our local economies by fishing for these iconic gamefish.

The fertile west coast waters are found within the dynamic California Current, which is characterized as a highly productive and variable ecosystem. Within the last year, the variability has been on grand display with the ongoing El Niño event that is bringing exotic species such as wahoo and blue marlin within range of U.S. West Coast recreational anglers. It also presents a unique set of science and management challenges that we cooperatively address in some of the projects contained within this Implementation Plan. These challenges include impacts from the ongoing drought, climate change, ocean pollution and acidification, El Niño and La Niña, the "warm water blob" and associated domoic acid outbreaks, and the recurrent boom and bust cycles for forage fish that provide the foundation for our West Coast recreational fisheries. These

¹ http://www.nmfs.noaa.gov/sfa/management/recreational/documents/noaa_recfish_policy.pdf

impacts can have dramatic effects on populations of west coast gamefish, including salmon, whose survival has been shown to decrease at various life stages during prolonged drought and recurring El Niño events.

These challenges will take a coordinated and cooperative effort to address, and we are confident that with your help, we can meet the call and provide the trusted science and management to continue supporting our west coast communities, businesses, and valued stakeholders. We thank you for your role in this effort and look forward to working closely with you to achieve the goals and objectives laid out in this Implementation Plan. We value your input and feedback on this living document so please feel free to contact our Recreational Fisheries Coordinator or one of our Recreational Fisheries specialists who are embedded in our Regional Field Offices and Science Centers up and down the west coast. Their contact information can be found in Appendix C.

Thank you and see you on the water!

Cisco, John & Will signatures

Regional Overview

Many U.S. West Coast fisheries are managed as a shared enterprise between numerous federal, state, tribal, and international bodies. The National Marine Fisheries Service (NMFS) West Coast Region (WCR) manages fisheries in federal waters off California, Oregon, and Washington, with interstate coordination facilitated through the Pacific States Marine Fisheries Commission². The Pacific Fishery Management Council (Council)³ and NOAA Fisheries co-manage fisheries primarily through four fishery management plans (FMPs): coastal pelagic species, groundfish, salmon, and highly migratory species. Our Science Centers in the Southwest⁴ and in the Northwest⁵ provide trusted science in support of federal fisheries management.

Marine recreational fisheries on the U. S. West Coast occur in both non-federal waters (0 to 3 nautical miles off the coast) and federal waters (3 to 200 nautical miles off the coast), and they encompass resident and non-resident anglers fishing from shore, private boats, and a commercial passenger fishing vessel (CPFV) fleet that provides access and guiding services to anglers. These recreational fisheries are economically, socially, and culturally important, measured in part by the number of jobs supported, the income generated by trip and durable goods-related expenditures, and the economic value placed on fishing and fishery resources by the public. In 2013, 1.7 million anglers took 7.5 million saltwater fishing trips generating over 21,000 full and part time jobs, supporting in excess of \$2.5 billion in sales on the west coast. Value added impacts surpassed \$1.5 billion while durable equipment expenditures totaled approximately \$1.9 billion.

Each of the WCR FMPs includes federally managed species whose biological and economic sustainability are key to the health and success of our WCR businesses and communities. In the case of coastal pelagic species, the need to maintain healthy populations of sardines, anchovies, and other forage species is critical to support the growth and development of those species that depend on them for prey, as well as our CPFV and private vessel recreational fishing fleets that depend on them for live bait. In the case of groundfish, management has been heavily centered on the need to rebuild overfished stocks. For salmon, management of various stocks listed under the Endangered Species Act has had a similar effect. The resulting need to constrain some harvest of healthy stocks has had economic implications for recreational anglers, businesses, and communities due to the loss of landings and revenue. Regarding highly migratory species, domestic and international management measures to reduce fishing mortality on the overfished Pacific bluefin tuna have led to reduced bag limits and a temporary closure to historically important fishing grounds in Mexico, a key ally in the rebuilding of this transboundary stock.

As valued WCR stakeholders, you have our commitment that the dedicated staff at our NMFS WCR Offices and Science Centers will continue to be actively engaged in studying, monitoring, and managing the varied and important recreational fisheries and resource challenges outlined

² <http://www.psmfc.org/>

³ <http://www.pcouncil.org/>

⁴ <https://swfsc.noaa.gov/>

⁵ <http://www.nwfsc.noaa.gov/>

above. We look forward to working cooperatively with you to ensure availability of quality recreational fishing opportunities for present and future generations to enjoy.

Setting the Stage

We have made excellent progress in achieving many of the key objectives set out in the 2014-2015 WCR Recreational Fisheries Action Agenda (Progress Report, Appendix A). Highlights include research on the impacts of angling on survivorship of released sharks, the installment of monofilament recycling stations in key watersheds and access areas, collaborative biological and economic surveys with industry partners, and improvements in the quality of data used in stock assessments for important west coast gamefish species. A major outreach focus was active engagement with anglers, which we accomplished via representation at major fishing shows in California and Washington, participating on sportfishing talk radio shows, and by establishing a comprehensive West Coast Rec Fish Listserv communications platform. Our outreach and education campaign told the story of innovative rockfish barotrauma research conducted in collaboration with our industry partners and scientists, documented best practices for safe catch-and-release of rockfish using descending devices in partnership with the west coast state Fish and Wildlife Departments and the Pacific States Marine Fisheries Commission, and communicated the science supporting the domestic and international management and conservation of the Pacific bluefin tuna.

Building off of this momentum, the WCR 2016-2018 Implementation Plan contains a suite of new projects and activities, as well as areas of renewed focus with on-going work from the previous Action Agenda. The Implementation Plan was developed, in part, after the WCR Recreational Fisheries Coordinator and Recreational Fish Team members solicited input from key stakeholders in the recreational community to help identify concerns, develop action ideas, and offer suggestions on how best to address those issues.

Based on that input, additional discussions were held at various venues with industry leaders for further guidance and collaboration, including several Advisory Body meetings of the Council in 2015, the Marine Fisheries Advisory Committee meeting in San Diego in April 2015, and at the Channel Islands National Marine Sanctuary Advisory Committee meeting in Santa Barbara in August 2015. We also reached out to leadership from national and regional angler associations including, among others, the Sportfishing Association of California and the Westport Charterboat Association.

We used the following guidelines to determine which projects and actions were appropriate for inclusion in this Implementation Plan:

- Practical and timely (i.e., a project that can be implemented within the life of the Implementation Plan)
- Cost-effective and within available resources
- Value added (i.e., a new activity or renewed focus on an existing activity)
- Alignment with the WCR Strategic Plan specifically and, more generally, with NOAA Fisheries' overarching mission⁶

⁶ http://www.nmfs.noaa.gov/aboutus/our_mission.html

The NMFS West Coast Regional Office and the Southwest and Northwest Fisheries Science Centers have Strategic Plans⁷ that guide priority setting and overall direction. Recreational fisheries issues, and the science supporting their management, are key components to these Strategic Plans. The WCR's strategic plan identifies our priorities for the next five years, from 2016 through 2020, and will be used by leadership to guide internal decision-making and resource allocation. A key strategy in the West Coast Regional Office Strategic Plan is to increase engagement with anglers in carrying out NOAA Fisheries' Saltwater Recreational Fisheries Engagement Initiative on the west coast to enhance recreational fishing opportunity, improve recreational fisheries data, and strengthen communications between the agency and anglers. The guiding principles and goals/objectives of the Implementation Plan are presented in the next section.

⁷ http://www.westcoast.fisheries.noaa.gov/about_us/strategic_plan.html;
<https://swfsc.noaa.gov/uploadedFiles/Home/SWFSCStratSciencePlan-2013.pdf>;
<http://www.nwfsc.noaa.gov/about/planning/index.cfm>

West Coast Region Recreational Fisheries Implementation Plan 2016-2018

Guiding Principle 1– Support ecosystem conservation and enhancement

A healthy and properly functioning California Current ecosystem serves as the foundation for sustainable recreational fisheries and the communities that depend upon them. However, the pervasive impacts of trash and debris accumulating in our rivers, watersheds, and oceans have been widely recognized and are harmful to human health and the environment. Addressing the many factors that influence ecosystem health requires an effective and on-going public-private partnership that includes the engagement of anglers as key stewards of the resource. Actions supporting this guiding principle include:

On-going Responsibilities

- Empower anglers as resource stewards by developing and distributing education and outreach materials to provide them with straight-forward interpretations of recreational fisheries regulations, research, and management actions for federally-managed species.

Areas of Enhanced Effort

- Support research that improves knowledge of community structure and ecosystem linkages between the inshore habitats and offshore production of recreationally important fishes.
- Coordinate with U.S. West Coast anglers to increase participation in marine debris and coastal cleanup programs to prevent trash and debris from causing harm to our oceans, wildlife, and coastal economies.

