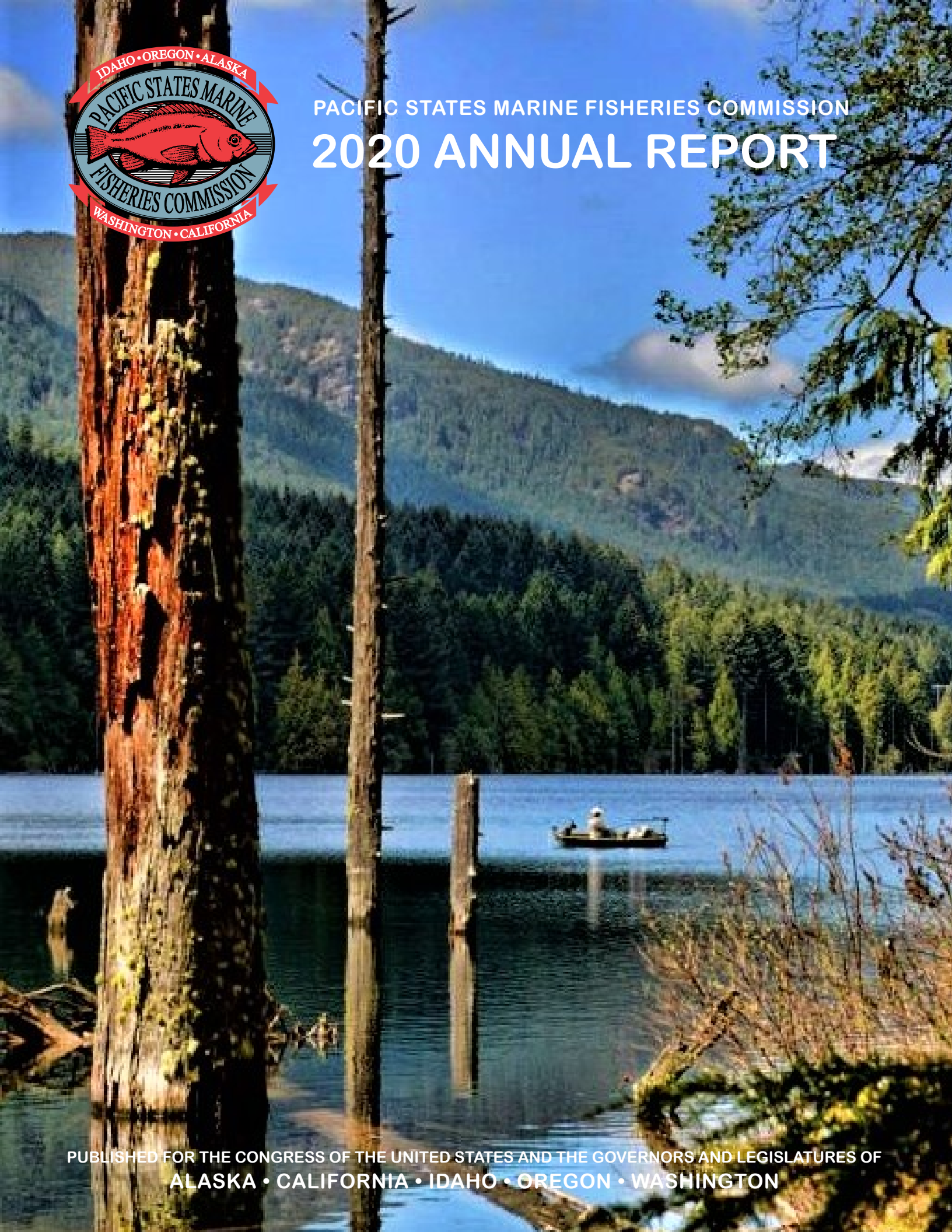

PACIFIC STATES MARINE FISHERIES COMMISSION

2020 ANNUAL REPORT

PUBLISHED FOR THE CONGRESS OF THE UNITED STATES AND THE GOVERNORS AND LEGISLATURES OF

ALASKA • CALIFORNIA • IDAHO • OREGON • WASHINGTON

73ND ANNUAL REPORT OF THE PACIFIC STATES MARINE FISHERIES COMMISSION

— Alaska, California, Idaho, Oregon, and Washington —

2020

Presented by the Commissioners of the Pacific States Marine Fisheries Commission in compliance with the State enabling acts creating the Commission and Public Laws 232; 766; and 315 of the 80th; 87th; and 91st Congresses of the United States.

Respectfully submitted,

PACIFIC STATES MARINE FISHERIES COMMISSION

Randy Fisher, Executive Director

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COMMISSIONERS, ADVISORS, AND COORDINATORS 2020

STATE	COMMISSIONERS	ADVISORS	COORDINATOR
Alaska	Douglas Vincent-Lang Sen. Cathy Giessel Paul Gronholdt	Matt Alward Shannon Carroll Don Lane Matthew Moir	Kendall Henry (ADFG)
California	Charlton Bonham Sen. Mike McGuire Barbara Emley	Jim Caito Ken Franke Donald Hansen Mike McCorkle	Sonke Mastrup (CDFW)
Idaho	Ed Schriever Sen. Lee Heider Vacant	Jim Fredericks Pete Hassemer Sharon Kiefer Paul Kline Joe Stegner	Lance Hebdon (IDFG)
Oregon	Ed Bowles Rep. Caddy McKeown Jeff Feldner	Walter Chuck Steve Fick Liz Hamilton Richard Heap Dorothy Lowman Brad Pettinger Lori Steele	Caren Braby (ODFW)
Washington	Ron Warren Rep. Brian Blake Phil Anderson	Robert Alverson Robert Jones Rich Lincoln Dale Myer Al (Butch) Smith	Heather Hall (WDFW)

MESSAGE FROM THE EXECUTIVE DIRECTOR

Randy Fisher, Executive Director

It is a pleasure to provide the 2020 Annual Report of the Pacific States Marine Fisheries Commission (PSMFC). The following is an update of the Commission in the federal arena.

THE COVID PANDEMIC

PSMFC leadership was in Washington, D.C., March 9-11, 2020, when a major COVID outbreak occurred in Washington state. By the end of that week, congressional offices were cancelling face-to-face meetings with constituents and organizations, with U.S. Capitol, House, and Senate office buildings subsequently closing. From mid-March to mid-May, Congress focused almost exclusively on legislation designed to mitigate the health, safety, and economic impacts of the COVID pandemic.

PSMFC adapted rapidly to the changing environment in Washington, D.C., while continuing our longstanding efforts to advocate for stable and increasing funding for West Coast and Alaska fisheries data programs, surveys, and monitoring. Every aspect of fisheries and oceans were impacted by the mitigation measures and shelter-in-place restrictions imposed by Federal, State, and Local authorities in response to the Pandemic. These included:

- The Regional Fishery Management Councils (RFMCs) shifted from in-person meetings to meetings held using video conferencing platforms.
- The National Oceanic and Atmospheric Administration (NOAA) Fisheries canceled 55 fishery surveys around the Nation. NOAA indicated that these surveys accounted for approximately 1,380 lost planned days-at-sea between March 20 and July 20, 2020.
- NOAA issued an emergency order providing its Regional Administrators with the authority to wave observer requirements on a case-by-case basis.
- The Congress enacted the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) to provide help to state and local governments in response to the health and economic implications of the Pandemic. The Act included direct payments to individuals; expanded and enhanced unemployment benefits for those who lost their jobs from the economic shutdown; economic relief to small businesses; tax credits to incentivize employee retention; loan authority from the Treasury and Federal Reserve to both mid and large-size businesses; and loan authority to companies deemed essential to the national defense.
- The CARES Act also provided $300 million for fishery disaster assistance to eligible participants. This involved economic disaster assistance for impacted commercial, tribal, and charter boat fishermen, processors, subsistence fishermen, and certain

associated businesses. There was no biological fishery failure requirement to qualify for assistance. An eligible participant was required to demonstrate economic revenue losses greater than 35% for the COVID period as compared to the prior 5-year average revenue, or negative impacts to subsistence, cultural, or ceremonial fisheries. The Secretary of Commerce allocated these funds to the States in May, based on a formula. The following amounts were allocated to the West Coast States: Alaska, $50 million; Washington, $50 million; California, $18.3 million; Oregon, $15.9 million; and the West Coast Tribes, $5.1 million. The States and Tribes were required to develop and submit spend plans to the Department of Commerce for approval.

The National Marine Fisheries Service (NMFS) requested that PSMFC act as the program manager to work with its Member States to distribute the CARES Act and COVID Emergency Relief Act fishery disaster assistance program funds. This became a high priority within the Commission as the Nation continued to weather the social and economic storm caused by the Pandemic.

MAGNUSON-STEVENS FISHERY CONSERVATION MANAGEMENT ACT (MSA) FISHERY DISASTER ASSISTANCE

PSMFC continues to act as the program manager for NMFS in the distribution of fishery disaster assistance funding for biological fishery failures pursuant to the MSA.

There are twenty-three active fishery disaster assistance petitions from Alaska and the West Coast states currently pending with the U.S. Department of Commerce. Funding has been approved for five disasters (Gulf of Alaska Pacific Cod, 2018; Alaska Sockeye Salmon Fishery, 2018; Klamath River Fall Chinook Commercial Fishery [Yurok Tribe] 2018; California Red Sea Urchin Fishery, 2016 and 2017; and the Pacific Sardine Fishery, 2017-2019). Three other petitions have been approved, but funding has not yet been allocated. The remaining fifteen petitions are in various stages awaiting decisions from the Secretary of Commerce.

PSMFC has continued its practice of advocating for expeditious decisions on pending petitions and sufficient funding to carry forward with the approved fishery disaster petitions. Additionally, we have provided resources and expertise to assist the States in obtaining final approval for the spend plans necessary to distribute funding.

ELECTRONIC MONITORING (EM)

The Electronic Monitoring program for the West Coast groundfish, Individual Fishing Quota industry has been in the developmental stages for several years, with ongoing Exempted Fishing Permits (EFPs) issued for EM participants since 2015. The results from several years of EM EFPs led to a regulation recommendation by the Pacific Fishery Management Council (PFMC/Council). In September 2017, NMFS determined that it could not designate any video review provider as a sole-source provider: a third-party video review provider model would need to be implemented in addition to a NMFS audit of third-party reviewers. The regulations require the groundfish industry to pay for the third-party review.

Subsequent to adoption of the regulations, it became apparent that the new compliance system will create substantial expense for the industry without providing any significant cost savings to NMFS (e.g. the new audit requirement). PFMC has requested that NMFS delay implementation while the Council revisits the issue, and PSMFC maintains its advocacy for NMFS to continue funding the third-party video data review during the Council's reassessment. NMFS has delayed implementation until January 2022, retaining PSMFC to manage the EM program for the West Coast. PSMFC is the sole video review provider for the North Pacific EM program, which has been in regulation since 2018.

WHALE ENTANGLEMENTS

The Commission has a longstanding commitment to work with the States, NOAA Fisheries, the fishing industry, and environmental non-governmental organizations to understand, minimize, and reduce whale entanglements. The Commission believes that federal funding should be provided to the NMFS West Coast Region

to fulfill the National Environmental Policy Act requirements to assess environmental effects associated with the issuance of the Endangered Species Act (ESA) Section 10 incidental take permits and compliance with the Marine Mammal Protection Act (MMPA) in the states of California, Oregon, and Washington.

Additionally, PSMFC is supporting expedited policy reconciliation by NMFS of ESA/MMPA inconsistencies in incidental take allowances of humpback whales in the Dungeness crab fisheries. Further, PSMFC will continue to explore development and funding of a vessel EM program to support whale entanglement and domoic acid actions.

NOAA FISHERIES BUDGET

The Commission strongly supported full funding for NMFS in the Fiscal Year 2021 appropriation bill for the Commerce-Justice-Science line items. In an era of reduced federal and state spending, the Commission believes that funding for basic, long-term fisheries management programs should be given priority over new initiatives. These priority programs include stock surveys, fisheries research, fishery-dependent data, in-season management, and observer sampling programs. Adequate funding should be provided to the States when Federal fisheries management or initiatives have been delegated to the States for implementation.

The Commission supports identifying new and increased funding to address the following: (1) deferred maintenance of federally funded anadromous hatcheries in Commission States critical to meet fish production goals; (2) fishery independent stock assessment surveys in the Pacific and North Pacific Regions; (3) ongoing and expanded collection of data to assess offshore marine conditions and their impact on the marine ecosystem, with particular emphasis on management implications; (4) full implementation of Pinniped removal associated with the new Section 120 lethal removal authorization contained in the MMPA; (5) marine debris prevention, cleanup, and removal program; and (6) research of pathogen resistance in West Coast shellfish stocks.

We again recommended that Congress continues to place special emphasis on collaboration programs, such as the Inter-Jurisdictional Fisheries Act, which combine State and Federal funding for fishery and ocean projects. The Commission also supports full funding for RFMCs and the NMFS Regions as fisheries conservation and management programs are administered regionally. Stable funding for the States, RFMCs, and the NMFS Regions is critical to successful fishery management.

The Commission strongly supported the continuation of NOAA funding for habitat conservation and restoration. NOAA awards collaboration grants from funds appropriated under the Sustainable Habitat Management line item for habitat restoration grants. These federal funds are leveraged with state, local, and private contributions for restoration projects. Each project has robust volunteer and community involvement.

The Commission also believes that the Salmon Management Activities line item of the NOAA Fisheries budget be increased to reflect the importance of the Pacific Salmon Commission and the operation and maintenance of the Mitchell Act hatcheries, as each is funded within this line item. The Mitchell Act funding levels have been static and are insufficient to meet the escalating costs of the production associated with mitigation for the construction and operation of the federal hydropower system; minimizing the adverse effects of this mitigation on stocks listed under the ESA; and meeting international expectations for production associated with implementing the Pacific Salmon Treaty. Additional funding should also be included to continue the development and refinement of genetic stock identification and parental-based tagging efforts.

HARMFUL ALGAL BLOOM TESTING AND MONITORING

The West Coast and Alaska are facing significant issues relating to the growing incidence of harmful algal blooms (HAB). The HABs are massive, toxic blooms of the marine diatom *Pseudo-nitzschia*. The HAB produces a potent neurotoxin, domoic acid, which can accumulate in shellfish, other invertebrates, and fish. Consumption of domoic acid can cause death in seabirds and marine mammals, and it can result in Amnesic Shellfish Poisoning when consumed by humans.

A significant West Coast HAB event was detected in 2015. Scientists were able to track

its extent from the Channel Islands in California to Alaska. There appears to be a nexus between the HAB occurrences, ocean acidification, and warming ocean trends. The HABs are suspected of contributing to Unusual Mortality Events (die-off of thirty large whales in the Western Gulf of Alaska; sea lion strandings in California); lethal levels of toxins (ten to thirty times higher in Monterey Bay, CA); shellfish closures (Puget Sound and Northern California razor clams; West Coast Dungeness crab); and fishery closures (anchovy and sardines in California). Information relating to the magnitude of the impact to marine life, sea birds, and marine mammals is anecdotal.

NOAA has funded programs in Alaska and on the West Coast to commence the tracking of HAB hot spots and the monitoring of the domoic acid levels in HAB species. The States also engage in tracking and testing, periodically testing for levels of domoic acid in clams and mussels. The States also receive limited federal grants to take plankton samples offshore.

The long-term objective is to gather data and develop scientific protocols to better predict the occurrence of HABs. The Commission believes that additional funding should be provided to NOAA and the States to expand collaboration to monitor, predict, track, and respond to marine HAB events. PSMFC advocated with Congress in 2020 to create a program utilizing the unique abilities of the three, interstate marine fisheries commissions to work with their member states to develop regional HAB/Hypoxia response plans. This would include federal funding to the interstate marine fisheries commissions to expand the capabilities of the States in responding to HAB and Hypoxia events and to coordinate regional efforts. This advocacy work is ongoing.

MARINE DEBRIS

The Commission has a longstanding commitment to supporting legislative initiatives, such as Save Our Seas, to address comprehensive marine debris, prevention, cleanup, and removal.

The Save Our Seas 2.0 Act, sponsored by Reps. Young (R-AK) and Bonamici (D-OR) in the House and Senators Menendez (D-NJ), Sullivan (R-AK) and Whitehouse (D-RI) in the Senate, was enacted into law in 2020. Among other measures, the legislation included a Marine Debris Response Trust Fund to combat marine debris events; a prize for innovation in capturing or preventing plastic waste; a strategy by EPA to reduce plastic from entering the waste stream and improve recycling; and engagement by the U.S. in negotiating further international agreements to reduce marine debris.