Guiding Principle 1– Support ecosystem conservation and enhancement	
Objective(s)/Strategy	Project(s)/Deliverables
Ongoing Responsibilities/Activity	
Empower anglers as resource stewards by developing and distributing education and outreach materials to provide them with straight-forward interpretations of recreational fisheries regulations, research, and management actions for federally-managed species.	Improve fish identification and catch reporting to increase the accuracy and precision of creel surveys and other appropriate reporting mechanisms.
	Facilitate development of best practices for: deterrence of whale entanglements in recreational crab fishing gear, increasing their post-release survivorship.
	Promote awareness of Endangered Species Act (ESA)-listed sea turtle and sportfishing interactions and best practices for safe release in southern California coastal waters and embayments.
	Encourage effective use of descending devices and other means of reducing barotrauma-related mortality of rockfishes.
	Support improved understanding of recreational fisheries issues among those participating in the Council process (Council members, Advisory Bodies, and the public).
Areas of Enhanced Effort	
Support research that improves knowledge of community structure and ecosystem linkages between the inshore habitats and offshore production of recreationally important fishes.	Explore groundfish community structure in Oregon and California by incorporating at-sea observer and bathymetry data in model structure for stock assessments (Project 3C).
	Conduct water quality modeling of estuarine habitat for salmonids in the Russian River, CA

	basin to maximize habitat conditions for salmon and steelhead trout.
Coordinate with U.S. West Coast anglers to increase participation in Marine Debris and Coastal Cleanup Programs to prevent trash and debris from causing harm to our oceans, wildlife, and coastal economies.	Coordinate with west coast marine debris removal programs to report lost gear and hire SCUBA divers to remove gear from near-shore waters.
	Coordinate with west coast beach cleanup programs to prevent trash and debris from causing harm to our oceans, wildlife, and coastal economies.

Guiding Principle 2 – Promote public access to quality recreational fishing opportunities

Working with west coast state and tribal co-managers and key public stakeholders, fishing access is collectively determined through the Council process. In addition to supporting access to fishing opportunities through participation in the Council process, creating enduring public-private partnerships to foster ethical fishing practices and enhancing non-traditional fishing opportunities for the public is a key objective under this Implementation Plan. Actions supporting this guiding principle include:

Ongoing Responsibilities

- Continue programs with established partners that take children and non-traditional fishery participants, including youth groups, veterans, disabled anglers, and minority groups, on fishing trips to improve stewardship awareness and ethical fishing practices.

Areas of Enhanced Effort

- Recruit and support west coast recreational fishing sector participation in planning and implementation of restoration projects benefitting recreational fisheries, including projects in identified Regional Habitat Focus Areas.
- Support development and citing of artificial reefs to enhance nearshore rocky reef habitat and increase recreational fishing opportunities.
- Cultivate a partnership with WCR National Marine Sanctuaries to launch a public-private effort to enhance non-traditional fishing opportunities in sanctuary waters.

Guiding Principle 2 – Promote public access to quality recreational fishing opportunities	
Objective(s)/Strategy	Project(s)/Deliverables
On-Going Responsibilities/Activity	
Continue programs with established partners that take children and non-traditional fishery participants, including youth groups, veterans, disabled anglers, and minority groups, on fishing trips to improve stewardship awareness and ethical fishing practices.	Continue support and participation in the Friends of Rollo (http://rollokids.org/) and Fish4Life (http://www.fishforlife.org/) youth fishing programs in southern California.
Areas of Enhanced Effort	
Participate in planning and implementation of restoration projects benefitting recreational fisheries, including projects in identified Regional Habitat Focus Areas.	Attend and participate in applicable County Task Forces under the umbrella of the Southern California Wetlands Recovery Project.
	Attend and participate in the California Fish Passage Forum and the Pacific Marine and Estuarine Fish Habitat Partnership.
	Assist in restoration efforts in Tillamook Bay and Siuslaw River, Oregon to increase survival and abundance of salmon and other recreationally important species.
Support development and citing of artificial reefs to enhance nearshore rocky reef habitat and increase recreational fishing opportunities.	Engage in cooperative planning effort to design and locate an artificial reef off of the coast of Eureka, CA to enhance limited nearshore rocky bottom habitat and increase fishing opportunities.
Cultivate a partnership with WCR National Marine Sanctuaries to launch a public-private effort to enhance non-traditional fishing opportunities in sanctuary waters.	Partner with the Channel Islands National Marine Sanctuary and the Friends of Rollo Program to take local fourth grade students fishing as part of the “Every Kid in the Park” Initiative.

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Guiding Principle 3 – Coordinate with state and federal management entities

Sustainable and efficient conservation and management of west coast recreational fisheries requires effective coordination and engagement both with the public and with our co-management colleagues. This coordination and engagement is critical to improve the quality and quantity of data used in support of science and management that addresses the many issues and challenges impacting west coast recreational fisheries. Actions supporting this guiding principle include:

Ongoing Responsibilities

- Strengthen existing partnerships with state FWDs and other state resource agencies to collect needed data for conservation and management of west coast co-managed species.

Areas of Enhanced Effort

- Review and modify existing databases with state FWDs to improve quality of data used in stock assessments for co-managed species.
- Partner with state Fish and Wildlife Agencies to collect biological data needed to meet domestic and international management obligations for co-managed species.
- Cultivate a partnership with WCR National Marine Sanctuaries to serve as resource for management, research, and enhanced fishing opportunities.

Guiding Principle 3 – Coordinate with state and federal management entities	
Objective(s)/Strategy	Project(s)/Deliverables
Ongoing Responsibilities/Activity	
Strengthen existing partnership with state Fish and Wildlife Agencies and other state resource agencies to collect needed data for conservation and management of west coast co-managed species.	Collaborate with state and industry partners on the Pacific Bluefin Tuna Recreational Fisheries Sampling Enhancement Project to provide fishery managers and scientists with harvest estimates (by weight) of tunas taken onboard southern California CPFV boats.
Areas of Enhanced Effort	
Review and modify existing databases with state Fish and Wildlife Agencies to improve quality of data used in stock assessments for	Review and error-check the 1987-1998 California Department of Fish and Wildlife onboard groundfish observer survey data and

co-managed species.	provide the updated data to stock assessment scientists.
Partner with state Fish and Wildlife Agencies to collect biological data needed to meet domestic and international management obligations for co-managed species.	Partner with Washington Department of Fish and Wildlife on dockside monitoring of non-treaty ocean salmon recreational fisheries to collect scale samples and coded wire tag returns to determine harvest rates, stock composition, compliance with Pacific Salmon Treaty obligations, and forecast impacts of fisheries on various stocks.
Cultivate a partnership with WCR National Marine Sanctuaries to serve as resource for management, research, and enhanced fishing opportunities.	Attend and participate in West Coast Sanctuary Science Advisory Committee meetings when relevant recreational fisheries items are on the agenda.

Guiding Principle 4 – Advance innovative solutions to evolving science, management, and environmental challenges.

Successful cooperative research efforts with the recreational fisheries stakeholders on the west coast have led to innovative and enhanced methods to collect data in support of recreational fisheries conservation and management. Given the increasing need for near real-time management of fisheries under quotas and catch limits, including the west coast recreational groundfish fishery, these innovative data collection methods are a critical component to help rebuild overfished stocks and maintain economically viable fishing communities and the businesses they support. Maintaining and building upon these successful efforts, the actions supporting this guiding principle include:

Ongoing Responsibilities

- Support cooperative research and federal grant programs to investigate bycatch and release mortality reduction tools and handling techniques to ensure the use of best practices for safe and effective catch-and-release.
- Assess the effects of management actions on angler participation in west coast recreational fisheries.

Areas of Enhanced Effort

- Assess efficacy of angler survey methods to enhance accuracy and precision of economic data used to manage recreational fisheries.
- Engage in angler-supported research to collect genetic samples to better identify and quantify stock structure dynamics for recreational game fish species.

Guiding Principle 4 – Advance innovative solutions to evolving science, management, and environmental challenges	
Objective(s)/Strategy	Project(s)/Deliverables
Ongoing Responsibilities/Activity	
Support cooperative research and federal grant programs to investigate bycatch and release mortality reduction tools and handling techniques to ensure the use of best practices for safe and effective catch-and-release.	Collaborate with industry and non-profit research institutes to conduct research on catch-and-release survivorship for sport-caught Pacific bluefin tuna.
Assess the effects of management actions on angler participation in west coast recreational fisheries.	Analyze the regulatory impacts of recreational fishery management alternatives for Pacific bluefin tuna.
	Sample the recreational Pacific bluefin tuna catch off southern California to determine size structure of fish caught by the San Diego CPFV fleet.
Areas of Enhanced Effort	
Assess efficacy of angler survey methods to enhance accuracy and precision of economic data used to manage recreational fisheries.	Undertake a recreational economic survey mode study to determine the feasibility and preferred survey methods to collect angler trip expenditure data from the San Diego CPFV fleet.
Engage in angler-supported research to collect genetic samples to better identify and quantify stock structure dynamics for recreational game fish species.	Carry out a genetic comparison of Pacific halibut caught by recreational anglers off northern California to those caught further north to better understand stock structure.

Guiding Principle 5 – Provide scientifically sound and trusted social, cultural, economic, and ecological information

Engaging and involving west coast anglers and interested stakeholders in the design, implementation, and use of data collected to support recreational fisheries conservation and management is a critical component in achieving sound and lasting programs and policies. Continuing to improve and verify the science that underpins these programs and policies, while

working to improve the public's understanding and confidence, is one of the key actions under this Implementation Plan. Actions supporting this guiding principle include:

Ongoing Responsibilities

- Engage recreational fishermen in data collection and reporting efforts to benefit protected resources recovery and conservation through citizen science programs to report tagged animals and document sightings of protected species.
- Bolster understanding of the social and economic importance of recreational fishing.
- Inform anglers and the public on seafood safety and consumption guidelines for harvested marine gamefish species.