ENERGY PROJECTS

The Commission has long advocated the need for the Department of the Interior to work with stakeholders on all permit applications for offshore wind and energy projects. The Bureau of Ocean Energy Management (BOEM) and other federal agencies should work with the commercial and recreational fishing industries to help determine the impact of any proposal on the fishery and fishing operations, identifying measures to mitigate those impacts. Projects should include long-term funding for mitigation, monitoring, and compensation to fishermen and fishing communities to offset potential harm to their operations and loss of fishing grounds.

AQUATIC INVASIVE SPECIES

The Commission continued its mission to respond to the growing and present threat of the spread of marine invasive species. PSMFC and its staff have advocated for the following policy objectives.

- **Implement Mandatory Watercraft Inspection and Decontamination in Quagga/Zebra Mussel Infested Waters**: The Department of the Interior and its member agencies (Bureau of Reclamation, National Park Service [NPS], Bureau of Land Management) should work cooperatively with state agencies to implement mandatory inspection and decontamination of watercraft leaving federal and inter-jurisdictional waters of the lower Colorado River. In addition, the state and federal cooperative management program of contaminated recreational watercraft exiting Lake Powell (Glen Canyon National Recreation Area) is currently overwhelmed and unable to decontaminate all exiting mussel contaminated watercraft. We believe that NPS must take a larger role in decontaminating watercraft coming from their waters. NPS should also consider limiting the number of watercraft that are allowed to recreate in Lake Powell to ensure proper decontamination of all exiting watercraft and to protect western waters from quagga and zebra mussels.

- **Funding, 2020 Water Resources Reform and Development Act (WRDA)**: The 2018 reauthorization (America's Water Infrastructure Act of 2018) of the 2014 Water Resources Reform and Development Act included funding for watercraft inspection stations in the Columbia River Basin and added numerous states in the Upper Colorado, Upper Missouri, and South Platte River Basins that can now qualify for this invasive species grant program. It is critical that WRDA and the U.S. Army Corps of Engineers (USACE) funds continue to be appropriated to meet the expanded geographic scope of the program to augment state watercraft inspection programs, early detection monitoring, and rapid response programs. We have requested that USACE watercraft inspection, monitoring, and rapid response program appropriations continue at $15 million for watercraft inspection, decontamination, and rapid response, with with $3 million specified for monitoring.

- **Marine invasive species** such as the European green crab, several species of tunicates and *Spartina* are just a few of the invasive species issues facing the west coast. Of particular concern is the European green crab, considered one of the world's worst invasive species, which in 2016 entered Puget Sound, WA and is now undergoing a population boom. The green crab has the potential to significantly alter any ecosystem it invades and could threaten Dungeness crab, oyster, and clam fisheries and aquaculture operations. NOAA should take the lead in developing cooperative funding programs with west coast state management agencies to address these threats, particularly concerning the European green crab.

73ND ANNUAL BUSINESS MEETING SUMMARY

Pacific States Marine Fisheries Commission
Video Conference | Portland, Oregon | August 26, 2020

Due to the COVID-19 pandemic, the meeting was virtual. The agenda was shortened to one day.

Randy Fisher, PSMFC: Welcomed Commission members to the meeting at 9:00 a.m. Reviewed the list of speakers.

Pam Kahut, PSMFC: Presented fishery disasters update and current status of each state dispensing the Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020) funds. PSMFC received money from NOAA Fisheries for grant fund distribution to member states, Hawaii, and U.S. Pacific Territories.

Paul Doremus, NOAA Fisheries: Presented an update on NOAA Fisheries budget, pandemic challenges, and financial relief for stakeholders.

- NOAA Fiscal Year for 2021: $869.8 million NOAA Fisheries budget or 18% of the total NOAA budget.
- NOAA employees are striving to successfully navigate remote work.
- Over fifty surveys were canceled for the safety of employees and NOAA Fisheries partners.
- Congress has approved $300 million for the CARES Act 2020 nationwide, along with current loans that have been deferred or refinanced to support the fishing community.

Brad Gilman, Robertson, Monagle & Eastaugh:

- Presented an update on the pending elections for 2021.
- During COVID, Washington, D.C. was closed down from mid-March to June, and consideration of other bills was halted. Congress' focus changed to response measures and financial assistance for those affected by the COVID-19 pandemic. Congress enacted the CARES Act 2020.
- Three bills were passed to aid fisheries communities: the Payroll Protection Act; the USDA buyback of protein including seafood; and $300 million allocated from the CARES Act for National Fisheries.

Rick Marks, Robertson, Monagle & Eastaugh: Presented an update in reference to his written report sent two weeks prior to the PSMFC Commissioners, Advisors, and Coordinators concerning the movement of pre-pandemic bills.

- Aquaculture: New House bill was introduced to increase its role within the Department of Agriculture, along with dual committee jurisdiction. The Commission has a standing resolution from 2013 with a State opt-out option. It has been stalled, but the resolution is currently attracting congressional attention.
- EPA: To issue new vessel discharge regulations on ballast water standards
- West Coast Groundfish Trawl Catch Share Program: $6 million buyback in interest forgiveness
- Wind Energy: Marine Fisheries Advisory Committee issued a report to U.S. Secretary of Commerce Wilbur Ross; it is still under review.

Randy Fisher, PSMFC: The Commission members voted and passed the FY2021 budget along with the 2019 Business meeting summary.

The States did not bring forward any resolutions for 2020.

Meeting Adjourned.

Alaska Fisheries Information Network

The **Alaska Fisheries Information Network (AKFIN)** is one of five, regional, cooperative, state/federal programs that provides a framework to consolidate and sustain the collection, analysis, and reporting of varied and essential information for management of U.S. fisheries. The Program is funded by an annual grant from the National Marine Fisheries Service (NMFS) to the Pacific States Marine Fisheries Commission (PSMFC) and benefits the AKFIN Support Center and an annual subcontract with the Alaska Department of Fish and Game (ADF&G) for related tasks.

AKFIN supports the data needs of fisheries analysts, managers, and economists by integrating commercial fisheries data and dispensing those data upon request using custom programming services and online tools. Information is aggregated from the ADF&G Division of Commercial Fisheries, the Commercial Fisheries Entry Commission, NMFS Alaska Region, the Alaska Fisheries Science Center (AFSC), the North Pacific Fishery Management Council (NPFMC), and PSMFC. AKFIN reports catch data, harvest, and value from commercial fisheries in Alaska utilizing the best available data from source agencies. Once this data is loaded into the database, AKFIN staff append value added fields and reports information that identifies and quantifies impacts related to changes in fisheries management. These include species, area, gear, vessel, processor, community, fleet, and fishery participants by season.

STAFF

AKFIN is comprised of a small, cohesive team of five personnel positioned at NPFMC in Anchorage, AK; at AFSC in Seattle, WA; and at PSMFC's headquarters in Portland, OR. Four employees are subsidized by the AKFIN grant, with the fifth one funded through other NMFS sponsored projects.

PRODUCTS SUPPORTED BY AKFIN

- The AKFIN website contains program information and current announcements, news, and metadata, as well as links to applications and related websites.
- AKFIN Answers is an online reporting tool that provides authorized stock assessors, social scientists, and economists with direct access to the program's analytical database and metadata resources. This application allows users to access prepared reports and to formulate ad hoc queries that can be saved and shared with other analysts. Participants performed over 16,000 Answers queries in 2020.
- The AKFIN APEX reports application was developed to generate data for public and authorized users. This technology permits easy navigation of various report categories and allows individuals to quickly filter and download data in common formats. Multiple confidential and public reports were completed in 2020 for the groundfish and crab Stock Assessment and Fisheries Evaluation (SAFE) documents, the U.S. Census Bureau, Fisheries Economic Data Reporting (EDR), and Council-related reports.
- AKFIN supplies data services for the EDR program: data hosting, data management, and validation applications. (The EDR project description is listed within Fisheries Economics Data Program summary.)
- In collaboration with NPFMC staff, AKFIN maintains two, web-based applications:
    - To track and prioritize NPFMC research for Council staff, committee members, and stakeholders. AKFIN continues to enhance the application.
    - To enable management of Council agendas and public comments, a search and view feature was designed to access historical Council documents.

- AKFIN provides annual data support for the community snapshots section of the AFSC website. The site equips visitors with the ability to view key indicators of fisheries dependence and other economic and demographic characteristics for Alaska communities.
- Annual data contributions to national reports include:
    - Fisheries of the U.S.
    - U.S. Coast Guard – To support vessel safety inspections
    - Fisheries One-Stop Shop – A single data report summarizing data by species for a NMFS Science and Technology online reporting system.
    - National Bycatch Report
    - Catch Share and Non-Catch Share Performance Indicators
- AKFIN provides comprehensive data management and data analysis services for production of the Groundfish SAFE Economic Status Report, AFSC's Bering Sea/Aleutian Islands (BSAI) Crab Economic Status Report, and its Economic and Social Science Research Program. These annual reports compile economic statistics on the federally managed groundfish and crab fisheries off the Alaskan coast and serve as the primary venue for publication of data from the EDR programs for BSAI crab, Gulf of Alaska trawl groundfish, and Amendment 91 Chinook Salmon.

2020 Highlights

- Developed a web Application Programming Interface (API) for secure data access using web services. This added an efficient method for authorized users to retrieve data. Specifically, it enables users to pull data through their local applications without proprietary software to connect to the AKFIN database. Web APIs provide an optimal solution to deliver non-confidential data to public users and isolated web applications.
- Supplied data management and analytical support for the Coronavirus Aid, Relief, and Economic Security Act fisheries assistance funding process.
- Expanded data management support for NOAA enforcement through the development of a recreational charter halibut logbook analysis tool that allows staff to review data and identify potential violations.
- Continued to supply extensive data management assistance to NPFMC staff; a PSMFC senior data analyst works in the NPMFC office.

Alaska Fisheries Science Center, Fisheries Monitoring and Analysis

The National Marine Fisheries Service (NMFS) **Alaska Fisheries Science Center** (AFSC) **Fisheries Monitoring and Analysis** (FMA) Division oversees the North Pacific Observer Program (Observer Program) that monitors groundfish fishing activities in the U.S. Exclusive Economic Zone off the coast of Alaska. Pacific States Marine Fisheries Commission (PSMFC) personnel work alongside Observer Program staff to support fisheries monitoring activities in the Alaskan commercial groundfish fisheries. The Observer Program is one of the largest in the U.S., annually placing over 300 observers onto fishing vessels in addition to installing electronic monitoring systems in a portion of the Alaska fishing fleet.

The information that fisheries observers collect is critical to the sustainable management of groundfish fisheries in the North Pacific. In addition to collecting data used for in-season quota monitoring and stock assessments, observer data is also integral to ecosystem investigations, compliance monitoring, documentation of incidental injury and mortality of marine mammals and birds, and a range of scientific activities.

In 2020, PSMFC assisted Observer Program training staff as they prepared 354 observers scheduled for deployment with training classes, briefing sessions, and safety-emphasized water exercises. Seven, three-week training classes were conducted for new observers, with twenty-one annual briefings and eight fish identification classes held for returning observers. PSMFC and Observer Program in-season advising personnel provided oversight to observers during their assignments, both at-sea on fishing vessels and while stationed at shoreside processing facilities. PSMFC employees are an active part of the debriefing team: 22% of the 574 debriefings for returning observers were completed by PSMFC. Throughout 2020, PSMFC coordinated with the Observer Program to ensure efficient safety and sampling gear issue and check-in, maintenance, and procurement of replacement gear.

Due to the ongoing COVID-19 pandemic, all Observer Program activities involving training, observer oversight (in-season advising, mid-cruise briefings), and debriefing interviews were organized remotely by email, fax, web conferencing, and phone. This included training exercises and materials, presentations, post-deployment debriefings, and other observer-critical support activities. Since post-deployment observers are required to check in their data, drop off collected specimens, and return gear to AFSC, PSMFC staff, attentive to all COVID-19 protocols, continued to serve returning observers on-site. PSMFC's active involvement was crucial to the Observer Program's success last year.

Central to the Observer Program's mission is the storage of large quantities of data (in the North Pacific [NORPAC] Database) with emphasis on the quality control (QA/QC) of incoming data and the availability of data to users in near real-time. Data collected by observers are transmitted to AFSC either daily (larger vessels) or at the end of each fishing trip. These data are accessible for either immediate use or post-final QA/QC upon the observer's return, depending on operational need. This functionality requires a suite of IT and database tools. PSMFC provides IT support by maintaining and updating existing database and web applications, increasing data transmission capabilities, and developing new database and web applications as required.

PSMFC analytic assistance involved the development and evaluation of sampling methods, analysis of sampling results, analytic and statistical consulting, and outreach to observers. Other participatory efforts included the North Pacific Observer Program Annual Report and the Annual Deployment Plan for Observers and Electronic Monitoring in the Groundfish and Halibut Fisheries off Alaska.

PSMFC staff also collaborate with the FMA Division through National Oceanic and Atmospheric Administration Outreach activities and present research to the North Pacific Fisheries Management Council.

In 2020, as many as six, PSMFC positions augmented NMFS Observer Program training, debriefing, and operational staffing. Two of these PSMFC staff members received AFSC Team Member of the Year Awards. In addition, the Program funds a statistician, a database application developer, one data analyst, and two programmers, all of whom work primarily on Alaska fisheries and observer-related projects. These individuals are also available to supplement other activities, such as electronic monitoring, research, or administrative projects.

Aquatic Nuisance Species Program

Aquatic nuisance (ANS) or aquatic invasive species (AIS) are non-indigenous species that threaten the diversity or abundance of native species; the ecological stability of infested waters; or commercial, agricultural, aquacultural, or recreational activities dependent on a region's waters. These species may occur in inland, estuarine, and marine waters and can threaten ecological processes and natural resources. In addition to adversely affecting U.S. aquatic activities, invasive species can harm individuals and their health. One important criterion that Pacific States Marine Fisheries Commission (PSMFC) uses to designate a species as a nuisance is whether it can damage commercial and recreationally-important fisheries.

2020 Highlights

RAPID RESPONSE PLANNING

With funding from the Bonneville Power Administration (BPA) and the U.S. Fish and Wildlife Service (USFWS), PSMFC continued to lead efforts for zebra and quagga (dreissenid) mussel rapid response planning in the Columbia River Basin (CRB).

Related to the rapid response plan is the eradication of a dreissenid mussel population if discovered in the CRB. In October 2007, PSMFC and USFWS, in collaboration with the 100th Meridian Initiative Columbia River Basin Team, commenced rapid response "table-top" exercises to test the Plan's effectiveness. In addition to providing training on the National Incident Management System (NIMS) and Incident Command System (ICS), the professionally moderated exercise helped evaluate whether the plan and its organizational framework could enhance response to an invasive mussel introduction. In May 2020, PSMFC sponsored a Rapid Response Tabletop in Lake Billy Chinook, OR. The exercise explored the roles of the Oregon Department of Fish and Wildlife (ODFW), the Oregon State Marine Board, Oregon State Parks and Recreation, Portland General Electric, locally affected tribes, and all other responsible parties in the State. A listing of previous exercises is available.

In 2020, PSMFC's ongoing collaboration with USFWS produced background information for a manual to inform Section 7 consultation with USFWS and the National Marine Fisheries Service (NMFS). This manual delineates a suite of the most feasible rapid response eradication actions for a conceivable dreissenid introduction in the CRB and associated states and assesses the potential for those actions to affect associated Endangered Species Act (ESA)-listed species (manual on website) and critical habitat (e.g., impacts of the biocide potash on the threatened bull trout and its critical habitat). This project was completed in fall 2020. Following this achievement, PSMFC, in cooperation with NOAA Fisheries, began to incorporate NOAA trust species into the CRB website. A 2021 completion date is anticipated.

VULNERABILITY ASSESSMENT

PSMFC has also led the preparations of the region's hydro and fish facilities for a potential dreissenid mussel invasion. Vulnerability assessments itemize and inspect all hydropower facility structures and components in contact with raw water and determine the degree to which dreissenid mussels could impair the performance of the structures and their components. Understanding these factors in advance of an introduction can best prepare the facility to both prevent and deal with an introduction. A Vulnerability Assessment Team was formed after the regional Preventing an Invasion meeting in 2013. The Team completed *Strategies To Conduct Vulnerability Assessments for High Priority Columbia River Basin Hydropower and Dam Facilities* in April 2014.

WATERCRAFT INSPECTION AND DECONTAMINATION TRAINING

It is generally agreed that the most effective means to prevent the spread of dreissenid mussels is by positioning mandatory inspection stations at key highway points for all recreational watercraft. In 2017, PSMFC added a regional watercraft inspection station viewer.

Resource managers have been broadening the capacity of state law enforcement and

marine safety personnel to detect and intercept contaminated watercraft. The expansion of these programs has reinforced the need for the PSMFC Watercraft Inspection Training (WIT) program. WIT began in 2006, with USFWS and BPA funding, to train boating law enforcement personnel in the western U.S. on the background, biology, and impacts of zebra mussels; methods to identify high risk watercraft and conduct an inspection of all watercraft types; process for performing a vessel decontamination; and the legal authority to stop, detain, and require decontamination of watercraft suspected of harboring zebra mussels. To date, over 130 WIT training courses have occurred in nineteen Western States and Canada for over 5,000 individuals representing in excess of 100 different state, federal, local, and tribal agencies and organizations.