Areas of Enhanced Effort

- Provide recreational catch and effort information that supports stock assessments and informs management.
- Identify key areas for habitat mapping to foster improved characterization and assessment of recreational fish habitats.

Guiding Principle 5 – Provide scientifically sound and trusted social, cultural, economic, and ecological information	
Objective(s)/Strategy	Project(s)/Deliverables
Ongoing Responsibilities/Activity	
Engage recreational fishermen in data collection and reporting efforts to benefit protected resources recovery and conservation through citizen science programs to report tagged animals and document sightings of protected species.	Encourage anglers to participate in the Southwest Fisheries Science Center's (SWFSC) Highly Migratory Species (HMS) Biological Sample Donation Program.
	Encourage anglers to participate in the SWFSC's Basking Shark Reporting Program.
	Encourage anglers to participate in the SWFSC's HMS Billfish Tagging.
Bolster understanding of the social and economic importance of recreational fishing.	Develop a bio-economic model to examine the effects of management actions on angler effort, economic value, economic impact, and stock biomass of marine recreational fisheries off the coast of Washington and Oregon.
	Conduct an economic survey of west coast anglers to estimate the effects of changes in catch rates and management actions on angler effort and economic values.
Inform anglers and the public on seafood safety and consumption guidelines harvested marine gamefish species.	Assist Montrose Settlements Restoration Program (MSRP) in educating anglers on seafood safety through their Fishing Outreach Mini-Grant Program.
Areas of Enhanced Effort	
Provide recreational catch and effort	Conduct analysis of relative abundance indices

information that supports stock assessments and informs management.	derived from fishery-dependent and fishery-independent groundfish monitoring programs to incorporate into stock assessments.
	Conduct sensitivity analyses of relative indices of abundance developed from onboard and dockside surveys of the west coast recreational fisheries to incorporate into stock assessments.
	Conduct southern California shelf rockfish hook and line survey to provide an annual index of relative abundance and a time series of biological data for several key species of shelf rockfish.
Identify key areas for habitat mapping to foster improved characterization and assessment of recreational fish habitats.	Examine fishery interactions, catch-and-release mortality, and habitat usage of juvenile cowcod to understand the effects of fishery interactions.
	Quantify seasonal shifts in walleye diet composition in the Columbia River basin to examine the ecological role and extent to which walleye prey on ESA-listed salmonids.

Guiding Principle 6 – Communicate and engage with the recreational fishing public

One of the key drivers behind the creation of a permanent West Coast Recreational Fisheries Coordinator (RFC) position was to improve two-way communications with west coast anglers and the public. Without this shared communications pathway, support for the programs and policies needed to sustainably and cooperatively manage west coast recreational fisheries would not be possible. As part of this Implementation Plan, the RFC and Recreational Fisheries Team Members, with support from regional and center communications staff, are committed to maintaining and enhancing this critical engagement function. Actions supporting this guiding principle include:

Ongoing Responsibilities

- Attend major community events to establish two-way communications with anglers and gain feedback on time-sensitive and important recreational fishing issues and challenges.

- Maintain strong working relationships and open lines of communication with recreational fishing community leaders to ensure regular dialogue and a policy of “no surprises.”

Areas of Enhanced Effort

- Increase the amount of content (e.g., feature stories, videos, alerts) relevant to anglers.
- Strengthen internal communication and outreach capacity by providing training to regional recreational fisheries coordinators.

Guiding Principle 6 – Communicate and engage with the recreational fishing public	
Objective(s)/Strategy	Project(s)/Deliverables
Ongoing Responsibilities/Activity	
Attend major community events to establish two-way communications with anglers and gain feedback on time-sensitive and important recreational fishing issues and challenges.	Participate in recreational fishing conventions and periodically attend relevant west coast fishing club meetings and events.
	Participate in sportfishing radio shows, including southern California’s “Let’s Talk Hook Up” Show, to discuss relevant west coast recreational fisheries science and management issues and concerns.
Maintain strong working relationships and open lines of communication with recreational fishing community leaders to ensure regular dialogue and a policy of “no surprises.”	Maintain effective internal communications to ensure timely sharing, both internally and externally, of relevant recreational fisheries science and management issues and concerns.
Areas of Enhanced Effort	
Increase the amount of content (e.g., feature stories, videos, alerts) relevant to anglers.	Participate in additional west coast region sportfishing radio shows, including the “Hooked on Oregon” Radio Show, to discuss relevant west coast recreational fisheries science and management issues and concerns.
	Work with west coast communications specialists within the region and at centers to produce and distribute timely outreach

	products focused on recreational fisheries research and management issues.
	Acknowledge west coast recreational fisheries constituents for exemplary marine resource stewardship with a NOAA Fisheries Award (plaque).
Strengthen internal communication and outreach capacity by providing training to regional recreational fisheries coordinators.	As needed, encourage training in media relations and effective messaging and public speaking for the WCR RFC and Recreational Fisheries Team Members.

ADDITIONAL ACTIVITY SUPPORTING RECREATIONAL FISHERIES

Recreational fishermen are critical partners in NOAA Fisheries' mission to promote sustainable fisheries, habitat conservation, and the recovery of protected species. NOAA Fisheries is guided by the Magnuson-Stevens Act, the Marine Mammal Protection Act, the Endangered Species Act (ESA), and other applicable laws to work with recreational fishermen at every level of the public process. Examples include the special care taken to ensure recreational interests are represented throughout the Pacific Fishery Management Council's committee structure, where anglers engage side-by-side with NOAA Fisheries staff to support fishery management decisions. ESA-recovery teams (e.g., Puget Sound rockfish) include recreational fishermen as standing members so that recovery efforts are appropriately balanced with the needs of recreational fisheries. And, under the Federal Advisory Committee Act, NOAA Fisheries engages with the Marine Fisheries Advisory Committee's Recreational Fisheries Working Group and other recreational fishing group organizations.

NOAA Fisheries scientists continue to develop products that support recreational fisheries in the region. For example, stock assessments are conducted for many important recreational targets and updated regularly. NOAA Fisheries works with Pacific States Marine Fisheries Commission and the California, Oregon, and Washington Departments of Fish and Wildlife through RecFIN, a database of recreational fishery sampling data, to maintain robust and accurate sampling programs for recreational catch and effort over time and by region. Agency scientists continue to assess toxic chemical threats to recreational fisheries and seafood safety. Salmon hatchery science continues to be a major focus, as well as examining the interactions between salmonids and non-native fish.

SUMMARY

This Implementation Plan highlights the importance of recreational fisheries for the WCR and Science Centers, and should be considered a living document that will help us proactively plan for and execute the science, management, and outreach efforts needed to sustainably manage west coast recreational fisheries and communities. The success of the Implementation Plan will require active cooperation of the west coast recreational fishing community leaders and stakeholders and we look forward to fostering that cooperation now and in the coming years.

APPENDIX A - Progress Report for the 2014-2015 Action Agenda

GOAL	OBJECTIVE	PROJECTS	DELIVERABLES/STATUS
GOAL 1 - Improved Recreational Fishing Opportunities	Objective 1 - Participate In Fishing Events with Stakeholders (e.g., Disabled Anglers, Minority Groups) to Improve Stewardship Awareness and Adoption of Ethical Fishing Practices.	Project 1 - Provide opportunities for stakeholders to learn about the NOAA Ethical Angler Program, ethical fishing techniques, and marine conservation efforts. Disseminate best fishing practices and ethical angling information through demonstrations and brochures to event participants at piers and onboard CPFV trips.	Deliverable: Hands-on demonstrations at events and on-board CPFV trips. Status: The RFC participated in four fishing trips with Friends of Rollo and the Fish4Life Foundations, including the Friends of Rollo 100,000th Youth served trip in May 2015.
	Objective 2 - Facilitate Sustainable Fishing Opportunities through Higher Survivorship of Released Fish.	Project 1 - Partner with southern California fishing clubs and anglers to conduct research regarding the reduction of catch-and-release mortality rates for sport caught common thresher sharks and disseminate research results and best practices to anglers.	Deliverable: Publish research findings and disseminate best fishing practices. Status: Project completed, two journal articles published, outreach products developed and disseminated including a best practices brochure. The RFC and co-authors gave presentations at the Tuna and Billfish Conference and NOAA Circle Hook Symposium. The RFC appeared on "Let's Talk Hookup" to discuss the research.
		Project 2 - Support education and outreach with recreational anglers to encourage effective use of descending devices and other	Deliverable: • Presentations to fishing clubs • Distribution of best fishing practices outreach materials

		<p>means of reducing barotrauma-related mortality of rockfishes. This will include the production and distribution of educational materials as well as the free distribution of descending devices. This project may involve support for existing efforts (e.g., by state agencies, non-governmental organizations (NGOs), or private entities).</p>	<ul style="list-style-type: none"> • Distribution of descending devices <p>Status: Rockfish descender devices, fact sheets, and rockfish species ID guides were distributed in collaboration with PSMFC, state fish and wildlife agencies, and NGOs. In 2015, over 50 volunteer anglers assisted researchers from SWFSC Santa Cruz on seven rockfish barotrauma catch-and-release charters in central California.</p>
		<p>Project 3 - Collaborate on Habitat Restoration. A collaborative team, including NOAA and members of the recreational fishing community, would identify funding sources and develop a proposal for habitat restoration. The Northern Puget Sound Derelict Gear Removal Project is a potential model for this action item. In that project, NOAA's investment of \$75,000 was leveraged for an additional \$125,000 plus 500 volunteer hours (including key support from the recreational community) and</p>	<p>Deliverable:</p> <ul style="list-style-type: none"> • The formation of a collaborative team between NOAA, the recreational community, and other appropriate parties. • A restoration proposal targeted to an appropriate funding source. • Initiation of a habitat restoration project. <p>Status: First two deliverables accomplished, funding being sought for proposal to remove derelict fishing traps in Puget Sound</p>

		resulted in 5 acres of restored benthic habitat.	
		Project 4 - Dispose and recycle monofilament line. Provide support to the Idaho Department of Fish and Game (IDFG) to implement a monofilament recycling and public outreach program in the Upper Salmon River. The program is modeled after Boat U.S. Foundation's "Reel In & Recycle."	Deliverable: 15 monofilament recycling stations in the Upper Salmon River Status: Pilot project completed. IDFG Report submitted. Bins were fabricated and installed at 20 boat launches and access in the Upper Salmon Basin. Monitoring in summer and fall of 2014 confirmed angler use of recycling bins for monofilament disposal.
		Project 5 - Habitat assessment of estuarine and nearshore forage fish on the west coast. Determine local abundance levels and probability of presence/absence in historical (20–50 years old) and recent (0-10 years old) datasets. Data used to determine how habitat modifications influence forage fish presence and abundance.	Deliverable: An assessment of nine species of forage fish spawning in estuaries and nearshore habitats across California, Oregon, and Washington. Status: First phase completed (an analysis of temporal trends of forage fish in Puget sound) and published in Marine Ecology Progress Series. The second phase is ongoing (meta-analysis of forage fish across the Pacific Coast), and preliminary results presented at the Coastal and Estuarine Research Federation in Portland.

		<p>Project 6 - Focus on Russian River Habitat Focus Area restoration. Implement NOAA's Habitat Blueprint efforts for the Russian River in northern California as a geographic priority area to focus expertise, resources, and actions to maximize benefits to marine resources. Restoration efforts will benefit Chinook and coho salmon as well as steelhead trout</p>	<p>Deliverable: Improved habitat available for recreational fishes throughout the Russian River.</p> <p>Status: Ongoing, developing decision support tools and projects for science-based restoration within salmonid habitats. Projects include enhanced Forecast Informed Reservoir Operations (FIRO), a tributary water budgeting model; and an estuarine state salmonid habitat evaluation model. The FIRO effort reached a significant milestone in 2015 with the completion of A Comprehensive Plan to Evaluate the Viability of Forecast Informed Reservoir Operations (FIRO) for Lake Mendocino. The development of the tributary and estuarine projects is ongoing.</p>
<p>GOAL 2 – Improved Recreational Catch, Effort, and Status Data</p>	<p>Objective 1 - Improve Recreational Fisheries Monitoring Data for Use in Management.</p>	<p>Project 1 - Assess response of rockfish populations to Rockfish Conservation Area closures in central California. Survey Rockfish Conservation Areas to investigate how fish populations have responded to 10 years of</p>	<p>Deliverable: Manuscript describing benefits and consequences of Rockfish Conservation Areas in central California, submitted for publication in peer reviewed journal.</p>

		closure from fishing pressure by comparing new catch data with historical CDFW data. Sample historical fishing sites, comparing current catch rates and size distributions to historical data.	Status: Project completed, manuscript has been accepted for publication in CalCOFI Reports.
		Project 2 - Evaluate habitat-specific catch rates using high-resolution bathymetric charts and recreational catch data. Compare catch rates over time and across habitat types using a combination of high-resolution bathymetric data and drift-specific data from observers on CPFVs. The analysis will provide improved information on local trends in abundance for consideration in stock assessments, and will inform managers about the spatial distribution of stocks targeted by recreational fishermen.	Deliverable: Maps of relative fish abundance by habitat type, and a comparison of regional trends in relative abundance over time. Status: Project ongoing, a summary of progress to date was presented at the American Fisheries Society meeting in Portland, Oregon.
		Project 3 - Recover historical commercial passenger fishing vessel data. Create a relational database of drift-specific catch and effort information from onboard CPFV observer program in California(1987–1998), in a format compatible with existing relational databases for the recent	Deliverable: Relational database of drift-specific recreational catch and effort data from 1987–1998 for Central and Northern California. Status: Project completed, original data sheets from 1987-1998 onboard CPFV observer program in California were

		onboard sampling program (1999–2011). Recovery of high-resolution historical data will provide a continuous time series of catch and effort information needed for stock assessments of recreationally important species.	keypunched and organized into a SQL Server relational database. The database includes 2,256 trips, consisting of 21,295 drifts and 40,293 species encounters.
		Project 4 - Evaluate spatial and temporal patterns in stock-specific catch per unit effort in the recreational Chinook salmon fishery. Combine information on stock-specific catch in the recreational Chinook salmon fishery with measures of fishing effort to infer ocean spatial distribution of different stocks. This may aid in designing management measures to shift impacts from weak to target stocks.	Deliverable: Evaluation of stock-specific Chinook ocean distributions, potentially improving opportunities for management of weak stocks. Status: Project cancelled due to insufficient data.
		Project 5 - Education and outreach to improve fish identification among recreational anglers. Support the development of an education and outreach program to improve the accuracy of fish identification and catch reporting by recreational anglers. Interested anglers will be taught species identification to improve	Deliverable: Distribution of outreach materials and descending devices to fishermen in 2014–2015. Status: Project ongoing, see Goal 1, Obj. 1, Project 2 rockfish barotrauma descender device and species ID sheet distribution status update. Fish ID Fact sheets were also produced for

		the accuracy and precision of creel surveys and other reporting mechanisms. This project may be NOAA-led or implemented by a grant or contract to a qualified organization.	Pacific bluefin tuna daily bag limit and at-sea fillet rule writing to assist anglers with complying with regulations.
GOAL 2 – Improved Recreational Catch, Effort, and Status Data	Objective 2 - Reduce Depredation and Marine Mammal Interactions with Anglers.	Project 1 - Evaluate sea lion depredation reduction methods. Project in progress partnering with CPFV operators to evaluate effectiveness of several devices designed to reduce depredation by California sea lions during fishing operations.	Deliverable: Technical report. Status: Project suspended due to permitting delays for testing acoustic/pressure deterrence device.
	Objective 3 - Conduct Cooperative Research Projects for Improved Data Collection and Monitoring.	Project 1 - Encourage highly migratory species biological sample donation. Maintain and expand donation of heads and stomachs of tunas and other highly migratory species by anglers through education and outreach efforts. Samples to be used to estimate parameters in stock assessments and to characterize foraging ecology and stock structure.	Deliverable: Provide research results to the management agencies. Disseminate results through scientific meetings and publications, and by presenting at fishing club meetings and other pertinent presentation venues. Status: Ongoing, from 2014-2015, 275 Pacific bluefin tuna, 117 yellowfin tuna, 53 California yellowtail, 39 albacore, 21 opah, 13 striped marlin, 12 wahoo, and 3 blue marlin were donated by anglers. Samples collected include DNA, otoliths, muscle tissue,

			reproductive organs, and stomachs. Biological samples provide insight into foraging, age and growth, reproduction, and migration patterns.
		Project 2 - Encourage anglers to report sightings of basking sharks to the SWFSC. Encourage anglers to report sightings of basking sharks through education and outreach efforts, including distribution of stickers, posters, and brochures with reporting information. Basking sharks were listed in 2010 as a NOAA Species of Concern. All sightings data are helpful to scientists studying this rare species.	<p>Deliverable: Information on the abundance and distribution of basking sharks off the U.S. West Coast.</p> <p>Status: In 2014, anglers reported 6 sightings along the coastline from Baja California to southern California and 6 sightings in the Puget Sound between August and November. In 2015, basking shark sightings were reported 8 different times from March to June between southern CA to central CA. No sightings reported from northern CA in 2015.</p>
		Project 3 - Collaborate with CPFV fleet on rockfish surveys. Utilize CPFVs as a platform to access rocky habitat-associated stocks not effectively captured by trawl survey techniques. Use combined information from multiple-frequency echo-sounder and high-resolution underwater camera observations.	<p>Deliverable: Data collection complete; technical report in 2013; ongoing analysis for journal publication in 2017.</p> <p>Status: Project completed, several NOAA Tech Memos published and results presented at various research conferences.</p>