Beginning in April 2007, training was divided into two levels. Level I (or basic) trainings are typically a one-day class and consist of an overview on the dreissenid threat, basic mussel biology, distribution, transport vectors, the *Don't Move a Mussel* video, direct watercraft inspection experience, and a written exam. Level II training is more intensive, designed for professionals in all fields that expect to be involved in the inspection and decontamination of trailered watercraft, including those who intend to become trainers within their state or work group. Level II training is dispensed over two days (12 hours) at Lake Mead on the Nevada/Arizona border near Las Vegas. This course focuses on actual field inspection of various types of watercraft that may be contaminated with quagga mussels and on the decontamination of those watercraft requiring it. In recent years, Level II trainings have expanded and have been held at Lake Lewis and Clark, SD; Lake Powell, UT; Lake Pleasant, AZ; Kalispell, MT; Salt Lake City, UT; Navajo Lake State Park, NM; and Castaic Lake, CA. In 2015, PSMFC added a Level III course that serves as a "trainer training," and in 2017 the WIT IV Advanced Decontamination course was added.

COORDINATION

The ANS program participates in and provides administrative support and staffing to numerous ANS interjurisdictional efforts, including the Columbia and Missouri River Basin 100th Meridian Initiative Teams, the Pacific Ballast Water Group, the Western Regional Panel on Aquatic Nuisance Species, the WGA Invasive Mussel Leadership Forum, the Department of Interior Safeguarding the West from Invasive Species initiative, the Quagga-Zebra Mussel Action Plan Committee, and the West Coast Green Crab Technical Group.

PSMFC compiles, maintains, and shares information on the regulations each state implements to combat AIS, improving state efficiencies for reduced duplication of effort. The Legislation and Regulations subpage of the above website includes a National Sea Grant Law Center searchable compilation of Western States AIS laws and regulations relevant to watercraft inspection programs and a list of AIS-related, federal legislation that is regularly updated.

In 2016, the U.S. Army Corps of Engineers (USACE) Water Resources Developmental Act (WRDA) funds (a.k.a. Water Resources Reform and Developmental Act [WRRDA] or Water Infrastructure for Improvements to the Nation [WIIN]) were appropriated to support expansion and establishment of watercraft inspection stations and monitoring in the CRB. PSMFC entered into a cooperative agreement with USACE Walla Walla in 2017, designated as the non-federal sponsor to represent and coordinate the efforts of the four, CRB states. In 2020, PSMFC administered nearly $6 million in watercraft inspection station and monitoring funding.

OUTREACH AND EDUCATION

Recreational watercraft are the obvious means by which zebra-quagga mussels spread into other western watersheds. PSMFC and cooperating agencies have ANS information and education campaigns that target recreational anglers, boaters, marinas, enforcement personnel, and others on the zebra-quagga mussel threat. For the past seventeen years, PSMFC has attended sport and commercial fishing shows throughout the region (e.g., Boise, Portland, Sacramento, Seattle), exhibiting its booth and distributing information to those in contact with nuisance species. Owing to the 2020 Pandemic, shows

were unfortunately canceled. Since 2008, PSMFC has produced the electronic newsletter, *AIS in the News*, to inform AIS specialists.

MONITORING

For the past fifteen years, PSMFC has partnered with Portland State University (PSU) in a zebra mussel monitoring program. Since 2010, with funding from BPA and PSMFC, PSU has collaborated with USACE to expand monitoring at USACE projects in the CRB.

In 2010, PSMFC, in cooperation with the U.S. Geological Survey, hosted a monitoring database and map for the CRB states. By 2014, the monitoring data included Idaho, Montana, Oregon, Washington, Wyoming, Utah, and British Columbia. PSMFC created a new monitoring website in 2016.

PSMFC also manages the WRDA monitoring funding for the states of Idaho, Montana, Oregon, and Washington jointly with USACE Walla Walla. Monitoring work was conducted by Montana Fish, Wildlife & Parks, Washington State University, ODFW, PSU, and the Washington Department of Fish and Wildlife. WRDA cost share monitoring funds resulted in an approximate doubling of dreissenid monitoring efforts by the states in 2018 as compared to 2016.

European Green Crab (EGC): For the past seventeen years, PSMFC has supported coastwide green crab monitoring. In 2020, PSMFC supported monitoring partners: the Metlakatla Indian Community in Alaska and Dr. Sylvia Yamada, Oregon State University. Data collected by PSMFC-supported researchers has yielded important insight into the abundance and population structure of the green crab in three states. This information is of critical importance as resource managers and the commercial shellfish industry develop management options to address the threat posed by this species. Additionally, PSMFC and its GIS services staff are developing an EGC database for the west coast.

WEBSITE

PSMFC renovated its invasive species website in 2020. It also contains the Pacific Ballast Water Group website, as well as information on WIT, Rapid Response, economic impacts of invasive species, particularly zebra and quagga mussels, and an archive of state and federal AIS regulations.

Columbia Basin PIT Tag Information System

The **Columbia Basin PIT Tag Information System (PTAGIS)** is a coordination and data management project of Pacific States Marine Fisheries Commission (PSMFC). PTAGIS develops software used to collect and contribute Passive Integrated Transponder (PIT) tag data; manages and provides those data for download and for reporting through the PTAGIS website; and operates and maintains large scale PIT tag detection sites throughout the Columbia Basin. This project is an important prerequisite component of all PIT tag research conducted for the Bonneville Power Administration (BPA) Fish and Wildlife Program.

Tagging data is collected when fish are first marked with PIT tags or recaptured after having been previously PIT-tagged. Researchers from twenty-seven organizations marked over 1.7 million fish in 2020, with an accumulated total of nearly 51 million fish PIT-tagged since 1987.

Observation data collection occurs when PIT-tagged fish pass through automated detection systems, called interrogation sites, installed in facilities or streams. In 2020, the 280 interrogation sites contributing data to PTAGIS detected 825,549 unique fish, yielding a cumulative, detected fish total exceeding 19 million. One fish can generate many observation records as it passes through multiple PIT tag antennas at an interrogation site; 10.2 million observations were reported to PTAGIS in 2020, increasing the total number of observations recorded since 1987 to 257 million.

PTAGIS Operations and Maintenance (O&M) staff, headquartered in Kennewick, WA, are responsible for direct management and maintenance of thirty, large scale interrogation sites throughout the Columbia Basin, primarily at mainstem dam locations. This involves daily monitoring and regular onsite visits to maintain the detection equipment that provides the majority of the 257 million observation events available in the database. PTAGIS also supports the Separation by Code (SbyC) systems at nine locations, which enables researchers to selectively segregate individual PIT-tagged fish from other tagged and non-tagged fish. O&M staff also participate in the design, planning, and installation of new interrogation sites and detection technology.

2020 Highlights

Data Management: PTAGIS processed 818,000 data files with 119 million database rows updated or inserted. All PTAGIS website data is accessible to anyone. This year, 540 users executed 423,000 queries resulting in 14.4 billion rows of returned data.

Tagging and Observation Software: Four new updates to the current PTAGIS field tagging software, P4, were released in 2020 with a primary focus to correct defects and apply ergonomic changes. The next generation interrogation field software, M5, was tested both in the Kennewick lab and at active interrogation sites, running in parallel with production data collection platforms. Associated server and database upgrades were implemented to allow submission, processing, and reporting on the M5 data received from the testing platforms.

Formation of Instream PIT Tag Detection System Subcommittee: The Instream PIT Tag Detection System Subcommittee was formed and held three virtual meetings during 2020. The subcommittee worked on standardization of site configuration diagrams, evaluated a beta release of new PTAGIS interrogation software (I5), and provided input on the interrogation site metadata page for the new website.

New Data File Repository Browser: As part of the interrogation file submission infrastructure developed for M5, a new data file repository was launched to integrate legacy file submission data with next generation file information. The Data File Repository Browser was developed as an internal software utility that both audits data file storage and submission metadata, and provides streamlined viewing and retrieval of those data files. A web version of the Browser will be released with the new website in 2021 as the primary method for PTAGIS users to retrieve data files instead of FTP.

Upcoming Website: Launch of the new website is planned for spring 2021: two virtual servers were provisioned from PSMFC virtual infrastructure for website and reporting system

hosting; upgrades and testing of the latest reporting software version; development of new reports for the upgraded reporting software; redesign of support databases; and migration and synchronization of existing production data to those new databases.

Separation by Code: SbyC was used to target fifty-seven groups of fish (691,000 target tags) for sampling or to have them treated as the untagged population at transport dams. SbyC projects targeting fish for additional sampling were canceled by the U.S. Army Corps of Engineers (USACE) as a pandemic safety measure, but the projects targeting fish to be treated as the untagged population at transport dams continued through the end of the year. The detection and diversion efficiencies at these sites remained very high (> 98%) throughout 2020.

Lower Granite Dam Spillway Interrogation Site (GRS): After the successful installation of the Lower Granite Dam Spillway interrogation site at the end of 2019, the early part of the 2020 out-migration season focused on monitoring the performance and addressing the technical issues remaining after installation. GRS (*Figure 1*) operated throughout the spill season in 2020 and detected approximately 160,000 distinct PIT tags. Although detection efficiency tests using live fish were canceled due to the pandemic, the number of tags detected surpassed most expectations.

Barge Load Line Antennas: At the request of BPA, staff evaluated the feasibility and cost estimate of adding PIT tag detection to the barge load lines at Lower Granite, Little Goose, and Lower Monumental juvenile fish passage facilities. Installation planning was initiated at the end of 2020, with installation and data collection expected to commence before the 2021 sampling season.

Upgrades to Detection Systems at Bonneville Dam: PTAGIS staff collaborated with USACE personnel at Bonneville Dam to upgrade detection systems in the Washington Shore and Cascade Islands fish ladders. Construction of replacement antennas (*Figure 2*) for the serpentine weirs in the Washington Shore ladder was completed using NOAA's recently developed underwater cable that allows the weight to be decreased by two-thirds, while reducing the expense to less than 25% of the original antennas. Relocation of the Cascades Island

Figure 1. Lower Granite Spill Bay #1 with PIT tag detectors in operation and detecting tags May 2020.
Photo courtesy of PTAGIS Staff

system from the weir wall orifices in the lower part of the ladder to the counting window and Upstream Migrant Tunnel was similarly begun in late 2020. This relocation was necessary due to subsidence in the area around the current PIT tag room and should deliver enhancements of 100% passage area coverage, with the capability to detect half-duplex tags besides full-duplex.

Ongoing data management, coordination, and O&M activities:

- Maintenance of validation codes used in data entry and reporting systems in addition to metadata and contact information for interrogation sites
- The PTAGIS Data Specification was updated several times to standardize validation codes across P4 and the new website.
- Technical support to PTAGIS users
- Additional video tutorials were produced for both P4 and the reporting system that included closed captions.

- Publication of newsletters and news items
- Year-round daily monitoring of interrogation systems at large-scale mainstem dam fish passage facilities
- Repair of detection system components
- PIT tag distribution and quality assurance

Owing to the pandemic, PTAGIS staff from both office locations transitioned to teleworking from home by utilizing online collaboration tools and remote access to systems and servers. USACE also limited on-site interrogation site visits to those requiring critical maintenance: prevention of permanent gaps in data collection; or significant impacts to diversion gates for research projects, depending upon SbyC. Despite these imposed safety measures, staff were extremely productive and accomplished the principal objectives detailed in BPA's FY20 contract. Detection and diversion efficiencies at PTAGIS interrogation sites remained very high due to built-in system redundancy, near real-time operational reports, and recently developed remote operation tools to ensure the integrity and continuity of the PTAGIS dataset.

Figure 2. Washington Shore serpentine weir replacement antennas under construction at the PTAGIS Kennewick Lab. Photo courtesy of PTAGIS Staff

Cooperative Ageing Project

The **Cooperative Ageing Project** (Ageing Lab) is a collaborative effort between the National Oceanic and Atmospheric Administration (NOAA) and Pacific States Marine Fisheries Commission. It was established to production-age marine groundfish structures. The lab is located in Newport, OR at the Northwest Fisheries Science Center (NWFSC) Newport Research Station. Age structures collected from federal surveys, observer programs, and commercial catch are aged by this lab to directly support West Coast stock assessments. Age specific estimates of biomass, mortality, and population trends are required to rigorously evaluate the status of a fish stock. While this lab is primarily a production age reading lab, there are opportunities on an annual basis to conduct age-related research and to assist in National Marine Fisheries Service's at-sea surveys.

2020 Highlights

Ageing Lab personnel accomplishments:

- Production-aged 25,619 and double read 8,030 age structures to support six, U.S. West Coast groundfish stock assessments.
- Released 18,294 ages from six species.
- Added 31,478 specimen records from 58 different species collected from NWFSC programs. This archive now has 616,820 records of age structures collected from 87 species between 1983 and 2020. The sources of these structures are from the following: At-Sea Hake Observer Program, West Coast Groundfish Bottom Trawl Survey, Pot Survey, Acoustic Survey, and Hook and Line Survey.
- Received 28,551 age structures from U.S. West Coast state agencies.
- Attended the virtual Committee of Age Reading Experts conference.

Otolith (ear stone) weight data collection was placed on hold in 2020 due to COVID-19 restrictions. In previous years, the Ageing Lab has collected weight data on 151,015 otoliths. NWFSC scientists are developing algorithms that use otolith weight as a proxy for age.

The Ageing Lab concluded 2020 with five staff: one supervisor and four, full-time age reading specialists.

Electronic Monitoring and Reporting

CAMERAS

WEST COAST

Pacific States Marine Fisheries Commission (PSMFC) launched the **Electronic Monitoring (EM)** program in 2012 in anticipation of the Pacific Fishery Management Council's (PFMC) plan to use EM as a compliance monitoring tool in the newly implemented Pacific Coast Groundfish Trawl Rationalization Program. The original objective of the EM program was to prove the efficacy of EM as a data source to document individual accountability of catch and bycatch in the Pacific Trawl Rationalization Program.

After PSMFC successfully proved the effectiveness of EM, PFMC approved four, Exempted Fishing Permit (EFP) applications that were implemented in the 2015-2020 fishing years, permitting EM to be used on vessels in the whiting, fixed gear, non-whiting mid-water trawl, and bottom trawl fleets. These EFPs allow participants to fish using EM as a substitute for an onboard, human compliance monitor, although scientific observer coverage is still required on a percentage of fixed gear and bottom trawl fishing trips for scientific sampling. EM data reviewers at PSMFC view 100% of fishing activity to report Individual Fishing Quota (IFQ) discards, and results are compared to fisher-reported logbooks. If the comparison results in a 10% or higher difference between EM and the logbook, or one source reports discards and the other source does not, the higher of the two numbers will be reported to the Vessel Account System and ultimately debited from the vessel's quota.

The results from the 2015 through 2018 whiting and fixed gear EM EFPs led to a regulation recommendation by the Council, with full regulatory implementation delayed until 2022. The Council extended the bottom trawl and non-whiting midwater trawl EM EFPs through 2021 to collect more information to determine whether regulations should be established for these fisheries in the future.

NORTH PACIFIC

Fisheries Monitoring: The North Pacific Fishery Management Council (NPFMC) and the National Marine Fisheries Service (NMFS) have integrated EM into the North Pacific Observer Program (Observer Program). While EM systems in other regions are generally used to monitor vessel compliance with fisheries regulations, the goal of the North Pacific fixed gear program is to collect data for the estimation of catch and bycatch and subsequent in-season management of fisheries. After a multi-year pre-implementation period, Federal regulations for the use of EM on longline vessels were implemented in January 2018, while EM pot gear monitoring became part of the regulated program in 2019. Under the regulated EM programs, EM-collected data supplements the data collected by observers to manage fisheries, primarily for the estimation of at-sea discards. PSMFC continues to work with NMFS to develop methods for the deployment of EM systems and for collection of fishery information using EM.

As a member of the North Pacific EM program, PSMFC advises, reviews video, subcontracts for installation and field support of EM systems on participating vessels, analyzes the data, produces reports detailing monitoring results (i.e. system performance), and develops recommendations for program improvement. PSMFC staff work closely with our NMFS partners (Alaska Fisheries Science Center [AFSC], Fisheries Monitoring and Analysis) to develop and document data collection protocols, data transfer methods, and database structures. PSMFC also provides support for this program by developing analytical methods and documentation for the estimation of catch and discard used with these new data types.