		<p>Project 4 - Encourage and support billfish tagging. Continue the SWFSC Billfish Tagging Program. This program has been working with recreational anglers for 50 years and encourages ethical angling, including tag and release of healthy billfish. Additionally, the SWFSC strives to support ethical angling internationally by fostering an annual international catch and effort survey as well as providing conventional tags across the Pacific.</p>	<p>Deliverable: Promote ethical angling by encouraging release of fish. Reach out to billfish anglers across the Pacific. Provide an annual index of catch per unit effort for a range of species from various locations throughout the Pacific and Indian Oceans. Share results through publication in the Billfish Newsletter, scientific publications, meetings, and presentations at fishing club meetings.</p> <p>Status: Project ongoing, over 1,300 billfish tags have been released across the Pacific in 2015. The results of recent billfish tagging and the International Billfish Survey were recently published in the Billfish Newsletter.</p>
<p>GOAL 3 – Improved Social and Economic Data on Recreational Fisheries</p>	<p>Objective 1 - A More Accurate Measurement of the Economic Contribution of West Coast Recreational Fisheries.</p>	<p>Project 1 - Economic cost & revenue study of west coast CPFV operations. Conduct a set of surveys of CPFV operators in California, Oregon, and Washington. Fleet characteristics and cost and earnings data from the survey will be used in estimating the economic</p>	<p>Deliverable: Technical report.</p> <p>Status: Project completed, data collected and analysis underway. Results expected Winter/Spring 2016.</p>

		contribution of the CPFV operations on the west coast. The results will be incorporated into the models to estimate the economic effect of prospective management changes.	
		Project 2 - California 2011 angler expenditure analysis. Analyze the differences in economic impacts from marine recreational fishing across northern and southern California.	Deliverable: Technical report. Status: Survey completed, technical factsheets published on Northern and Southern California Angler Trip Expenditures and Economic Impacts published.
	Objective 2 - Improve Socio-Economic Research Tools.	Project 1 - Develop valuation model: in-river salmon and steelhead. Develop a model to estimate the economic value of the in-river salmon and steelhead fishery in California.	Deliverable: Manuscript for submission to journal. Status: Project ongoing, an economic survey of California license holders who fish in Central Valley rivers was completed in 2015. A Tech Memo to be completed in early 2016.
	Objective 3 - Develop a Cooperative Human Dimensions Research Proposal for Improving Data on Recreational Fishing Communities.	Project 1 - Cooperate on research of human dimensions of recreational fishing. Collaborate with recreational fishermen to propose a cooperative research project. Understanding the human dimensions of recreational fisheries is key to more effective	Deliverable: 1. The formation of a collaborative team between NOAA, the recreational community, and other appropriate parties. 2. A research proposal targeted to an appropriate funding source.

		and responsive management.	Status: Did not receive status update for this project, assume it was not completed.
GOAL 4 – Improve Communication	Objective 1 - Engage with Sportfishing and Outdoor Media to Increase NOAA Fisheries' Audience on Recreational Fisheries Issues.	Project 1 - Participate in sportfishing radio shows to disseminate the latest NOAA Fisheries science and management information and answer constituent call-in questions.	Deliverable: Radio appearances. Status: Project ongoing. In 2014-2015, the RFC made quarterly appearances on the southern California sportfishing radio show, "Let's Talk Hook Up", including appearance at 2015 Fred Hall Fishing Show as part of a recreational fishing panel broadcasted live from show floor. Panel included the National RFC Russ Dunn, and California Department of Fish and Wildlife (CDFW) Director Chuck Bonham, among other rec fish leaders.
		Project 2 - Develop and distribute fact sheets and articles. Work with west coast sportfishing periodicals, local newspapers, and angling club newsletters to promote NOAA Fisheries Fact Sheets and articles highlighting topics such as economic surveys, species of interest, and pinniped depredation, as well as activities such as the Fred Hall Fishing and Boating Show exhibit.	Deliverable: Articles in periodicals. Status: Fact Sheets covering, among others topics, Pacific bluefin tuna, bait and tackle surveys, and methods for deterring marine mammal depredation were distributed via websites, fishing shows, and fishing club meetings. Several articles about NOAA Fisheries involvement in recreational

			fisheries science and management ran in west coast magazines and newspapers.
	Objective 2 - Engage with Stakeholders to Hear Concerns, Share Information, and Collaborate on Efforts.	Project 1 - Create NOAA Fisheries Recreational Fishing Listserv. Create and encourage interested parties to sign up for an e-mail listserv that will be used to distribute information about existing and planned NOAA Fisheries projects related to recreational fishing in the region. It will serve as a vehicle to inform and engage interested parties on agency activities as appropriate.	Deliverable: E-mail listserv. Status: Project is ongoing, a NOAA Fisheries WCR Recreational Fishing Listserv was created in early 2015 using Constant Contact Software and, to date, over 200 constituents have signed up and are now actively receiving notices and emails of interest on agency regulations, management, and science issues covering west coast recreational fisheries.
		Project 2 - Participate in recreational fishing focused conventions. Organize a NOAA Fisheries outreach and education booth at several California recreational fishing shows.	Deliverable: Participation in annual: <ul style="list-style-type: none"> • Fred Hall Fishing and Boating Show • San Diego Day at the Docks • Other relevant shows Status: Project ongoing, in 2014-2015, booths present at the Fred Hall Fishing and Boating Shows in Long Beach and Del Mar, CA. The RFC participated in a Bluefin Tuna Management Symposium at the Fred Hall Show in Long Beach. The SWFSC staff staffed a booth at

			the annual San Diego Day at the Docks Festival.
		Project 3 - Present ethical angling and best fishing practices. Seek opportunities to hold listening sessions and present information on current activities and research to smaller groups, particularly to sportfishing clubs.	Deliverable: Technical report. Status: The RFC and Recreational Fisheries Team Members attended numerous sportfishing club meetings in 2014-2015. Fact sheets and other relevant information were distributed at these meetings.
		Project 4 - Meet with constituents to discuss issues and opportunities. Meet with constituents at least annually to present current NOAA Fisheries research, projects, and news to the recreational fishing community.	Deliverable: Meetings. Status: The RFC, working in cooperation with SWFSC staff and Russ Dunn and staff at headquarters, organized a recreational fishing community Q&A session at the annual recreational fisheries coordinators meeting held at the SWFSC in La Jolla in August 2015. A series of informative presentations were held prior to the Q&A session to provide stakeholders with rockfish barotrauma research updates.
	Objective 3 - Develop and Maintain an Informative Website on Recreational Fisheries.	Project 1 - Update current recreational fishing websites. Integrate and improve the WCR recreational fishing websites. This will include coordinating with the	Deliverable: Integrate websites. Status: The WCR Recreational Fisheries website was updated in 2014 and 2015 to provide up to date information regarding

		national NOAA Fisheries website.	NMFS regulations, science, and management impacting west coast recreational fisheries.
GOAL 5 – Institutional Orientation	Objective 1 - Increased Awareness of Recreational Fisheries Issues within NOAA Fisheries.	Project 1 - Invited speaker series. Host an invited speaker series for staff that features speakers from the recreational fishing community.	Deliverable: Increased awareness among NOAA staff of recreational fisheries interests and issues. Status: This project did not get underway in 2014-2015.
	Objective 2 - Demonstrate Agency Commitment to Collaborating with Recreational Fishing Constituents on Strategies for Improved Management, Stewardship, and Research.	Project 1 - Acknowledge constituents for exemplary marine resource stewardship practices. Develop and implement an award program to honor individuals or organizations for contributions to ethical angling and marine stewardship on the west coast. These contributions could be through cooperative research, habitat restoration, promotion of ethical angling practices, or development of innovative fishing gear and techniques to reduce post-release mortality.	Deliverable: Presentation of one or more plaques/certificates per year based on available funding. Status: The inaugural NOAA Fisheries Stewardship Award was presented to the Oceanside Angler Club in 2010 for their efforts in launching a prototype catch and release category as part of their annual Thresher Shark Fishing Tournament. There were no awards presented in 2014-2015.
	Objective 3 - Ensure that Recreational Fisheries Issues are Communicated and Considered in Research and Management Decisions.	Project 1 - Maintain effective internal communications. Improve incorporation of recreational fishing community considerations into management	Deliverable: Coordinators provide updates to appropriate staff. Status: A Recreational Fisheries Team composed of region staff

		and research decisions through ongoing communication and collaboration with other appropriate staff in the West Coast Regional Office and the Southwest and Northwest Fisheries Science Centers.	in all three states was assembled after establishment of the WCR RFC position in 2014 to assist with internal communications. The RFC, Rec Fish Team, and Science Center Recreational Fisheries Coordinators reached out to key stakeholders in their respective areas to foster a two-way communication pathway. The RFC held conference calls on an as needed basis (but at least quarterly) to exchange information and ideas.
		Project 2 - Improve communications with WCR National Marine Sanctuaries. Build stronger working relationships WCR National Marine Sanctuaries through regular communications with the five WCR sanctuaries.	Deliverable: Regular communications on recreational fishing issues within sanctuary boundaries. Status: Leaders from the WCR sanctuaries were invited to the annual Recreational Fisheries Coordinators meeting at SWFSC La Jolla in August 2015. As a result of networking at this meeting, the RFC spoke at the Channel Islands NMS Sanctuary Advisory Committee a few months later. Additional Sanctuary speaking engagements are in the works.