Each year, the Observer Program's Annual Deployment Plan for Observers and Electronic Monitoring in the Groundfish and Halibut Fisheries off Alaska (ADP) describes deployment strata and rates for the upcoming monitoring year, while the North Pacific Observer Program Annual Report evaluates the previous year's deployments relative to the ADP. Both reports include the distribution of EM systems into the groundfish fisheries in addition to the deployment of observers. PSMFC provides a summary of the EM video review process in Appendix A of the North Pacific Observer Program Annual Report. Chapter 3 of the Report evaluates the effectiveness of monitoring relative to the sample design specified in the ADP.

With the integration of EM into the regulated program, the NPFMC Fixed Gear Electronic Monitoring Workgroup was reconfigured with a

focus to incorporate EM into trawl fisheries and was renamed the Trawl Electronic Monitoring Committee. The Committee consists of agency staff, commercial fishing industry representatives, EM service providers, and PSMFC staff.

A two-year EFP has been approved for 2020-2021 to evaluate the efficacy of EM and shoreside observers for pollock catcher vessels (CVs) in the Eastern Bering Sea and in the Gulf of Alaska. EM systems were installed on board volunteer pollock CVs (and used alongside human observers when required) in 2018 and 2019 to evaluate fishing behavior and test the systems on board pollock CVs prior to issuing an EFP. The EFP exempts participating vessels from observer requirements and regulations that prevent maximized retention of catch. This project uses EM systems on board vessels to record at-sea fishing events for compliance with fishery management objectives for maximized retention; to enable electronic reporting of catch and discard data; and to utilize coastal observers working in land-based, fish processing plants to monitor salmon bycatch and to collect biological data. Project partners for this EFP include: NMFS AFSC, NMFS Alaska Region, EFP permit holders (Alaska Groundfish Data Bank, Inc., Aleutians East Borough, United Catcher Boats), EM providers (Archipelago Marine Research Ltd., Saltwater Inc.), video reviewers (PSMFC, Saltwater Inc.), and an observer provider (Saltwater Inc.).

Research and Development Program: The PSMFC EM Innovation Program develops computer vision algorithms to analyze EM data and researches methods for advancing cost-effective EM capable of automating the capture of species identification, species enumeration, and length and weight measurement data metrics. These data elements are required to estimate both the total amount discarded and the length distribution of the catch, necessary components of fisheries management and stock assessments. This project is a collaborative effort between PSMFC, the Observer Program, the University of Washington Electronic and Computer Engineering Department, and FishNext Research.

In 2020, the Program advanced the automated analysis algorithms and hardware systems across three specific applications: systems for automated analysis of video data to identify, count and measure fish coming on board the vessel (over the rail) in multispecies hook-and-line fisheries; systems for automated onboard sorting of halibut and species identifications in the trawl fisheries; and systems for automated monitoring to validate compliance of shoreside processing plants with salmon bycatch reporting requirements. Since this technology is transferable, and the machine learning algorithms can be retrained for new image data streams, these EM advances have the potential to benefit other EM programs in addition to the operational program in Alaska.

Additional details about the EM Innovation Project can be viewed in the North Pacific Observer Program Annual Report Appendix B.

EM Research Publications (2020)

Mei, J., S. Romain, C. Rose, B. Moore, and K. Magrane. 2020. Video-based hierarchical species classification for longline fishing monitoring. To be published in CVAUI2020 in conjunction with ICPR2020.

Mei, J., S. Romain, C. Rose, B. Moore, and K. Magrane. 2020. Absolute 3D pose estimation and length measurement of severely deformed fish from monocular videos in longline fishing. Accepted to ICASSP2021.

WEST COAST LOGBOOKS

A system for remote data entry of paper logbooks is used by PSMFC groundfish port samplers to electronically capture groundfish trawl logbooks for California vessels. This system is also used by the EM group at PSMFC Headquarters in Portland, OR to electronically capture paper logbook data from vessels using EM in California, Oregon, and Washington, with data entry usually occurring within a week of arrival. As a precautionary measure, this is a linked database to ensure there is no logbook duplication. As described in the previous “Cameras” section, the data from EM logbooks are compared to the data collected by EM video reviewers, and the higher-reported IFQ weight is then debited from the vessel’s quota.

WEST COAST ELECTRONIC FISH TICKETS (E-TIX)

Fish tickets are used to document landings by commercial vessels at West Coast ports. Historically, the three states collected these tickets from fish buyers by using a paper reporting system. Starting in 2008, PSMFC developed and currently maintains an electronic

fish ticket system (E-Tix) to replace paper tickets for all twenty-seven West Coast fish ticket types. Adoption of E-Tix varies across the states, with Oregon historically the most committed to adopting E-Tix for paper landing receipts. Beginning July 1, 2018, California accepted E-Tix for all ticket types in lieu of paper landing receipts. Regulations for mandatory reporting for all landings are in place and took effect on July 1, 2019.

Fish Habitat Program

The **Pacific States Marine Fisheries Commission (PSMFC) Fish Habitat Program** protects and restores fresh, estuarine, and marine habitats that support salmon and other numerous fish species of commercial, recreational, and ecosystem importance. In 2020, the Habitat Program received funding from the Wallop-Breaux Sport Fish Restoration program managed by the U.S. Fish and Wildlife Service and from National Oceanic and Atmospheric Administration (NOAA) inter-jurisdictional funds.

The Habitat Program supports the efforts of multi-stakeholder organizations involved in cooperative, non-regulatory programs and projects to advance habitat conservation and restoration actions, science, and policies. The Fish Habitat Program Manager collaborates with them and additional non-profit and inter-agency groups: attends meetings, serves on committees and boards, and assumes duties and projects.

2020 Highlights

PACIFIC MARINE ESTUARINE FISH HABITAT PARTNERSHIP (PMEP)

PSMFC is an active member of PMEP, one of twenty National Fish Habitat Partnerships (NFHP). PMEP's diverse membership includes federal, tribal, state, and non-governmental participants from California, Oregon, and Washington. The partnership emphasizes cooperation for conserving and restoring priority habitats such as the juvenile fish habitat in estuarine and nearshore areas, assuring the connection between coastal and tidal wetland areas. With funding provided by NFHP, PMEP advances scientific information about estuaries, tidal marshes and swamps, eelgrass, and fish, supporting both restoration and conservation projects.

The Fish Habitat Program Manager is a member of PMEP's steering and communications committees, serves with a PSMFC Senior Program Manager on the governance committee, and assists with review of restoration funding proposals. Additionally, PSMFC's staff provides both research support and Geographic Information System services and is currently developing a PMEP data system and interactive website. PSMFC also administers fiscal services for the group.

In 2020, PMEP was funded by NOAA's Office of Habitat Protection for an assessment of restored West Coast tidal areas. This new research augmented a previous report that documented areas converted to other uses. NOAA's sponsorship also enabled the expansion of PMEP's spatial data framework to include nearshore areas. The nearshore zones were delineated and mapped, and spatial data on nearshore habitats were added to the maps. This information will contribute to a completed *State of the Knowledge on U.S. West Coast Nearshore Fish Habitats* in FY2021.

Funding from the Association of Fish & Wildlife Agencies allowed PMEP to collaborate with the California Fish Passage Forum and the Pacific Lamprey Fish Habitat Partnership to evaluate the location and characteristics of intertidal water crossing structures and their impact on estuarine fish and their habitats. In October 2020, the Barriers to Tidal Connectivity Symposium explored the current state of the science regarding this topic

With assistance from the Pew Charitable Trusts and the Friends of South Slough Reserve, information on eelgrass restoration methodology is also being compiled. The finalized report is anticipated in 2021.

PMEP contributed funding for four assessment and restoration projects in 2020: a regional scale assessment of fish habitat along the nearshore of greater Puget Sound; enhancement of Olympia oysters to improve heterogeneous habitat for fish and invertebrates; the Neskowin Fish Passage Improvement Project; and the Seestrom Tidelands Restoration project.

WATERSHED RESTORATION PROJECTS

Watershed Council Support: The Habitat Program supplied administrative and technical support for organizations conserving and restoring fish habitats on the Oregon coast, directly engaging with non-profit boards, committees, and working groups. The Program cooperated with the MidCoast Watersheds Council and the Salmon Drift Creek Watershed Council to ensure that high priority projects were designed, funded, and pursued through use of

Figure 3. Log placement creates large wood fish cover, pool scour, and elevation diversity in a tidal marsh. Photo courtesy of Fran Recht, PSMFC

email communications, conference calls, meeting participation, and direction to the groups' staff. Apart from meetings, restoration plans and drafted documents and proposals were reviewed. Through these partnerships, contributions exceeding $1.3 million were secured for technical assessment and design as well as the implementation of restoration projects.

In addition, PSMFC worked in close association with the MidCoast Council and federal, tribal, and state partners to complete a stage zero floodplain restoration, a large wood project (*Figure 3*), and a 55-acre tidal wetland restoration project.

Promoting Beaver for Coho Salmon Habitat and Water Quantity: The 2016 National Marine Fisheries Service (NMFS) Coho Recovery Plan for Oregon Coast Coho noted the importance of beaver ponds providing the critically needed calm areas for Coho habitat during winter (*Figure 4*). Additionally, beaver ponds can hold and store an abundance of water in the landscape to help mitigate stream drought conditions. PSMFC promotes the importance of beavers through policy work and education. The *Beavers and Salmon* video, featuring fish biologist Steve Trask, was selected for a screening at the April 2020, Vancouver, B.C., meeting of the Western Division and Washington-British Columbia Chapters of the American Fisheries Society. Two additional "Living with Beaver" short films are being produced for a 2021/2022 release.

U.S. Forest Service (USFS) Stewardship Group: The Habitat Program also aided restoration efforts through the Alsea Stewardship Group, a multi-party alliance that functions in conjunction with USFS to complete priority habitat restoration projects. Under the federal stewardship contracting authority (commonly termed the Wyden Authority), a portion of timber sale receipts from commercial cuts or thinning sales can be reinvested in habitat restoration projects within national forests or for surrounding private lands that directly benefit the forest watershed and its fish and wildlife. In 2020, the Stewardship Group reviewed and made recommendations for priority national forest restoration projects that included road decommissioning for erosion control and large wood placement projects. The Group also supported funding for private land projects positively impacting the forest: tidal marsh restoration, riparian planting, sediment reduction, and invasive plant control.

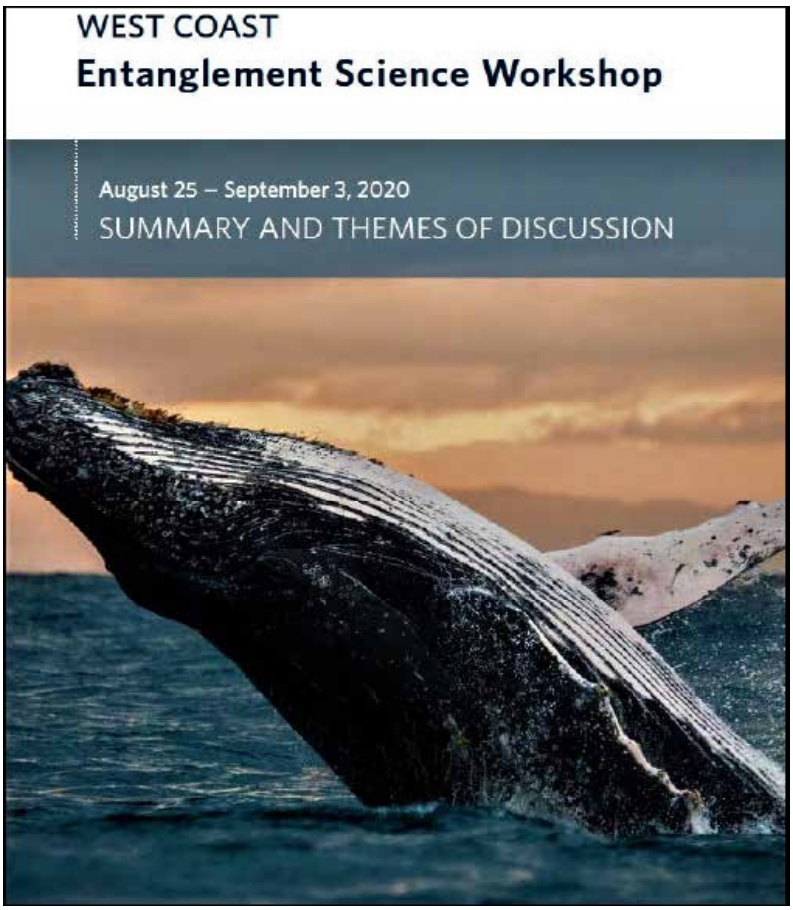
WHALE ENTANGLEMENT

In August 2020, the Ocean Protection Council (OPC) and The Nature Conservancy (TNC) sponsored a West Coast Entanglement Science Workshop. PSMFC partnered with OPC and TNC, NMFS, and state fishery managers from California, Oregon, and Washington to organize and conduct this workshop. The consequent report presents the state of the science regarding understanding, preventing, and reducing entanglement risk in West Coast fixed-gear fisheries.

Figure 4. Beaver pond slack water habitat shelters Coho salmon juveniles for overwinter survival. Photo courtesy of Fran Recht, PSMFC

As a result of the Workshop, PSMFC was awarded a $2 million grant from OPC to administer a competitive research program to reduce the risk of whale and sea turtle entanglement in California fishing gear. PSMFC will request proposals, form a review committee, select three or four projects for award, and provide management oversight. Project work will begin in July or August of 2021 and end in December 2023.

The Commission also served as a technical advisor to the California Dungeness Crab Fishing Gear Working Group and to California's Gear Innovations Project Team, a collaboration between OPC, the National Marine Sanctuary Foundation, and the California Department of Fish and Wildlife.



PACIFIC FISHERY MANAGEMENT COUNCIL

The PSMFC Fish Habitat Program Manager serves on the Council's Habitat Committee that advises the Council about policies and actions affecting the essential fish habitat of managed species. PSMFC's Special Assistant to the Executive Director participates on the Council as a non-voting member and parliamentarian and chairs the Council's Legislative Committee.

Habitat items discussed in 2020 included habitat-related limiting factors for salmon rebuilding plans of the Klamath River Fall Chinook and Sacramento River Fall Chinook; the Columbia River Systems Operations Draft Environmental Impact Statement and temperature requirements; shellfish and finfish aquaculture projects and nationwide permits; Klamath Dam removal; water projects in California; offshore wind energy proposals.

Fisheries Economics Data Program (EFIN)

Fisheries Economics Data Reports (EDRs) Program

The **Fisheries Economics Data Program (EFIN)** is a collaborative data collection effort that addresses the needs of fisheries managers and industry for economic data and information for the West Coast and Alaska. This project is conducted by Pacific States Marine Fisheries Commission (PSMFC) as part of a cooperative agreement with National Marine Fisheries Service (NMFS) and with the support of the Pacific and North Pacific Fishery Management Councils (PFMC and NPFMC). The goal is to provide reliable and timely data to assist with monitoring and measuring the economic performance of the harvesting and processing components of West Coast and Alaska fisheries.

2020 Highlights

- **2019 Fuel Report:** An annual summary of collected fuel price data from the prior year was prepared and distributed to survey participants and other interested parties.
- **Fuel Price Collection:** Program staff continued collection and maintenance of the West Coast and Alaska monthly fuel price survey through monthly phone and email contact.
- **Tri-State Crab Website Maintenance:** The Program also archived the prior year's website and created a new website for the 2020-2021 season that was updated with reports from California, Oregon, and Washington.

ALASKA CRAB RATIONALIZATION ECONOMIC DATA REPORT (EDR) COLLECTION PROGRAM 2020

PSMFC functions as the Independent Third Party Data Collection Agent for the Bering Sea/Aleutian Islands (BSAI) Crab Rationalization Program. The purpose of the economic data collection is to aid NPFMC and NMFS in assessing the success of this program and to provide data that are used in developing amendments necessary to mitigate unintended consequences of management decisions. Specifically, the data will be used to examine two aspects of the program: the distribution of benefits between harvesters and processors within the harvest share/processor share allocations and arbitration system; and the distribution of landings of different harvest share types.

NPFMC's objective was to adequately assess the impact of the program on affected parties, including harvesters, processors, and communities. Existing data collection programs have not provided the information required to understand the economic performance of crab fishermen, to determine how this performance has changed after rationalization, or to specify the aspects of these changes that are attributable to crab rationalization. This data collection program will substantially reduce the types of analytical difficulties that were encountered in the past in attempting to evaluate the effects of the halibut/sablefish Individual Fishing Quota program and the American Fisheries Act (AFA).

When this program began in 2005, historical EDRs were collected for the years 1998, 2001, and 2004. In each subsequent year, EFIN staff collected data for an annual report. Historical EDRs captured data for comparison of the economics of harvesting and processing before and after program implementation. The annual reports capture economic data at the conclusion of each calendar year's crab fisheries. The 2019 EDR was collected in June and July 2020. Participation in the data collection program is mandatory for all participants in the BSAI crab fisheries. All owners and leaseholders of a vessel or processor that harvested, processed, or had crab harvested and processed for them in any of the BSAI crab fisheries during 2019 were required to submit an annual report.