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APPENDIX B - Detailed Project List for the 2016-2018 WCR Recreational Fisheries Implementation Plan

Guiding Principle	Objective(s)/Strategy	Project(s)	Details	Timeline/Deliverables
GP 1 - Support ecosystem conservation and enhancement	Empower anglers as resource stewards by developing and distributing education and outreach materials to provide them with plain English interpretations of recreational fisheries regulations, research, and management actions for federally-managed species.	Improve fish identification and catch reporting to increase the accuracy and precision of creel surveys and other appropriate reporting mechanisms.	Support the development of an education and outreach program to improve the accuracy of fish identification and catch reporting by recreational anglers. (WCR Rec Fish Coordinator and Team Members working with PSMFC and state DFW offices).	Ongoing
		Facilitate development of best practices for: deterrence of whale entanglements in recreational crab fishing gear, increasing their post-release survivorship.	Collaborate with CDFW and west coast anglers on improved gear marking, understanding effort locations and intensities, and conducting gear development research to reduce whale entanglements with recreational crab gear. (Dan Lawson, PRD Long Beach)	Ongoing, additional meetings planned for 2016 and beyond.
		Promote awareness of ESA-listed sea turtle and sportfishing interactions,	Incidental capture of ESA-listed green turtles by anglers occurs in the coastal waters and	Develop outreach materials and

		and best practices for safe release, in southern California coastal waters and embayments.	embayments of southern California, specifically in the San Gabriel River and the Long Beach area. Outreach is needed to educate anglers about the presence of turtles, how to avoid them, and what to do if one is captured. Signage in areas of past interactions and high habitat use is also needed. (Dan Lawson, PRD Long Beach; WCR Rec Fish Coordinator).	weather-proof signage in 2016-2017.
		Encourage effective use of descending devices and other means of reducing barotrauma-related mortality of rockfishes.	Produce and distribute, in collaboration with state agencies and NGOs, descending devices and educational materials to west coast anglers to reduce barotrauma-related mortality of rockfishes. (PSMFC; State DFW Agencies; WCR Rec Fish Coordinator and Team Members)	Ongoing, descending devices to be distributed in 2016 and beyond as funding allows.
	Develop and distribute education and outreach materials addressing recreational fisheries science and management issues for federally-managed species.	Support improved understanding of recreational fisheries issues among those participating in the Council process (Council members, Advisory Bodies, and the public).	Produce and distribute education and outreach materials at Council meetings including FAQs, fact sheets, and other relevant documents supporting science and management issues for federally-managed species.	Ongoing

	Support research to improve community structure and ecosystem linkages between inshore habitats and offshore production of recreationally important fishes.	Explore groundfish community structure in Oregon and California by incorporating at-sea observer and bathymetry data in model structure for stock assessments.	This project will use Oregon and California at-sea observer survey data for the recreational CPFV fleet, coupled with newly available high-resolution bathymetry data, to explore the latitudinal shifts in community structure at the reef level. Changes in species composition will inform model structure of indices of relative abundance for stock assessments. (Melissa Monk & E.J. Dick)	Spring/Summer 2016; submission of manuscript
		Conduct water quality modeling of estuarine habitat for salmonids in the Russian River, CA basin to maximize habitat conditions for salmon and steelhead trout.	This project will develop an estuarine management decision-support tool for assessing past conditions in the Russian River Estuary as a basis for future management scenarios under NOAA's Habitat Blueprint: Russian River Habitat Focus Area. A quantitative measurement of time-dependent habitat availability will be used to identify key factors and desirable management options for Chinook and coho salmon and steelhead trout. (Josh Fuller, CCO, Santa Rosa)	Ongoing, 2016-2018 development of decision support tool and preliminary finding.
	Coordinate with west coast anglers to	Coordinate with west coast marine debris	This project will recruit west coast anglers and others to	2016 and beyond;

	increase participation in Marine Debris and Coastal Clean Up Programs to prevent trash and debris from causing harm to our oceans, to wildlife, to our coastal economies.	removal programs to report lost gear and hire SCUBA divers to remove gear from near-shore waters	increase active participation in marine debris removal programs http://www.seadocsociety.org/california-lost-fishing-gear-removal-project/ . (WCR Rec Fish Coordinator and Team Members)	Increased participation by WCR anglers with supportive outreach messaging.
		Coordinate with west coast beach clean-up programs to prevent trash and debris from causing harm to our oceans, wildlife, and coastal economies.	This project will recruit west coast anglers and others to increase active participation in coastal clean-up programs (e.g., California Coastal Clean Up Program: http://www.coastal.ca.gov/publiced/ccd/join.html). (WCR Rec Fish Coordinator and Team Members)	2016 and beyond; Increased participation by WCR anglers with supportive outreach messaging.
GP 2 – Promote public access to quality recreational fishing opportunities	Continue established partnerships to take children and non-traditional fishery participants, including youth groups, veterans, disabled anglers, and minority groups, on fishing trips to improve stewardship awareness and ethical fishing practices.	Continue support and participation in the Friends of Rollo (http://rollokids.org/) and Fish4Life (http://www.fishforlife.org/) youth fishing programs in southern California.	This project will support fishing events with youth groups, veterans, disabled anglers, and minority groups to improve stewardship awareness and adoption of ethical recreational fishing practices. (WCR Rec Fish Coordinator and Team Members)	Ongoing, disseminate best fishing practices and ethical angling information to event participants.

	Participate in planning and implementation of habitat restoration projects benefitting recreational fisheries, including projects in identified Regional Habitat Focus Areas.	Attend and participate in applicable County Task Forces under the umbrella of the Southern California Wetlands Recovery Project (SCWRP).	<p>This project seeks to increase angler engagement in habitat-related planning efforts through the SCWRP and applicable County Task Forces. SCWRP is a multi-agency forum that solicits, reviews, and prioritizes potential habitat restoration, enhancement, and acquisition projects benefitting recreational fisheries. Projects that receive support from the Wetland Managers Group and are approved by the Board of Governors are added to the “Work Plan” and get priority as funding becomes available (e.g., through CA Coastal Conservancy, USFWS, NOAA). NMFS’ Protected Resources Division has had long-time representation on both the Board of Governors and the Wetlands Managers Group.</p> <p>(Chris Yates & Eric Chavez, PRD, Long Beach & WCR Rec Fish Coordinator)</p>	Ongoing, annual SCWRP reports on restoration projects
		Attend and participate in the California Fish Passage Forum and the Pacific Marine and Estuarine Fish Habitat	This project seeks to increase angler engagement in the California Fish Passage Forum and the Pacific Marine and Estuarine Fish Habitat Partnership steering committees	Ongoing.

		Partnership.	to help identify priority habitat projects that benefit recreational fisheries. These partnerships are the work units of the National Fish Habitat Partnership (http://fishhabitat.org/), whose goal is to identify priority habitat projects and direct funding to restore and enhance estuarine and nearshore marine habitat, and to improve habitat connectivity, water quality and quantity, and juvenile fish rearing. (Korie Schaeffer, CCO, Santa Rosa; Bob Pagliuco, Restoration Center, Arcata & WCR Rec Fish Coordinator and Team Members)	
	Support development and citing of artificial reefs to enhance nearshore rocky reef habitat and increase recreational fishing opportunities.	Engage in cooperative planning effort to design and locate an artificial reef off of the coast of Eureka, CA to enhance limited nearshore rocky bottom habitat and increase fishing opportunities.	This project would engage in a cooperative effort to design, build, and locate an artificial reef off the coast of Eureka to enhance limited hard/rocky bottom habitat to provide enhanced/increased angler opportunities from Humboldt Bay. Anglers who wish to pursue rockfish from Humboldt Bay have to travel long distances to access the hard/rocky bottom habitat where rockfish are caught. The artificial reef would provide safer public access by enhancing	Coordinate with agencies and stakeholders, plan for implementation, and acquire permits (2015-2018). Build and locate reef in 2018.