EDR online login and passwords were mailed to crab processing plants and vessels, and submitted EDRs were collected, tracked, and reported to the Restricted Access Management Program (RAM) for permit and quota issuance. They were also reviewed for completeness. The EDR data were entered, archived, and submitted to NMFS for analysis.

Alaska Fisheries Information Network (AKFIN) built a database to house data, to standardize variables, and to conduct metric analysis to describe the data. Reports and forms are being developed to allow permitted researchers access to the data.

AMENDMENT 80 AND GULF OF ALASKA (GOA) TRAWL ECONOMIC DATA REPORTS

Amendment 80 was adopted by the NPFMC in June 2006. The final rule implementing Amendment 80 was published in the Federal Register on September 14, 2007. This action allocates several BSAI non-pollock trawl groundfish species among trawl fishery sectors and facilitates the formation of harvesting cooperatives in the non-American Fisheries Act (non-AFA) trawl catcher/processor sector. As of January 1, 2016, a new reporting requirement under 50 CFR 679.110 went into effect that changed the EDR for the Amendment 80 Catcher Processor participants, incorporating those in GOA's groundfish trawl fisheries into the EDR program.

In December 2014, NMFS issued a final ruling that authorized the GOA Trawl EDR Program to assess the economic effects of current (and future) fishery management measures for the GOA trawl fisheries. This data collection program will provide NPFMC and NMFS with baseline economic information on harvesters, crew, processors, and communities active in the GOA trawl fisheries, which will be used to evaluate the impacts of anticipated, future GOA trawl groundfish management measures on stakeholders.

The Council adopted Amendment 80 to meet the following broad goals:

- Improvement of retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet by extending the groundfish retention standard to non-AFA trawl catcher/processor vessels of all lengths
- Division of fishery resources among BSAI trawl harvesters in consideration of historical and present harvest patterns and future harvest needs
- Authorization of an allocation of groundfish species to harvesting cooperatives, and establishment of a limited access privilege program for the non-AFA trawl catcher/processors to reduce potential Groundfish Retention Standard compliance costs, to encourage fishing practices with lower discard rates, and to improve the opportunity for increasing the value of harvested species.
- Limitation of the ability of non-AFA trawl catcher/processors to expand their harvesting capacity into other fisheries not managed under a limited access program.

The groundfish species in the BSAI areas directly affected by Amendment 80 include: Atka mackerel, Aleutian Islands Pacific Ocean perch, Flathead sole, Pacific cod, Rock sole, and Yellowfin sole.

In addition, Amendment 80 would modify the management of halibut and crab prohibited species catch limits.

PSMFC has been designated by NMFS as the Data Collection Agent for the Amendment 80 program. The first annual Amendment 80 reports were collected in June 2010 for the 2009 calendar year. The first annual GOA Trawl EDR reports were collected in June 2017 for the 2016 calendar year.

In 2020, the 2019 annual EDRs were mailed to catcher/processors, catcher vessels, and processors; they were collected, tracked, and reported to RAM for permit and quota issuance. After a review for completeness, the data were entered, archived, and submitted to NMFS for further analysis.

AKFIN built a database to house data, to standardize variables, and to conduct metric analysis to describe the data. Reports and forms are being developed to allow permitted researchers access to the data.

AMENDMENT 91 CHINOOK EDR FOR THE AFA POLLOCK FISHERY ECONOMIC DATA REPORTS

Beginning in 2011, Amendment 91 of the BSAI Fishery Management Plan established a hard cap of 60,000 Chinook salmon caught per year for Bering Sea pollock, with the additional requirement that annual Chinook bycatch must not exceed 47,591 more than twice in any 7-year period. The bycatch quota is assigned to sectors

of the fleet proportional to both the pollock allocation and historic bycatch. The bycatch quota can be allocated by cooperatives to individual vessels and is transferable across the fleet to improve economic efficiency.

Following the recommendation of Amendment 91 in April 2009, NPFMC asked the Alaska Fisheries Science Center to develop "a data collection program for the pollock fleet that would provide the information necessary to evaluate the salmon bycatch program to ensure that it is meeting the Council's intent." The goal of this project is to collect information on the amount of money vessel operators are paying to acquire salmon bycatch quota and assess the way in which fishing changes as a result of the new restrictions on salmon bycatch. As there is a potential for large financial impacts to some vessel operators who will have to purchase salmon bycatch quota to harvest their allocation of pollock, and who may have to incur additional travel expenses to fish in areas where salmon are less concentrated, an additional goal of this project is to estimate how costs of salmon bycatch avoidance may increase in the pollock fishery. In addition, this data collection effort is aimed at understanding the steps that vessel captains undertake to avoid salmon bycatch during the fishing seasons.

PSMFC has been designated by NMFS to be the data collection agent for the Amendment 91 EDR program. The first annual Amendment 91 EDRs were collected in June 2013 for the 2012 calendar year.

In 2020, the 2019 data were collected, tracked, and reviewed for completeness. This data collection has a June 1 deadline and is repeated every year for the prior year's fishery.

A database was built on AKFIN servers to house collected data, to standardize variables, and to conduct metric analysis to describe the data. Reports and forms are being built to allow researchers access to the data.

Fisheries Support Projects in California, Idaho, and Washington

CALIFORNIA PROJECTS

The **California Ocean Salmon Program** benefits from Pacific States Marine Fisheries Commission's (PSMFC) ongoing placement of fisheries technicians at various coastal ports to sample commercial salmon fisheries, to collect biological data and coded wire tag (CWT) information, and to perform lab work. Data collected are incorporated into management decisions and season setting for salmon fisheries coastwide.

PSMFC, together with the California Department of Fish and Wildlife (CDFW), determines the **Age Structure of Central Valley Chinook Salmon Populations** by participating in the field collection of scales in Chinook escapement surveys, conducting scale analysis, and using the aging data in combination with CWT recovery data to reconstruct the abundance of each returning brood year.

The **California Passage Assessment Database** documents anadromous fish passage sites in all California watersheds. This multi-agency, cooperative effort has improved information on known and suspected fish passage issues and ultimately, the correction of those issues through prioritized restoration projects and funding.

The **California Cooperative Fish and Aquatic Habitat Data Program** (CalFish) website, a multi-agency, cooperative fisheries information site, is designed to gather, maintain, and disseminate fish and aquatic habitat data. It offers access to a growing number of fish and aquatic habitat data sets through both geographical and tabular queries. Many of the following projects contribute data and information to the CalFish site.

With funding provided by the California Department of Water Resources, PSMFC staff advanced the **Feather River Monitoring** project by completing salmon and steelhead data collection and analysis for the Feather River and Central Valley and also assisted with sturgeon monitoring

PSMFC fisheries technicians on the **Upper Sacramento Technical Assistance** project continued to manage video monitoring stations and fish traps, conducted salmon carcass surveys, performed habitat assessment, and collected biological data for CDFW and the Bureau of Reclamation.

PSMFC supplied technical guidance and field staff for the **Coastal Restoration Monitoring and Evaluation** project. Personnel monitored pending and completed coastal watershed restoration projects in California, collected habitat information, and compiled data. Managers used this information to assess the success of restoration activities.

PSMFC retained fisheries technicians in Mendocino County for a project designed to develop, test, and implement the sampling scheme and field surveys described in the **California Coastal Salmonid Monitoring Plan.**

In the **San Joaquin River Basin,** PSMFC staff collected and managed data for water temperature, Chinook salmon carcass surveys, spawning activity of Merced River Hatchery fall-run Chinook salmon, and CWT.

PSMFC successfully concluded another year of the **Central Valley Constant Fractional Marking Program**. The Program is responsible for annually marking and tagging a minimum of 25% of the fall Chinook salmon production and fin clipping 100% of the steelhead production in the Central Valley hatcheries.

At the **Coleman National Fish Hatchery**, PSMFC provided the U.S. Fish and Wildlife Service (USFWS) with seasonal personnel and services to mark and CWT juvenile winter-run and late-fall Chinook salmon and steelhead.

PSMFC supported the **Constant Fractional Marking at Iron Gate and Trinity River Hatcheries** with staff and equipment to clip and tag 25% of all Chinook salmon released from these facilities.

PSMFC conducted **Yuba River Monitoring** in cooperation with the Yuba County Water Agency, CDFW, and other partners to implement field studies, monitoring, and other projects on the Lower Yuba River including rotary screw traps, escapement surveys, and the operation

of the Vaki Riverwatcher installation. PSMFC also collaborated with the U.S. Army Corps of Engineers to survey, monitor, and map Yuba River redds to evaluate the success of their gravel augmentation program.

PSMFC staff assisted the **USFWS Comprehensive Assessment and Monitoring Program** with statistical analysis and database development to support California Central Valley monitoring efforts.

Monitoring studies for **South Fork Eel River Coho** were administered by PSMFC personnel who also managed and maintained the Eel River Dual Frequency Identification Sonar (DIDSON) Monitoring Stations.

PSMFC facilitated the installation of DIDSON Monitoring Stations on Southern California streams and contributed to field implementation of the **South Coast Steelhead Monitoring Plan**.

PSMFC aided USFWS and CDFW by collecting data, monitoring, and reporting on **Salmon Redd Dewatering** on the upper mainstem of the Sacramento River.

PSMFC employees conducted monitoring for the **Lower Eel and Van Duzen Rivers Salmonid Spatial Structure Project for Coho Salmon**.

PSMFC personnel assessed the abundance and production of juvenile Chinook salmon and steelhead on the American and Stanislaus Rivers for the **USFWS Rotary Screw Trap Assistance and Monitoring Program**.

PSMFC provided staff and technical expertise for **Salmonid Habitat Enhancement and Monitoring** that supports Trout Unlimited, The Nature Conservancy, and CDFW in the Pudding and Caspar Creeks.

PSMFC is collaborating with USFWS, National Marine Fisheries Service (NMFS), and Basin partners to develop an I**ntegrated Fisheries Restoration and Monitoring Plan for the Klamath Basin**. The final phase of this project has begun: identification of habitat restoration actions necessary for the recovery of eight, focal species in the Klamath that include salmon, steelhead, sturgeon, trout, and lamprey.

Through the administration of a grant program funded by the National Fish and Wildlife Foundation, PSMFC encourages participation by local watershed council personnel in the Klamath planning process.

NMFS and CDFW, facilitated by PSMFC personnel, estimated smoltification rates in the Ventura River and two, main rearing tributaries by establishing a PIT tag array network for the **Ventura River PIT Tagging Project**.

PSMFC, in partnership with USFWS, is developing and populating the California Central Valley Adult Salmon Escapement Database for watersheds that includes the American River, Clear Creek, the Sacramento River mainstem, and the Stanislaus River. In addition to several analytical tools that help automate data analyses and reporting, PSMFC also provides software tools to ensure that stored data are complete and accurate.

PSMFC will participate in the **Battle Creek Fish and Ladder Monitoring Program** once several restoration projects have ended.

IDAHO PROJECTS

PSMFC personnel assisted the Idaho Department of Fish and Game (IDFG) Nampa Research Lab with fisheries research, field activities, and data management needs.

All objectives of the **Idaho Marking and Tagging** plan developed by the IDFG Research Division were successfully met by PSMFC employees. Over 18 million salmon and steelhead were marked and/or tagged.

PSMFC contributed technical support for the **Lower Snake River Fish and Wildlife Compensation Plan** to manage hatchery data used for monitoring and evaluating hatchery efforts toward program goals.

PSMFC personnel helped IDFG with fisheries management and research activities in the IDFG Natural Production Section, Fisheries Management Section, and the Eagle Fish Genetics Lab.

WASHINGTON PROJECTS

PSMFC provided technical and administrative support for the following projects:

- **Lower Columbia River Coded Wire Tag Recovery and Population Monitoring and Analysis**
- **Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams**
- Washington Department of Fish and Wildlife's **Chum Salmon Restoration in the Tributaries Below Bonneville Dam**
- Collection of **Lower Columbia River Genetic Stock Identification** samples for the Columbia River Inter-Tribal Fish Commission
- USFWS management of hatchery data used for monitoring and evaluating hatchery efforts and meeting program goals

ADDITIONAL PSMFC PROJECTS

PSMFC contributed expert technical assistance to develop monitoring and evaluation strategies to support implementation of the **NMFS Salmon Recovery Plan**.

PSMFC supplied data stewardship and technical services for the NMFS Habitat Restoration Project Tracking Database and the Salmon Population Summary Database.

Funded by the Bonneville Power Administration, PSMFC manages the **Fish Data Product** project that supports development and updates of the Northwest Power and Conservation Council (NPCC) Columbia River Basin Fish and Wildlife Program Tracker tool. The Tracker is housed on NPCC's website and depicts the status of fish populations and progress toward Program objectives and indicators.

PSMFC provided administrative assistance to NMFS and project partners for San Francisco Bay Habitat Improvement, Southeast Alaska Fish Habitat Partnership, Washington Veterans Corps Assistance, Hosting Shorezone, Bar-Built Estuaries Guidance, **Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) Spatial Data Project**, **Assessing Eel Grass in Morro Bay**, and **Monitoring Small Dam Removal in Southern California**.

PSMFC staff, in cooperation with NMFS, are completing **Hatchery and Genetic Management Plans** for fish propagation programs in Washington's Puget Sound and in California's Mokelumne River. Subcontracts with the Northwest Indian Fisheries Commission and a private consultant are supporting production of these plans, which are required for continuing operation of fish propagation facilities.

PSMFC assigned administrative, coordination, and technical support to PMEP, the California Fish Passage Forum Fish Habitat Partnership, and the Pacific Lamprey Fish Habitat Partnership. Additionally, PSMFC assists with the National Fish Habitat Partnership and the twenty Fish Habitat Partnerships.

Individual Fishing Quota Trawl Rationalization Catch Monitor Program

The **Individual Fishing Quota (IFQ) Catch Monitor Program (CMP)** provides accurate, timely, and independent third-party verification of catch landed in the IFQ trawl fishery. Catch monitors (CMs) conduct dockside monitoring for first receivers who land IFQ catch. They verify the sorting, weighing, and recording of catch as it is offloaded by first receivers. The CMP was created in 2008 to monitor the whiting fishery and then expanded to include all trawl landings when the IFQ program was implemented in January 2011.

The IFQ trawl fishery has a catch verification system in place to ensure that IFQ groundfish species, particularly overfished species, as well as Chinook salmon and Pacific halibut, can be adequately monitored and accounted for in-season to maintain the integrity of vessel quotas used to manage groundfish species and trip limits.

During the course of the year, the CMP conducted annual briefings for 71 returning CMs to verify that they have the knowledge to effectively complete their job duties as well as a preseason, hake fishery briefing specifically for the 46 CMs likely to work in ports where hake is received. Each briefing included a review session and a discussion of any applicable changes to federal regulations and CMP protocol.

The CMP completed four trainings certifying a total of 40 new CMs who are also trained as at-sea observers. In addition, the program trained three dockside CMs at the request of CM providers. These individuals work only on shore and monitor deliveries primarily from vessels with Electronic Monitoring Systems. This brought the total of certified CMs for 2020 to 76.

For the 2020 fishing year, debriefings were conducted with each active CM. This safeguards data quality and the resolution of any problems that may not yet have been addressed regarding CM data quality, first receiver problems, or any other concerns that may have been encountered.

Program staff completed 54 debriefings during the calendar year for both CMs in the field and those leaving the program. As a result of pandemic-related constraints, all were conducted remotely.

Program staff completed a review of CM plans for 41 IFQ first receivers situated between Bellingham, WA and Morro Bay, CA. Site visits for 2020 were waived for those first receivers renewing permits due to the pandemic. Program staff completed virtual site visits for the four new applicants. During these site visits, Program staff worked with fish buyers on compliance with federal regulations, emphasizing that offload and safety procedures are clearly outlined in their CM plans. Once all requirements were fulfilled, CM plans were approved by the National Marine Fisheries Service (NMFS) where the annual IFQ First Receiver Site License is issued.

The CMP reviews CM and first receiver data as it enters the data system, searching for any anomalies between the data sets. Staff work with the CMs, first receivers, and NMFS to resolve data issues in a near real time setting as possible.

The IFQ CMP is comprised of two, full-time Pacific States Marine Fisheries Commission employees who work solely on this project.

Northern Pikeminnow Sport-Reward Program

The **Northern Pikeminnow Sport-Reward Program** is a joint effort between the fishery agencies of the states of Oregon and Washington and the Pacific States Marine Fisheries Commission (PSMFC). Funding for the program is contributed by the Bonneville Power Administration (BPA). The 2020 season marked the 30th consecutive year of the sport-reward fishery Program.