			<p>nearby rockfishing opportunities that are currently limited to only those larger vessels capable of traveling longer distances. Additional hard/rocky bottom habitat also has conservation and habitat benefits.</p> <p>(Matt Goldsworthy, CCO, Arcata; Humboldt Area Saltwater Anglers, and McBain & Associates)</p>	
<p>GP 3 - Coordinate with state and federal management entities.</p>	<p>Strengthen existing partnership with state Fish and Wildlife Agencies and other state Resource Agencies to collect needed data for conservation and management of west coast co-managed species.</p>	<p>Collaborate with state and industry partners on the Pacific Bluefin Tuna Recreational Fisheries Sampling Enhancement Project to provide fishery managers and scientists with harvest estimates (by weight) of tunas taken onboard southern California CPFV boats.</p>	<p>This project continues the citizen science effort to collect at-sea data from tuna species captured on-board CPFVs in southern California. The goal is to provide fishery managers and scientists with length frequency data, which, when combined with CPFV log data, can be used to estimate the total take by weight of tunas, with emphasis on bluefin tuna. The Sportfishing Association of California is spearheading this pilot project with technical and financial support from NMFS and CDFW.</p> <p>(Ken Franke, Alyana Sidall, Steve Crooke (SAC); Michelle Horeckzo (CDFW); Suzy Kohin, (SWFSC), and WCR Rec Fish Coordinator)</p>	<p>Pilot project funded through 2016 season, annual Project Report to be delivered to Council and co-managing agencies.</p>

	Review and modify existing databases with State Fish and Wildlife Agencies to improve quality of data used in stock assessments for co-managed species.	Review and error-check the 1987-1998 CDFW onboard groundfish observer survey data and provide the updated data to stock assessment scientists.	<p>This multi-agency project aims to review and error-check CDFW onboard observer survey data keypunched from the 1987-1998. The goal is to provide enhanced data to support stock assessment efforts for key recreational fish species. A supporting NOAA Tech Memo will document the survey methodologies and resulting relational database.</p> <p>(Melissa Monk) Rebecca Miller (CIMEC), John Field (NOAA), E.J. Dick (NOAA), Deb Wilson-Vandenberg (CDFW), Paul Reilly (CDFW), Connie Ryan (CDFW).</p>	Winter/Spring 2016, NOAA Tech Memo Report, enhanced database
	Partner with State Fish and Wildlife Agencies to collect biological data needed to meet domestic and international management obligations for co-managed species.	Partner with Washington Department of Fish and Wildlife (WDFW) on dockside monitoring of non-treaty ocean salmon recreational fisheries to collect scale samples and coded wire tag returns to determine harvest rates, stock composition, compliance with Pacific Salmon Treaty obligations, and forecast impacts of fisheries on various stocks.	<p>This project will monitor the non-treaty ocean salmon recreational fisheries off the coast of Washington to determine harvest rates, stock composition, and compliance with U.S. Pacific Salmon Treaty obligations. Dockside monitors will collect catch and effort data to generate in-season and post-season estimates of total catch, released fish, and effort for all recreational fisheries. Using electronic detection devices, landed catch of Chinook and coho salmon will be</p>	On-going, through 2018, NOAA Tech Memo

			<p>monitored for coded wire tags and scales and genetic tissue samples. Funding support has been provided by the Pacific Salmon Commission.</p> <p>Procurement of a long-term permanent funding source is being sought.</p> <p>WDFW (Doug Milward & Wendy Beeghley), Jeromy Jording, SFD, Seattle.</p>	
	<p>Cultivate a partnership with WCR National Marine Sanctuaries to serve as resource for management, research, and enhanced fishing opportunities.</p>	<p>Attend and participate in WCR Sanctuary Science Advisory Committee meetings when relevant recreational fisheries items are on the agenda.</p>	<p>This initiative will seek to build stronger working relationships with WCR National Marine Sanctuaries through regular communications with the five WCR sanctuaries and participation in their Science Advisory Committee meetings.</p> <p>(WCR Rec Fish Coordinator and Team Members)</p>	On-going
<p>GP 4 – Advance innovative solutions to evolving science, management, and environmental challenges.</p>	<p>Support cooperative research and federal grant programs to investigate bycatch and release mortality reduction tools and handling techniques to ensure the use of best practices for safe and effective catch-and-</p>	<p>Collaborate with industry and non-profit research institutes to conduct research on catch-and-release survivorship for sport-caught North Pacific bluefin tuna.</p>	<p>This cooperative research project aims to estimate the catch-and-release survivorship for sport caught Pacific bluefin tuna. New regulations mandate release of bluefin tuna in excess of daily trip limits. Basic scientific knowledge is lacking on the degree to which post-release survival of bluefin tuna may contribute to total</p>	Spring/Summer 2016, manuscript

	release.		fishing mortality. The study will tag and track released bluefin tuna with pop-up satellite tags and collect blood samples to document blood chemistry stress indicators. (Chugey Sepulveda, PIER, and WCR Rec Fish Coordinator)	
	Assess the effects of management actions on angler participation in west coast recreational fisheries.	Analyze the regulatory impacts of recreational fishery management alternatives for Pacific bluefin tuna.	This project will analyze CPFV trip log data, regional economic impacts estimates, and stock assessment results to estimate the impacts of alternative recreational fishery bag limits for bluefin tuna. (Steve Stohs, SWFSC La Jolla)	Targeted completion by September 2016, NOAA Tech Memo
		Sample the recreational catch of Pacific bluefin tuna catch off southern California to determine size structure of fish caught by the San Diego CPFV fleet.	This project continues dockside length-frequency sampling of bluefin tuna caught by San Diego-based CPFVs targeting tuna. The data is being used to characterize the size composition of the catch by quarter for use in the stock assessment and to estimate catch (in tons) from the numbers reported in logbooks. (Suzy Kohin, SWFSC La Jolla).	On-going, data provided to assessment Scientists and fishery managers
	Assess efficacy of angler survey methods	Undertake a recreational economic survey mode	This project will report on the feasibility and preferred survey	Data collection completed in

	to enhance accuracy and precision of economic data used to manage recreational fisheries.	study to determine the feasibility and preferred survey methods to collect angler trip expenditure data from the San Diego CPFV fleet..	methods to collect angler trip expenditure data for marine recreational anglers that utilize the San Diego-based CPFV fleet on trips characterized as overnight-or-longer and/or non-U.S. The project will analyze competing survey methodologies for the collection of socio-economic data focusing on the differences between response rates and estimated cost per completed surveys. (James Hilger, SWFSC La Jolla & Charles Villafana, SFD, Long Beach).	2015; analysis to be completed in 2016, NOAA Tech Report.
	Engage in angler-supported research to collect genetic samples to better identify and quantify stock structure dynamics for recreational game fish species.	Carry out a genetic comparison of Pacific halibut caught by recreational anglers off northern California to those caught further north to better understand stock structure.	This cooperative project will undertake a genetic study on Pacific halibut using fin clips collected from recreational anglers in northern California during the summer of 2013, and will compare that data against fin clips collected by the International Pacific Halibut Commission during same summer in areas further north. This project could help determine if any distinct population structure exists in northern California. No previous genetic work has been carried out on Pacific halibut	Conduct tagging in Spring 2016 through Fall 2017 (2 years), NOAA Tech Memo

			caught in northern California. (Matt Goldsworthy and Liz Perkins, SFD, Arcata in cooperation with Humboldt State University and the Humboldt Area Saltwater Anglers)	
GP 5 - Provide scientifically sound and trusted social, cultural, economic, and ecological information.	Engage recreational fishermen in data collection and reporting efforts to benefit protected resources recovery and conservation through citizen science programs to report tagged animals and document sightings of protected species.	Encourage anglers to participate in the SWFSC's Highly Migratory Species Biological Sample Donation Program.	This project will continue seeking support from west coast anglers to donate bio-samples, including the heads, muscle, gonads, and stomachs of tunas and other highly migratory species. These samples will be used to estimate life history parameters used in stock assessments and to characterize foraging ecology and stock structure. (Owyn Snodgrass, SWFSC, La Jolla & WCR Rec Fish Coordinator).	On-going, provide data to assessment scientists and fishery managers; disseminate results through outreach venues, including fishing club meetings and annual shows.
		Encourage anglers to participate in the SWFSC's Basking Shark Reporting Program.	This project will continue seeking support from west coast anglers to report sightings of basking sharks to the SWFSC to help understand the environmental drivers behind distribution and abundance patterns. Basking sharks were listed in 2010 as a NOAA Species of Concern. All sightings data are helpful to scientists studying this rare	Ongoing, provide data to scientists and fishery managers; disseminate results through outreach venues, including fishing club

			<p>species. This support will be encouraged through education and outreach efforts, including distribution of stickers, posters, and brochures with reporting information.</p> <p>(Heidi Dewar, SWFSC, La Jolla).</p>	meetings and annual shows.
		<p>Encourage anglers to participate in the SWFSC's HMS Billfish Tagging.</p>	<p>This project will continue seeking support from anglers on the west coast and internationally to tag and release billfish and to transmit the data to the SWFSC. The Center's Billfish Tagging Program has been working with recreational anglers for more than 50 years and encourages ethical angling, including tag and release. Conventional tags are distributed to anglers and fishing captains across the Pacific. The data are used to form hypotheses about stock structure and range. Additionally, the SWFSC collects valuable information on relative abundance by conducting an annual international billfish catch and effort survey. A mobile app, which will allow anglers to report their billfish tag and release and catch and release information, is currently under development.</p> <p>(James Wraith, SWFSC La Jolla)</p>	<p>Ongoing, promote ethical angling, provide an annual index of catch per unit effort, share results through publication in the Billfish Newsletter, scientific publications, meetings, and presentations at fishing club meetings.</p>

	Bolster understanding of the social and economic importance of recreational fishing.	Develop a bio-economic model to examine the effects of management actions on angler effort, economic value, economic impact, and stock biomass of marine recreational fisheries off the coast of Washington and Oregon.	This project will develop a bio-economic model of marine recreational fisheries off the coast of Washington and Oregon that will examine the effects of management actions on angler effort, economic value, economic impact, and stock biomass. An existing economic survey of recreational anglers will form the basis for the economic component. The biological component of the model will be based on stock assessment models. The first species to be included in the model will be lingcod, followed by black rockfish, canary rockfish, and yelloweye rockfish. (Megan Stachura & Leif Anderson, NWFSC, Seattle)	In progress, the model will be augmented on a species-by-species basis. We are starting with lingcod, and hope to have a draft model in 2016. At that point, we will start adding in rockfish species.
		Conduct an economic survey of west coast anglers to estimate the effects of changes in catch rates and management actions on angler effort and economic values.	This project will conduct an economic survey of recreational saltwater fishermen in California, Oregon, and Washington. The survey will be used to estimate the effects of changes in catch rates and management actions on angler effort and economic values. (James Hilger, SWFSC La Jolla,	Model development: 2016, survey: 2017; analysis and technical report 2018.