The Oregon Department of Fish and Wildlife (ODFW) provided fish tagging services, population studies, food habit and reproductive studies as well as exploitation rate estimates. The Washington Department of Fish and Wildlife (WDFW) operated the sport-reward registration/check-in stations throughout portions of the Columbia and Snake Rivers and handled all fish submitted by anglers. PSMFC administered fiscal and contractual oversight for all segments of the program and processed all reward vouchers for sport-reward anglers. Maintenance of the website is also managed by PSMFC. The 2020 season, initially scheduled to begin on May 1, 2020, ran from May 11 through September 30 (later extended to October 11) and could be characterized as an average harvest year.

2020 Highlights

- A season total of 102,935 fish were harvested in the sport-reward fishery.
- Vouchers for 101,442 fish of the 102,935 total catch were submitted for payment with rewards totaling $839,461.
- Rewards were paid at $5 for each of the first 25 fish caught by an angler during the season; $6 for each fish caught in the 26-200 range; and $8 for each fish caught by an angler above 200 fish.
- In an effort to boost exploitation and angler participation adversely affected by the COVID-19 pandemic, the season was later extended through October 11, and temporary angler incentives implemented; as of September 19, the reward for all non-tagged fish was increased to $10 per fish for the remainder of the season.
- A total of 882 registered anglers were successful in catching one or more fish in 2020. The top Pikeminnow angler for 2020 caught 5,579 fish and was paid $48,501 for his efforts.
- A total of 110 tagged fish were caught in 2020, all of which were submitted for payment.

Anglers were issued a special, tagged fish voucher for all tagged fish brought to a registration station. The tag voucher was then mailed, along with the tag, for verification by ODFW. A payment of $500 was issued for each tagged fish. A total of $57,000 was paid in 2020 for these tagged fish. A total of 156 tag-loss fish (fish that had been tagged, but shed the external mark before capture) were paid a bonus reward of $100. The total season tag-loss bonus was $15,600.

Systemwide exploitation of Northern Pikeminnow during the sport-reward fishery was 17.8% (95% confidence interval; 8.0–22.4%). The goal of an annual exploitation rate between 10-20% was achieved again this year. Using the model of Friesen and Ward (1999), it is estimated that 2021 predation levels will be 34% (range: 12–46%) lower than pre-program levels.

PSMFC staff continued with the maintenance and content development of the Northern Pikeminnow Sport-Reward Program website.This included regular updates of top-20-angler catch and payment numbers and the design of enhanced visual graphics.

The Public Information staff of both ODFW and WDFW increased their Northern Pikeminnow educational outreach in 2020. N2+ Creative also conducted a marketing campaign to educate prospective anglers. In addition to news releases and brochures, ads were featured on NBC Sports Northwest/Outdoor GPS LIVE and on Northwestern Outdoors Radio. The Program exhibited a booth at the annual Outdoor GPS Day at the Park.

Expanded use of print advertising media and ongoing participation in numerous outdoor trade shows throughout the Northwest contributed to maintaining catch and participation in the 2020 season. As in previous years, the Northern Pikeminnow Sport-Reward Program purchased promotional space in the annual ODFW and WDFW sport fishing regulations pamphlets to encourage angler involvement.

Pacific Fisheries Information Network

The **Pacific Fisheries Information Network (PacFIN)** provides timely and accurate data essential for effective fisheries management. The nation's first regional fisheries data network, PacFIN is a joint federal and state data collection and information management project. It is funded by a grant from the National Marine Fisheries Service (NMFS). Cooperative agency and industry partners supply data from commercial fisheries off the coasts of California, Oregon, Washington, and British Columbia. These statistics are recorded in the PacFIN central database that includes fish ticket (FT) and vessel registration data from state fishery agencies in California, Oregon, and Washington, and species composition and catch-by-area proportions from port sampling and trawl logbook data systems. NMFS supplies the central database with limited entry permit data from the National Oceanic and Atmospheric Administration (NOAA) West Coast Region (WCR) sustainable fisheries office and daily summaries for the West Coast at-sea fishery developed from tow-by-tow observations collected by the West Coast Groundfish Observer Program. The Network combines the collected information to dispense precise estimates of commercial catch and value for the West Coast. This regional data source allows state and federal fisheries agencies to manage regional fisheries and fishery resources more efficiently and facilitates research by industry, non-governmental organizations, and universities.

In 2020, PacFIN updated the central database with state and federal source data and responded to various requests for information. PacFIN reports were maintained on the Pacific States Marine Fisheries Commission (PSMFC) and PacFIN websites.

2020 Highlights

PACFIN USER SUPPORT

PacFIN staff worked with clients to establish new accounts, granted table access, and assisted with data retrievals from the PacFIN server. These personalized accounts allow authorized users access to web-based query tools.

DATABASE DEVELOPMENT

The design and implementation of a fixed gear logbook subsystem in PacFIN was completed in 2020, including a collaboration with the Oregon Department of Fish and Wildlife staff to fully incorporate the state agency source data into Oracle objects in the PacFIN database. Development of a comprehensive database table to facilitate direct user access is planned for 2021.

Seamless system integration was achieved with the Pacific Coast Groundfish Harvest Specifications and Management Measures Database (SPEX) and the Highly Migratory Species (HMS) data sets:

- In the SPEX system, each combination of Stock and Area is categorized using an Annual Catch Limit (ACL) code. (e.g., "SABL_N" is the ACL Code for Sablefish North of 36.) With the production roll out of SPEX, downstream analytical tools such as the Comprehensive FT and the Groundfish Management Team (GMT) Scorecard now include ACL codes as a simple reference attribute and as the basis for fishery management calculations.
- Detailed HMS annual reports have been labor intensive in the past. With the production deployment of the updated HMS database, trip identifiers are now linked to landing receipts in PacFIN, providing significant automation and efficiency when generating these reports.

HIGHLY MIGRATORY SPECIES DATA COLLECTION AND REPORTING

In collaboration with the NOAA WCR and Southwest Fisheries Science Center, PacFIN continued various projects in 2020 to modernize data structures and improve reporting and data collections systems for the HMS observer, the HMS logbook, and sampling databases. These databases contain data from multiple HMS fisheries: albacore troll, large-mesh drift gillnet, deep-set buoy, recreational, harpoon, and hook and line.

PRICE ESTIMATION INTERFACE APPLICATION

Development of a new application feature enabled data providers to view flagged price outliers and modify upper and lower limits in the algorithm if the flagged outliers are known to represent valid prices. A subsequent, 2020 enhancement permits data providers to view source fish tickets with questionable prices as the data is being loaded in PacFIN, allowing for more immediate validation and correction in the source database when necessary.

ISSUE TRACKING TOOL

The issue tracking system, developed in Jira, is back in operation following redevelopment. A shared web interface encourages users to report potential data issues and then monitors them toward resolution. PacFIN staff serve as "data wranglers," assigning issues to source agency "data stewards" for review, assessment, and action when warranted. This tool has proven effective in expediting the resolution of suspected data errors.

APEX REPORTING SYSTEM

The APEX reporting system on the PacFIN website has continued its expansion of both public and password protected confidential reports designed for various applications: federal Office of Law Enforcement vessel and port summary landings; regional fishery management organizations' active vessel and permit monitoring reports; HMS landings, permits and logbook compliance reports; Coastal Pelagic Species landings data; economic and social sciences reports derived from the U.S. Census Bureau's American Communities Survey; Individual Fishing Quota Subsector Reports; and PacFIN code list reports.

PACFIN QUERYBUILDER APPLICATION DEVELOPMENT

PacFIN developers completed the phase two version of the web based QueryBuilder application. The QueryBuilder app, developed in APEX, allows users to create customized queries from three comprehensive datasets (also known as subject areas): state FT landings data (comprehensive_ft), federal at-sea whiting fishery landings data (comprehensive_npac), and state biological samples data (comprehensive_bds_comm). The results of the customized queries can be readily downloaded. The queries can also be saved and edited for later use. A controlled operator group was selected for testing, as with the initial version of QueryBuilder. QueryBuilder v2 is now available to all users with previous QueryBuilder access.

PACFIN ANSWERS TOOL DEVELOPMENT

Oracle business intelligence software, Oracle Answers, assisted query development in the PacFIN database. Various user-specific queries and customized user dashboards were built to generate specialized reports and data sets on demand.

GROUNDFISH MANAGEMENT TEAM SCORECARDS

The ongoing evolution of the Pacific Fishery Management Council (PFMC) Fisheries Management Plan (FMP) Groundfish Species Inseason Management Scorecard report, utilizing APEX software, continued. The Scorecard was developed to provide the "best estimate" of total mortality of groundfish stock species and stock complexes for all commercial, tribal, and marine recreational fisheries on the west coast within the management jurisdiction of PFMC. The estimates contain the most recent data available to PacFIN and RecFIN for in-season tracking. Data sources include: state FTs from PacFIN's Comprehensive FT table; PSMFC's electronic FTs system (E-Tix); PacFIN's comprehensive NORPAC table (at-sea whiting observer data); the West Coast Groundfish Observer Program's total annual discard estimates; GMT Nearshore Fixed Gear Discard Estimates; state recreational catch estimates from RecFIN's Comprehensive Recreational Catch Estimates table; and SPEX. There are currently two versions of the new scorecard: a confidential version for the Council's GMT, and a non-confidential version that is available for public use.

PACIFIC COAST GROUNDFISH HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES DATABASE DEVELOPMENT

The SPEX, or Specifications application, was developed by PacFIN for past PFMC/

GMT planning and has been instrumental for 2021-2022 biennium preparations. GMT members enter data into the system to generate a suite of alternatives, producing final groundfish harvest specifications and management measures. Public reports of updated SPEX data are accessible through the PacFIN Reporting Portal.

PACFIN WORKGROUPS

- HMS: To support APEX report development
- HMS logbook and observer database redevelopment; other varied, cooperative efforts
- GMT planning and implementation of in-season reporting protocols, scorecard applications, and SPEX application development
- PacFIN Data Management coordination: data collection, delivery, and validation operations between PacFIN and all data sources

REPORT FROM GROUNDFISH CATCH MONITORING AND DATA SYSTEMS IN CALIFORNIA

The program monitors California commercial groundfish data for effective fisheries management. Fisheries technicians sampled commercial groundfish landings to determine species compositions of landings and collected biological data on size, sex, and reproductive condition of those species. The data were then entered into a statewide groundfish sampling program database. Technicians also inputted groundfish trawl logs information into the PSMFC eLogbook system. The data analyst and managers generate monthly and annual estimates of species, age, length, and sex composition from the statewide groundfish sampling program and submit the data to PacFIN. Considerable effort must be expended to satisfy in-season and between-season Groundfish FMP management limitations.

MEETING AND SEMINARS

The 2020 PacFIN Annual Meeting hosted by PSMFC was conducted entirely online for the first time in its 40-year history. The two-day format, held October 28-29, welcomed an expanded participation group that selectively attended sessions.

Internal PacFIN meetings continued weekly. Web conferencing workgroups with PacFIN partners were held as required. Various conferences, trainings, and collaborative meetings across agencies were attended by individual PacFIN personnel.

Recreational Fisheries Information Network

The **Recreational Fisheries Information Network/Program (RecFIN)** is a cooperative program designed to support the collection, integration, management, and reporting of marine recreational fisheries data and information of the Pacific Coast region. RecFIN works collaboratively with the California Department of Fish and Wildlife (CDFW), the Oregon Department of Fish and Wildlife (ODFW), the Washington Department of Fish and Wildlife (WDFW), the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the Pacific Fishery Management Council (PFMC) to provide important recreational catch/effort estimates and sample data for effective fisheries analysis and state and federal efforts. The program is funded by NOAA Fisheries. RecFIN funds are used for internal database management at Pacific States Marine Fisheries Commission (PSMFC) and distributed through PSMFC to its member states for data collection and processing.

RecFIN performs a critical role in recreational fisheries data management and functions as an intermediary network for regional fisheries management. California, Oregon, and Washington recreational sampling programs each employ different survey designs, estimation methods, and data management practices. RecFIN is responsible for consolidating and integrating these disparate data sets into a single, comprehensive data management system that serves as the central repository for Pacific Coast marine recreational fishery data. Additionally, RecFIN processes these diverse data into usable information, produces value-added analyses and interpretation, and provides accessible, online reporting tools for fishery managers, analysts, stock assessors, economists, researchers, and the public

The RecFIN database contains recreational fishery data from 1967 through the present collected by state data sampling programs: the California Recreational Fisheries Survey, the Oregon At-Sea Recreational Groundfish Sampling Program, the Oregon Ocean Recreational Boat Survey, the Oregon Shore and Estuary Boat Survey (currently inactive due to funding), the Washington Ocean Sampling Program, and the Washington Puget Sound Sampling Program (PSSP). These programs are partially funded by NOAA Fisheries in conjunction with state agency resources. The surveys are conducted at nearly 800 fishing access points coastwide: approximately 57% are in California, 10% in Oregon, and 33% in Washington.

2020 Highlights

In 2020, California, Oregon, and Washington sampling program personnel intercepted more than 238,000 anglers, and over 625,000 individual specimens were examined. Approximately 23,000 biological samples were collected coastwide, (historically lower than average due to COVID restrictions). Estimates of total catch revealed that over 4.9 million individual fish and invertebrates from 217 different species were retained by anglers.

PSMFC staff continued to improve and develop the RecFIN database and the online reporting system. With the cooperation of state and federal partners, several new reports, tools, and metadata products were added to the RecFIN APEX reporting system, and a number of new data sources were integrated into the existing database structure.

DATA IMPUT/OUTPUT

Throughout 2020, CDFW, ODFW, WDFW, and the Sportfishing Association of California routinely submitted data to RecFIN. These data feeds have been updated in the RecFIN database tables and in the APEX reporting system.

USER SUPPORT

RecFIN personnel worked with clients to establish user accounts, grant table access, and to assist with data retrievals from the RecFIN database server environment. Personalized accounts allow authorized users access to confidential data with web-based query tools.

QUERYBUILDER V2 APPLICATION

The advancement of QueryBuilder version 2 continues. The Querybuilder tool is a dynamic, web-based application built in Oracle APEX that enables users to generate and save customized

queries from the RecFIN and PacFIN database comprehensive tables. Development has been guided by data user suggestions to create more advanced features, improving functionality and usability. The enhanced tool was moved to production at the end of 2020.

WDFW HISTORIC CATCH AND EFFORT ESTIMATES

WDFW-generated catch (1967-2003) and effort (angler trips, boat trips) (1990-2003) estimates were loaded into the RecFIN database. New reports have been created in the APEX reporting system to access this information. These reports are currently under review by WDFW and will be moved to production once approved.

CATCH-WEIGHTED LENGTH COMPOSITION REPORT

In coordination with personnel from the NOAA Southwest Fisheries Science Center (SWFSC) and WDFW, RecFIN is presently developing a report to join length frequency data from biological samples to recreational catch estimates to generate weighted estimates of length composition.

WDFW PUGET SOUND DATA

PSSP has recently supplied RecFIN with catch and effort estimate data (2003-2019). RecFIN is coordinating with WDFW to load the data into the RecFIN database, document metadata, and to prepare reporting products for RecFIN end users.

FISH IDENTIFICATION MOBILE APPLICATION

RecFIN and WDFW continue to collaborate on a fish identification mobile application for West Coast groundfish species. The application will display high quality reference images from the RecFIN marine rockfish species image library along with a dichotomous key to help anglers identify their fish. A final version is expected to be available by the end of 2021. A future objective of the project will be an expansion of the application to utilize machine learning to identify species from angler-provided fish images.

HIGHLY MIGRATORY SPECIES (HMS) SAFE APEX REPORTS

RecFIN, together with the PFMC Highly Migratory Species Management Team (HMSMT), is designing APEX report versions of the existing HMS stock assessment and fishery evaluation reports (SAFE) for Oregon and Washington recreational albacore catch, effort, and catch per unit effort. The reports will automatically generate the HMS SAFE recreational tables in the RecFIN APEX reporting system to facilitate analysis of albacore catch and effort data.

MODEL-BASED ESTIMATION OF AVERAGE WEIGHTS

Personnel from National Marine Fisheries Service/SWFSC, WDFW, and PSMFC recently collaborated and published a paper in the journal Fisheries Research, *Model-Based Estimation of Average Fish Weights from Recreational Fisheries*. The study developed a modeling approach to estimate average weights which outperformed the current borrowing algorithm methodology. RecFIN and WDFW intend to use this method to generate average weights for Washington data and will potentially apply a similar strategy for California and Oregon.

Education of marine recreational anglers was again a priority for fishery managers in 2020, with the focus on increasing use of barotrauma reduction devices and improving angler identification of harvested rockfish. Through funding provided by several NOAA grants, PSMFC staff joined with state and federal managers and private fishing organizations to develop and distribute a number of education and outreach materials to Pacific Coast anglers. Over 6,500 laminated rockfish identification sheets and nearly 450 descending devices were made available to anglers throughout the Pacific Coast and Alaska.

Regional Mark Processing Center

The **Regional Mark Processing Center (RMPC)** serves federal, state, tribal, and private fisheries agencies on the Pacific Coast by processing and exchanging coded wire tag (CWT) release, recovery, and associated catch sample information. RMPC adopts new data formats and implements software, hardware, and personnel enhancements to meet evolving CWT informational needs by the Pacific Salmon Commission (PSC) and other agencies in support of the Pacific Salmon Treaty (PST). In addition, RMPC has the responsibility of serving as the sole U.S. database to exchange CWT information with Canada in PSC format on a regular basis. RMPC maintains the Regional Mark Information System (RMIS) database and coordinates the acquisition and validation of these data from the various agencies. Funding is provided by the U.S. Fish and Wildlife Service (USFWS), the Bonneville Power Administration (BPA) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries. Over 60 million coded wire-tagged fish are now released coastwide every year, primarily from publicly funded fish hatcheries, with approximately 1,200 different tag codes.

DATABASE SOFTWARE CHANGE

2020 was the fifth year of using PostgreSQL open source database software for operating the RMIS. The software was updated, and the new system is functioning flawlessly. The change has also decreased costs and increased available disk space on the PSMFC virtual servers.

DATA VALIDATION

CWT data load programs were upgraded to perform more rigorous cross-table checks of tag releases in format version 4.1 when validating newly submitted tag recovery data sets. This is an ongoing project as data uploading errors are identified and corrected. The staff continues to work closely with agencies to implement improved validation of new data before it is merged with RMIS and to correct historical data already within the database.

DATA INTEGRITY

Maintaining data integrity is an important aspect of sustaining large databases, and considerable time was spent working with the data reporting agencies to resolve various inconsistencies found in CWT data sets. While the number of errors was relatively small, significant effort was required to resolve the causes of the errors and correct them. Also, substantial time was placed into inserting Geographic Information System (GIS) coordinates (latitudes and longitudes) for release and recovery locations. This provides the ability to map the data for U.S. and Canadian locations.

MISSING RECOVERY DATA

Missing tag recovery data for certain areas have been identified. RMPC continues to work closely with the responsible agencies to coordinate the filling of those data gaps.

GEOGRAPHIC INFORMATION SYSTEMS MAPPING OF RELEASE AND RECOVERY LOCATIONS

The mapping tool for viewing maps of specific CWT codes as points displaying hatchery, release location, and subsequent recovery locations was updated and enhanced for use in PostgreSQL. This is available for release queries in RMIS. Latitude/longitude of all release and recovery locations for the U.S., using GIS mapping tools, have been entered in the database. The Canadian release and recovery locations were included in 2018 and have also been incorporated into the mapping database. This is an ongoing project to enhance the plotting of CWT release and recovery locations. Updates to the mapping locations are made as needed when new locations are identified and as agencies report corrections. Region and basin maps.

ANNUAL MEETING OF THE REGIONAL COMMITTEE ON MARKING AND TAGGING

The 2020 Mark Meeting was canceled due to Covid-19 restrictions on travel and in-person meetings.

REGIONAL COORDINATION

RMPC staff participated in PSC committees and in regional science and management teams to assist with coordinating CWT activities, also providing CWT data. Under a contract with the Lower Snake River Compensation Plan, RMPC continues to work closely with the Idaho Department of Fish and Game. PSMFC contributes staff assistance for their hatchery data. RMPC also collaborates with ODFW and WDFW to implement the CWT recovery program in sampling sport, commercial, and tribal fisheries for salmon and steelhead carrying tags under a BPA-funded contract. (*Figure 5*) The recovered tags are read and decoded, then the information is added to the RMIS database for use by fish management agencies to make science-based decisions regarding populations of salmon and steelhead in the region. In addition, PSMFC staff aided regional research biologists in acquiring CWT data required for a variety of projects.

CODED WIRE TAG DATA

Work continued full time on expediting the processing of new data sets (CWT releases, recoveries, catch/sample, etc.) as they were supplied by the various reporting agencies.

Number of new data rows in RMIS database tables added during calendar year 2020:

Releases:	2,267 rows
Recoveries:	216,599 rows
Catch/Sample:	9,157 rows
Locations:	177 rows

Use of the RMIS database remains strong in the fisheries community. Six hundred and four different people logged-in to RMIS in 2020. Many logged-in multiple times, with 405 users logging-in more than once, and 115 people accessing it ten or more times over the year. One power user has logged-in 1,656 times since registering on the RMIS site and logged-in 405 times in 2020. Overall use was down slightly this year, but utilization continues to be robust with daily logins and data queries.

SPECIALIZED DATA REQUESTS

Throughout the year, specialized requests were received and processed for all CWT recoveries for specific sets of tag codes. These “brood reports” summarized tag recoveries across all fisheries, agencies, and recovery years. In addition, numerous data users were assisted in retrieving “raw” recovery records. These data subsets were then processed by the respective data users in a variety of ways to build their own in-house PC databases and to generate customized reports, etc.

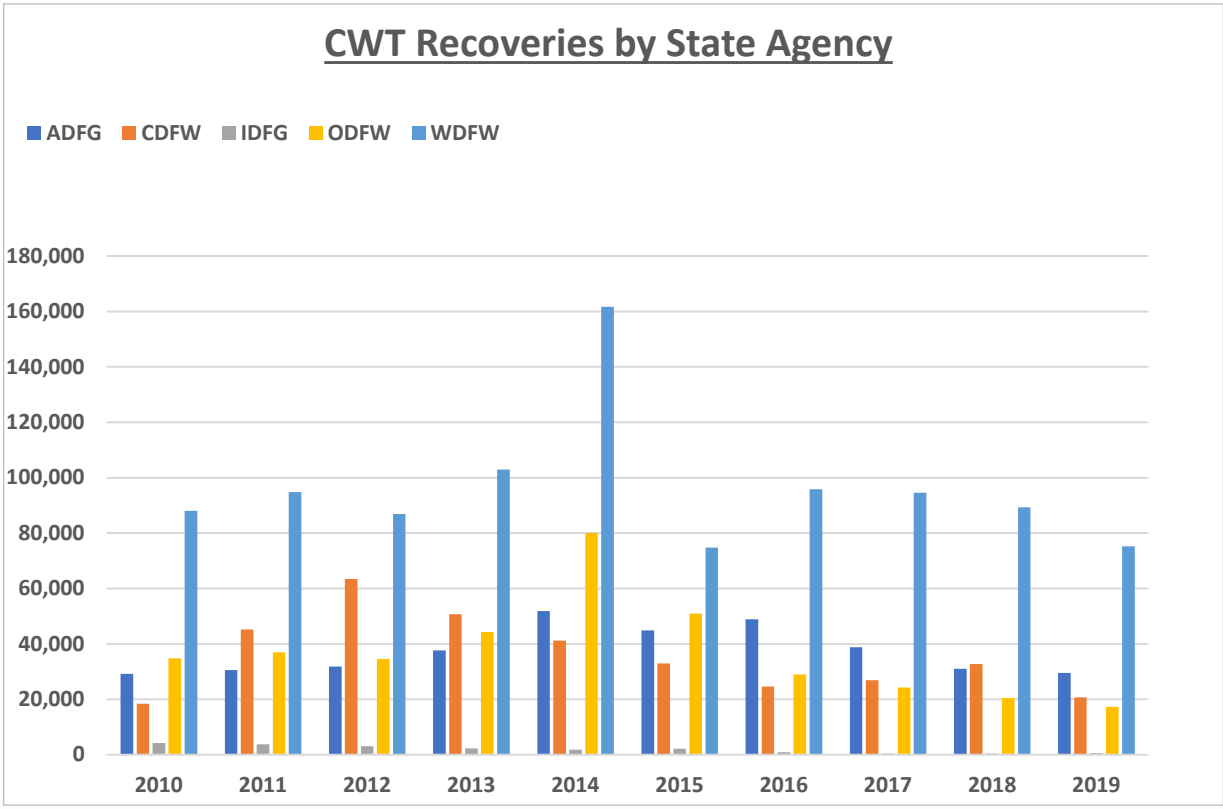


Figure 5. Coded wire tag recoveries by state agency

StreamNet

StreamNet is a collaborative program that provides access to regionally coordinated and readily obtainable fish-related data from tribal, state, and federal fish agencies. These data inform assessments and reporting needs of the Bonneville Power Administration (BPA), the National Marine Fisheries Service (NMFS), and the Northwest Power and Conservation Council (NPCC). StreamNet also serves as a repository for non-standardized information for BPA, NPCC, Hatchery Reform Project-Hatchery Scientific Review Group, and others. To advance the quality, management, and exchange of monitoring data, StreamNet supports individual data providers and co-leads a number of regional initiatives to facilitate data management.

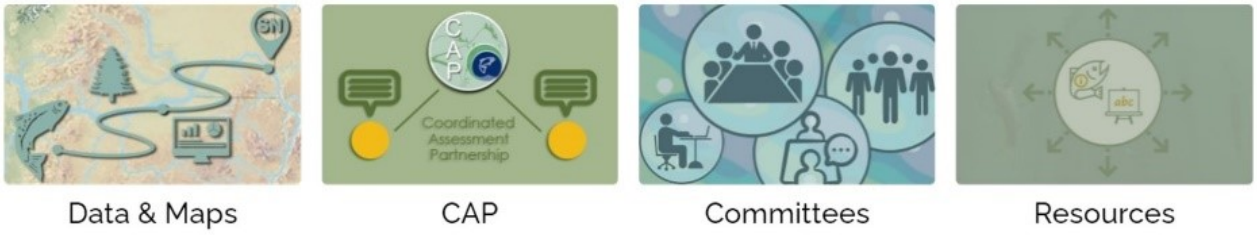
Approximately 77% of StreamNet's 2020 BPA budget partially financed 15 data-related technical employees within some of StreamNet members' organizations: Confederated Tribes of the Colville Tribes (Colville Tribes), Idaho Department of Fish and Game (IDFG), Montana Fish, Wildlife & Parks (MFWP), Oregon Department of Fish & Wildlife (ODFW), and Washington Department of Fish & Wildlife (WDFW). Support of these technical staff, nearly equivalent to 7.5 full-time employees, is critical for effective data flow to StreamNet.

2020 Highlights

The StreamNet PSMFC team and the StreamNet-supported technical staff expanded the CAP Fish HLI data categories and geographic scope, improved data accessibility, and increased awareness of the StreamNet Program.

StreamNet
Fish Data for the Northwest

StreamNet is a cooperative information management and data dissemination project focused on fisheries and aquatic related data and data related services in the Columbia River Basin and the Pacific Northwest.



Data & Maps | CAP | Committees | Resources

STREAMNET PSMFC TEAM AND TECHNICAL STAFF

StreamNet's PSMFC team consists of three, full-time staff at PSMFC's headquarters in Portland, OR: the StreamNet Program Manager, the StreamNet Fishery Biologist/DBA, and the StreamNet Programmer. They are assisted by PSMFC Geographic Information System (GIS) personnel. The majority of staff funding comes from BPA, with additional subsidization secured from the Interjurisdictional Fisheries Act (IJFA), NMFS, and the Environmental Protection Agency's (EPA) Exchange Network grants for specific tasks.

Coordinated Assessments Partnership (CAP) Hatchery Coordinated Assessments Exchange (HCAX)

In 2020, the CAP HCAX proposal was funded by a 2020 EPA Exchange Network Grant. The proposal, developed by StreamNet, Pacific Northwest Aquatic Monitoring Partnership (PNAMP), WDFW, and the Colville Tribes, was submitted by the Washington Recreation and Conservation Office and the Governor's Salmon Recovery Office. In 2021, work with CAP partners will begin to identify hatchery stock HLIs to be exchanged between partners and the CAP Fish HLI system.

CAP Outreach

IJFA's funding enabled the StreamNet Program Manager and the PNAMP Coordinator, who serve as the CAP co-leads, to conduct outreach with Puget Sound salmon and steelhead biologists for assessment of CAP participation interest and any potential obstacles. The IJFA financial support also enhanced StreamNet tools and added additional populations to the CAP Fish HLI CAX system during 2020.

CAP Newsletter

The StreamNet Executive Committee approved the launch of a biannual CAP newsletter in 2020 to improve communication on CAP updates and activities.

Fish Monitoring Data (Trends) Query Tool

A new version of this tool was released in 2020, incorporating input from users to improve locating and referencing specific data by adding new data filter options and query specific URLs that facilitate data set citation and sharing.

StreamNet-Supported Technical Staff

Increased access and efficiencies of data management and exchange within their organizations and applied StreamNet's data standards for improved data exchange between their systems and StreamNet.

- The Colville Tribes augmented the efficacy and quality of their juvenile salmon calculation estimates submitted to the CAP Fish HLI CAX by developing new software for this task.
- IDFG simplified the standardization and the speed of data submission to StreamNet databases by successfully achieving the upload of data directly from their system in a single step, saving significant time.
- MFWP converted data files residing with individual biologists to file types that can be uploaded into the centralized database, reducing time spent hand-entering historic data.
- ODFW created the Coordinated Assessments Validation, Evaluation and Submission (CAVES) web application that allows data to be entered directly into the ODFW SQL server database and automates the processes for validation and submission to the StreamNet API for the CAP Fish HLI CAX system.
- WDFW worked with agency headquarters staff to implement mobile data collection platforms, staging databases, and automated transfer mechanisms for sport and commercial, adult survey, and juvenile data systems that inform the CAP Fish HLI.

Emerging Technology Information Sessions (ETIS)

StreamNet and PNAMP co-organized the virtual ETIS from October 2020 through February 2021. The ETIS included guest speakers discussing emerging monitoring technologies and data management topics. Each webinar hosted between 30 to over 100 attendees from across the U.S. and is available on YouTube.

PRODUCTS INFORMING REGIONAL PARTNERS' ASSESSMENTS AND REPORTING

StreamNet's two standardized data systems, CAP Fish HLI and Fish Monitoring Data, informs BPA, NPCC, and NMFS regional assessments and reporting.

- NMFS utilized data from CAP Fish HLI for its 5-Year Status Review, with approximately 95% of Columbia River Basin data and metadata used by NMFS submitted by co-managers to the CAP Fish HLI CAX system. Efforts to expand the data in CAP Fish HLI are ongoing.
- BPA accessed data from CAP Fish HLI to inform its Federal Columbia River Power System Biological Opinion reports and its One Fish Two Fish tool. The StreamNet Data Store also supports BPA's secure data repository initiative.
- NPCC's Program Tracker consumed data from the Fish Monitoring Data, connecting in real time to CAP Fish HLI. StreamNet also maintains access to NPCC's Wildlife Habitat Evaluation Procedures, Subbasin Plans and Data, and Protected Areas.

The StreamNet website, GIS data, and Data Store serve regional partners in addition to the needs of universities, city governments, and others who use StreamNet data and maps.

DATA STATUS AND USER SUMMARIES

A high-level summary of data accessible through CAP Fish HLI, Fish Monitoring Data, and Data Store queries, as well as a summary of GIS and query usage, is provided in *Figure 6*.