			Leif Anderson, NWFSC, Seattle)	
	Inform anglers and the public on seafood safety and consumption guidelines harvested marine gamefish species.	Assist MSRP in educating anglers on seafood safety through their Fishing Outreach Mini-Grant Program.	This project will assist the MSRP, a multi-agency government program led by NOAA, in disseminating information to over 20,000 youth and families in southern California that are impacted by consumption advisories from DDT and PCB contamination. This region contains five commonly caught recreational fish species that are labeled as “Do Not Consume” by the California Office of Environmental Health and Hazard Assessment. MSRP will provide \$30,000 in mini-grant funding to partner with youth fishing programs implemented by The SEA Lab and the City of Los Angeles. Both programs will teach youth about how contaminants bioaccumulate up the food chain, and include a hands-on fishing component. (Gabrielle Dorr, MSP Long Beach)	Ongoing, 2016 last year funded. MSRP Annual Summary Report, distribute the MSRP’s “What’s the Catch?” comic books and southern California Sportfish Identification cards to program participants.
	Provide recreational catch and effort information that supports stock	Conduct analysis of relative abundance indices derived from fishery-dependent and	This project will conduct a fishery-independent hook-and-line survey in central California under the auspices of the	Spring/Summer 2016, manuscript

	assessments and informs management.	fishery-independent groundfish monitoring programs to incorporate into stock assessments.	<p>California Collaborative Fisheries Research Program (CCFRP). The objective is to calculate and compare indices of abundance for blue and black rockfishes from the CCFRP fishery-independent to the CDFW onboard observer program data. There is currently not a coastwide fishery-independent survey for nearshore rockfishes. This study will provide the first comparison of fishery-independent to fishery dependent indices for these two species, and the results can be incorporated directly into stock assessments.</p> <p>(E.J. Dick, SWFSC Santa Cruz, Melissa Monk)</p>	
		Conduct sensitivity analyses of relative indices of abundance developed from onboard and dockside surveys of the west coast recreational fisheries to incorporate into stock assessments.	<p>This project will undertake a sensitivity analysis on Oregon Department of Fish and Wildlife and CDFW onboard observer survey data and dockside interviews of the recreational CPFV fleet to develop indices of abundance to inform stock assessments. The methods to develop indices from the onboard observer survey are relatively new and take advantage of high-resolution bathymetry data. The</p>	Spring/Summer 2016, manuscript

			<p>results will be compared to indices developed using the dockside surveys. This objective fulfills research recommendations from the 2013 and 2015 stock assessment cycles.</p> <p>(E.J. Dick, SWFSC Santa Cruz, Melissa Monk)</p>	
		<p>Conduct southern California shelf rockfish hook and line survey to provide an annual index of relative abundance and a time series of biological data for several key species of shelf rockfish.</p>	<p>This project will conduct a Southern California Shelf Rockfish Hook and Line Survey to provide an annual index of relative abundance and a time series of biological data for several key species of shelf rockfish (genus <i>Sebastes</i>) in the Southern California Bight. These indices and associated biological data provide key information for the development of stock assessments for several important rockfish species targeted largely by the recreational fishing community and are not well-sampled by trawl gear due to the complex bathymetry and hard-bottom habitats they inhabit. The hook and line survey is a collaborative project among the NWFSC, Pacific States Marine Fisheries Commission, and the</p>	<p>On-going, survey is conducted each fall, data provided to assessment scientists and fishery managers.</p>

			CPFV fleet. (John Harms and Aimee Keller, NWFSC, Seattle)	
	Identify key areas for habitat mapping to foster improved characterization and assessment of recreational fish habitats.	Examine fishery interactions, catch-and-release mortality, and habitat usage of juvenile cowcod to understand the effects of fishery interactions.	This project will work cooperatively with the recreational fishing community to understand the effects of fishery interactions with juvenile cowcod bycatch. Together with the fishing community, we will 1) use acoustic telemetry methods to measure catch-and-release mortality, home range, site fidelity, depth utilization, residence time, and habitat use of juvenile cowcod along the San Diego coastal shelf; 2) measure the potential impacts of increasing the legal fishing depth restrictions on juvenile cowcod, and 3) measure the effectiveness of different descending devices onboard CPFVs. (Nick Wegner, John Hyde, Lyall Bellquist, SWFSC, La Jolla)	Spring 2017, manuscript, add outreach and education initiatives to the current NMFS rockfish barotrauma outreach efforts.
		Quantify seasonal shifts in walleye diet composition in the Columbia River basin to examine the ecological role and extent to which	This project will work cooperatively with recreational fisherman and tournament directors to examine the ecological role of a popular non-native sport fish (walleye) in a	In progress, completion expected in early 2017, manuscript.

		walleye prey on ESA-listed salmonids.	Columbia River reservoir. This will be achieved by collecting samples and investigating the extent to which walleye prey on ESA-listed salmonids. Recreational fisheries are vital in the Columbia River Basin, yet many of these fisheries target non-native game fish that may interact with native salmonids. (Beth Sanderson and Matt Nesbit)	
GP 6 - Communicate and engage with the recreational fishing public.	Attend major community events to establish two-way communications with anglers and gain feedback on time-sensitive and important recreational fishing issues and challenges.	Participate in recreational fishing conventions and periodically attend relevant west coast fishing club meetings and events.	This project continues NOAA Fisheries participation and staffing of an outreach and education booth at several California recreational fishing shows. (WCR Rec Fish Coordinator and Rec Fish Team Members)	Ongoing, planning underway to attend the Fred Hall Fishing and Boating Show in Long Beach and Del Mar, CA, and the Salem Sportfishing Show in Salem, OR.
			Attend annual meeting of the Humboldt Area Saltwater Anglers. (WCR Rec Fish Coordinator , Matt Goldsworthy, SFD, Arcata)	Ongoing, Rec Fish Team member Matt Goldsworthy planning to attend.
		Participate in sportfishing radio shows, including	The WCR RFC has been invited to be a regular quarterly guest on	Ongoing, quarterly

		southern California's "Let's Talk Hook Up" show, to discuss relevant west coast recreational fisheries science and management issues and concerns.	the show.	appearances scheduled for 2016 and beyond.
	Maintain strong working relationships and open lines of communication with recreational fishing community leaders to ensure regular dialogue and a policy of "no surprises."	Maintain effective internal communications to ensure timely sharing, both internally and externally, of relevant recreational fisheries science and management issues and concerns.	Improve incorporation of recreational fishing community considerations into management and research decisions through ongoing communication and collaboration with other appropriate staff in the West Coast Regional Office and the Southwest and Northwest Fisheries Science Centers.	Ongoing, a NMFS Recreational Fisheries Team composed of Region and Science Center staff was formed to assist with internal communications. Conference calls are held, on as needed basis (but at least quarterly).
	Increase the amount of content (e.g., feature stories, videos, alerts) relevant to anglers.	Participate in additional west coast region sportfishing radio shows, including the "Hooked on Oregon" Radio Show, to discuss relevant west	This project will strive to have the WCR RFC and the Team Member(s) participate on the "Hooked on Oregon" radio show which targets coastal Oregon anglers and is accessible via the	Ongoing, Recreational Fisheries Team Member Josh Fuller is discussing

		coast recreational fisheries science and management issues and concerns.	web. (Josh Fuller, SFD, Santa Rosa, WCR Rec Fish Coordinator)	available dates to appear with radio show host.
		Work with west coast communications specialists within the region and at Centers to produce and distribute timely outreach products focused on recreational fisheries research and management issues.	This project will focus on developing feature stories covering key recreational fisheries research and management topics of interest and pushing those stories out over multi-media channels.	Ongoing, planning underway to identify topics of interest and plan for development of feature stories.
		Acknowledge west coast recreational fisheries constituents for exemplary marine resource stewardship with a NOAA Fisheries Award (plaque).	Develop and implement an award program to honor individuals or organizations for contributions to ethical angling and marine stewardship on the west coast. These contributions could be through cooperative research, habitat restoration, promotion of ethical angling practices, or development of innovative fishing gear and techniques to reduce post-release mortality.	Ongoing, WCR RFC to put out a request for candidates call to Recreational Fisheries Team members mid-2016.
	Strengthen internal communication and outreach capacity by providing training to regional recreational	As needed, encourage training in media relations and effective messaging and public speaking for the WCR	This project will seek to coordinate training modules at west coast locations (exact locations TBD) to maximize the presence of Team Members that	Planning to start early 2016.

	fisheries coordinators.	RFC and Recreational Fisheries Team Members.	attend	

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Appendix C – Contact Information for WCR Recreational Fisheries Team Members

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