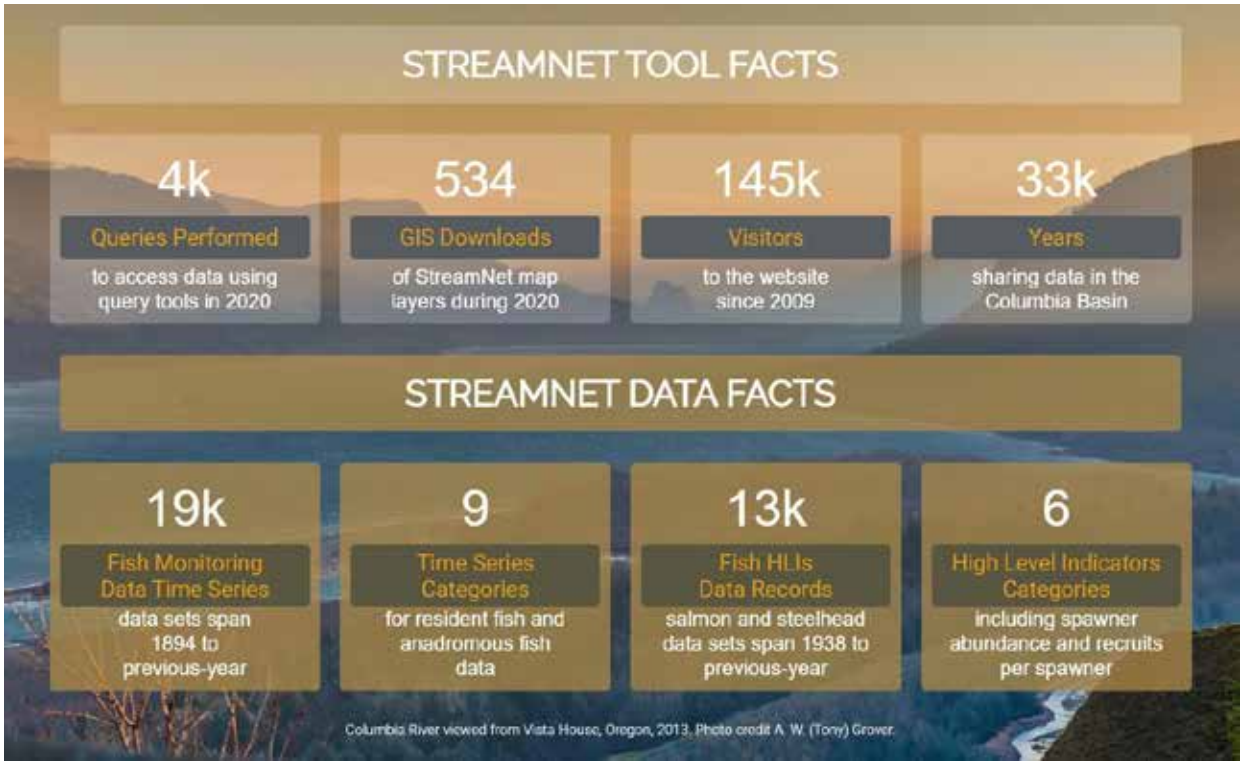


Figure 6. StreamNet display

West Coast Groundfish Observer Program

During 2020, the **West Coast Groundfish Observer Program (WCGOP)** continued to collect data for West Coast groundfish fisheries management in collaboration with the National Oceanic Atmospheric Administration (NOAA) Fisheries. This was the 19th year that the Program has deployed observers for various West Coast groundfish fisheries. The Program remains adaptable in anticipation of revised data and scientific requirements for West Coast groundfish and other protected species. Observers compile technical, management, and other data through measurements of selected portions of catch and fishing gear; onboard interviews with vessel captains and crew; observations of fishing operations; and collection of biological samples. Additional statistics pertaining to protected species and species of concern (seabirds, marine mammals, sea turtles) are also documented.

Pacific States Marine Fisheries Commission (PSMFC) partnered with NOAA Fisheries to administer four, three-week trainings to instruct observers for field data collection. A total of 40 new observers were trained: 23 for the catch share fisheries (not including the at-sea hake fisheries) and 17 for the Non-Catch Share fisheries (NCS). Eighty-eight experienced observers were briefed for reassignment: 61 for the catch share fisheries and 27 for the NCS fisheries. The At-Sea Hake Observer Program (ASHOP) catcher/processors and motherships component conducted four trainings that prepared 53 observers for deployment. The majority of catch share observers are also trained to serve as catch monitors through PSMFC's Catch Monitor Program (CMP) that provides dockside monitoring of catch share trip offloads. Observer-collected discard data for the catch share fishery is combined with CMP's landing data in NOAA Fisheries vessel account system.

2020 Highlights

- PSMFC debriefers assured data quality through review of observer records and periodic in-person meetings with observers during the year.
- NCS observer efforts were organized by a PSMFC field coordinator who managed observer resources and coverage goals established for each fishery.
- PSMFC procured the gear, computers, and software used by the observers to complete sampling activities and data and report activities within the NOAA observer database.
- PSMFC, in conjunction with NOAA Fisheries, finalized the development of an electronic data collection system. This software enabled on-deck tablet use for fishing activities (gear deployment and retrieval, tow and set durations, etc.) and catch data collection, improving the Program with enhanced data quality, more efficient data compilation and finalization, and elimination of transcription errors during data entry.
- WCGOP observers spent 2,939 days at sea: 1,860 in the catch share fisheries (excluding hake and Exempted Fishing Permit [EFP] trips); 85 days on at-sea hake vessels; 73 in the shoreside hake fishery; 49 on various EFP trips; 329 on Limited Entry trips; and 701 on open access vessels.
- ASHOP's observers spent 1,600 sea days (two employees per vessel) on catcher/processors and motherships.

COVID-19 presented additional hurdles to safely deploying observers. Despite a brief, two-week stand-down of deployments, WCGOP was operational throughout 2020. Additional COVID-19 risk mitigation protocols reduced the number of deployments, but all data collection needs were met.

PSMFC employed ten, full-time staff (eight at WCGOP; two at ASHOP): debriefers, coordinators, a gear technician, a data analyst, and a program manager.

PACIFIC STATES MARINE FISHERIES COMMISSION

FINANCIAL STATEMENTS AND SUPPLEMENTARY INFORMATION

YEAR ENDED JUNE 30, 2020

PACIFIC STATES MARINE FISHERIES COMMISSION
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YEAR ENDED JUNE 30, 2020

PACIFIC STATES MARINE FISHERIES COMMISSION
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INDEPENDENT AUDITORS' REPORT

Board of Commissioners
Pacific States Marine Fisheries Commission
Portland, Oregon

Report on the Financial Statements

We have audited the accompanying financial statements of the commission-wide governmental activities, each major fund, and the aggregate remaining fund information of Pacific States Marine Fisheries Commission, as of and for the year ended June 30, 2020, and the related notes to the financial statements, which collectively comprise the entity's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the commission-wide governmental activities, each major governmental fund, and the aggregate remaining fund information of Pacific States Marine Fisheries Commission as of June 30, 2020, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 5 through 9 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Pacific States Marine Fisheries Commission's basic financial statements. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, and is not a required part of the basic financial statements.

The schedule of expenditures of federal awards is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated October 30, 2020, on our consideration of Pacific States Marine Fisheries Commission's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Pacific States Marine Fisheries Commission's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Pacific States Marine Fisheries Commission's internal control over financial reporting and compliance.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Bellevue, Washington
October 30, 2020

PACIFIC STATES MARINE FISHERIES COMMISSION
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED JUNE 30, 2020

This discussion and analysis of the Pacific States Marine Fisheries Commission's (the Commission) financial performance provides an overview of the Commission's financial activities for the year ended June 30, 2020. Please read it in conjunction with the accompanying basic financial statements and notes to the financial statements.

Overview of the Financial Statements

This discussion and analysis is an introduction to the Commission's basic financial statements, which comprise three components: 1) Commission-wide financial statements, 2) governmental fund financial statements, and 3) notes to the basic financial statements. This report also contains other supplementary information in addition to the basic financial statements.

Commission-Wide Financial Statements (Reporting the Commission as a Whole)

The Commission-wide financial statements are designed to be similar to private sector businesses in that all Commission activities are consolidated. These statements combine fund financial resources with capital assets and long-term obligations.

The statement of net position presents information on all the Commission's assets and liabilities, with the difference between the two reported as net position. Over time, changes in net position may serve as a useful indicator of whether the financial position of the Commission is improving or deteriorating. Assets and liabilities are generally measured using current values. One notable exception is capital assets, which are stated at historical cost less an allowance for depreciation.

The statement of activities and change in net position presents information showing how the Commission's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying events giving rise to the change occur, regardless of when cash is received or paid.

This report also includes two schedules that reconcile the amounts reported in the governmental fund financial statements (modified accrual accounting) with activities on the Commission-wide statements (accrual accounting).

The following summarizes the impact of transitioning from modified accrual-to-accrual accounting:

- Capital assets used in Commission activities are not reported on governmental fund statements.
- Unless due and payable, long-term liabilities such as capital lease obligations, notes payable, and others, only appear as liabilities in the Commission-wide statements.
- Capital outlay spending results in capital assets on the Commission-wide statements and are depreciated over their estimated useful lives, but are reported as expenditures on the governmental fund statements.
- Repayment of debt principal decreases liabilities on the Commission-wide statements, but is reported as an expenditure on the governmental fund statements.
- Gains and losses from disposal of capital assets are reported on the Commission-wide statements, but the total proceeds from such disposals are reported as other financing sources on the governmental fund statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED JUNE 30, 2020

Overview of the Financial Statements (Continued)

Fund Financial Statements (Reporting the Commission's Major Funds)

The fund financial statements provide information about the major individual funds. A fund is a fiscal and accounting entity with a self-balancing set of accounts that the Commission uses to keep track of specific sources of funding and spending for a particular purpose.

The Commission's basic services are reported in the funds, which focus on how money flows into and out of those funds and the balances left at year-end that are available for future spending. The fund financial statements provide a short-term view of the Commission's general operations and the basic services it provides. Fund information helps determine whether there are more or fewer financial resources that can be spent in the near future to finance the Commission's programs.

The Commission's funds include the General, Grants and Contracts, and Proprietary funds. The General and Grants and Contracts funds are reported using modified accrual accounting, which measures cash and all other financial assets that can readily be converted to cash.

Notes to the Basic Financial Statements

The notes provide additional information that is essential to a full understanding of the data provided in the Commission-wide and fund financial statements. The notes to the financial statements are a required part of the basic financial statements.

Commission-Wide Condensed Financial Information

The following table reflects the condensed statement of net position at June 30:

	2020	2019
ASSETS		
Other Assets	$ 18,089,115	$ 21,691,238
Capital Assets	1,712,245	1,948,785
Total Assets	$ 19,801,360	$ 23,640,023
LIABILITIES		
Current Liabilities	$ 6,241,103	$ 10,285,285
Long-Term Liabilities	2,508,001	2,165,530
Total Liabilities	8,749,104	12,450,815
NET POSITION		
Invested in Capital Assets, Net of Related Debt	1,577,273	1,948,785
Unrestricted	9,474,983	9,240,423
Total Net Position	11,052,256	11,189,208
Total Liabilities and Net Position	$ 19,801,360	$ 23,640,023

The Commission's net position, referred to as unrestricted, may be used to meet the ongoing obligations of the Commission. The remaining net position reflects investment in capital assets used to provide services to programs; consequently, these assets are not available for future spending.

PACIFIC STATES MARINE FISHERIES COMMISSION
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED JUNE 30, 2020

Commission-Wide Condensed Financial Information (Continued)

The decrease in other assets is primarily due to decreased grant receivables. At June 30, 2019, there was a significant receivable related to a fishery disaster relief program awarded near year-end. At June 30, 2020, significant receivables related to additional fishery disaster relief programs funded by the National Oceanic and Atmospheric Administration, and CARES Act relief funds were accrued shortly after year-end.

The decrease in current liabilities is primarily due to a decrease in accounts payable, which is also attributed to the previous fiscal year-end liability related to fishery disaster relief not present in the current fiscal year-end, with new disaster relief funds accrued and paid in fiscal year 2021.

The following condensed financial information was derived from the Commission-wide statement of activities and change in net position and reflects how the Commission's net position changed during the fiscal year.

	2020	2019
REVENUE		
Grants and Contracts	$ 119,600,609	$ 88,943,949
General Revenue	166,392	159,455
Total Revenue	119,767,001	89,103,404
EXPENSES		
Fisheries Related Programs	119,898,957	89,181,346
Other Expenses	4,996	48
Total Expenses	119,903,953	89,181,394
CHANGE IN NET POSITION	(136,952)	(77,990)
Net Position - Beginning of Year	11,189,208	11,267,198
NET POSITION - END OF YEAR	$ 11,052,256	$ 11,189,208

The net position decreased by $136,952 during the current fiscal year in comparison with a decrease in the prior year of $77,990.

The difference in net position is primarily due to additional costs related to materials and services. Capital outlays for 2020 and 2019 were $470,427 and $471,232, respectively. While these are treated as program expenditures on the governmental funds statements, the Commission-wide statements require depreciation over their estimated useful lives. Accordingly, capital outlays are being depreciated over a period of 5 years and depreciation will increase expenditures in subsequent accounting periods on the Commission-wide statements.

A significant factor in the increase of revenues and related expenditures was a new disaster relief program funded by the National Oceanic and Atmospheric Administration. Associated receipts and expenditures during 2020 were approximately $31,800,000 higher than the prior year and are expected to continue in future accounting periods.

PACIFIC STATES MARINE FISHERIES COMMISSION
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED JUNE 30, 2020

Financial Analysis of the Commission's Funds

General Fund and Grants and Contracts Fund

The focus of the Commission's funds is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the Commission's financing requirements. In particular, the unrestricted fund balance may serve as a useful measure of the Commission's net resources available for spending at the end of the fiscal year.

As the Commission completed the year, its general fund reported an unrestricted fund balance of $9,474,983 as of June 30, 2020. This amount constitutes the unreserved fund balance, which is available for appropriation for the general purposes of the fund. The excess revenues of the special revenue fund (grants and contracts) are transferred to the general fund at the end of the year resulting in a zero fund balance at the end of the year. The Commission has no legal requirement for a budget, though budget estimates are prepared for the general fund. Certain contracts and grants have budget requirements, which must be monitored; however, these budgets are not program wide. Accordingly, budgetary information has not been included in the basic financial statements.

Proprietary Fund

The proprietary fund reported a cash balance at June 30, 2020, of $2,701,693 for future payouts of vacation and sick leave liabilities to employees upon termination or retirement. During the fiscal year ended June 30, 2020, the cash balance increased by $264,130; $190,687 from increased accrued vacation leave in addition to $73,443 from increased accrued sick leave.

Capital Assets and Long-Term Debt

Capital Assets

The Commission's investment in capital assets, net of accumulated depreciation, amounted to $1,712,245 and includes a broad range of assets (see the table below). Depreciation charges for this fiscal year totaled $693,943.

	2020	2019
Computers	$ 454,860	$ 666,822
Furniture and Office Equipment	16,165	21,129
Leasehold Improvements	5,657	12,430
Field and Scientific Equipment	1,007,423	1,114,757
Truck/Boat	228,140	133,647
Total	$ 1,712,245	$ 1,948,785

The additions to capital assets totaled $470,427 for the year ended June 30, 2020. There are no planned future acquisitions of any significance.

Long-Term Debt

The Commission has encountered no problems in obtaining financing as needed. During the fiscal year 2020, the Commission entered into four new capital leases in the amount of $154,643, for the purchase of trucks and boats. See footnote 4 for additional information

PACIFIC STATES MARINE FISHERIES COMMISSION
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED JUNE 30, 2020

Economic Expectations

The Commission receives the majority of its revenue from the administration of federal and state contracts and grants related to fisheries resources management. Funding has been stable and the Commission has not been notified of any significant decreases to future funding levels.

The National Oceanic and Atmospheric Administration (NOAA) has reached out to the Commission to administer $18,919,062 of funds allocated for disasters that affected the West Coast and Native American Tribes from 2013 to 2017. The Commission is working with states and tribes to finalize spending plans for these disaster funds. The Commission has been awarded CARES Act Funding in the amount of $143,215,349 to be expended in the next two fiscal years.

During the fiscal year, the World Health Organization declared the spread of Coronavirus Disease (COVID-19) a worldwide pandemic. Subsequent to year-end, the COVID-19 pandemic continues to have significant effects on global markets, supply chains, businesses, and communities. Management believes the Commission is taking appropriate actions to mitigate the negative impact. However, the full impact of COVID-19 is unknown and cannot be reasonably estimated as these events are still developing.

Requests for Information

This financial report is designed to provide a general overview of the Pacific States Marine Fisheries Commission's finances for all those with an interest in the Commission's finances. Questions concerning any of the information provided in this report or requests for additional information should be addressed to the Department of Finance, Accounting Division, 205 SE Spokane Street, Suite 100, Portland, Oregon 97202-6413.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF NET POSITION
JUNE 30, 2020

	Governmental Activities
ASSETS	
CURRENT ASSETS	
Cash and Cash Equivalents	$ 5,492,153
Receivables:	
Grants and Contracts	7,259,570
Other	5,194,931
Prepaid Expenses	142,461
Total Current Assets	18,089,115
NONCURRENT ASSETS	
Capital Assets, Net of Accumulated Depreciation	1,712,245
Total Noncurrent Assets	1,712,245
Total Assets	$ 19,801,360
LIABILITIES AND NET POSITION	
CURRENT LIABILITIES	
Accounts Payable	$ 4,248,460
Checks Written in Excess	302,463
Payroll Liabilities	780,378
Compensated Absences, Current Portion	276,391
Capital Lease Obligation, Current Portion	52,273
Unearned Rent	255,077
Unearned Revenues	326,061
Total Current Liabilities	6,241,103
LONG-TERM LIABILITIES (Due in More than One Year)	2,508,001
Total Liabilities	8,749,104
NET POSITION	
Investment in Capital Assets, Net of Related Debt	1,577,273
Unrestricted	9,474,983
Total Net Position	$ 11,052,256

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF ACTIVITIES AND CHANGE IN NET POSITION
YEAR ENDED JUNE 30, 2020

	Governmental Activities
PROGRAM REVENUES	
Grants and Contracts	$ 119,600,609
PROGRAM EXPENSES	
Fisheries Management:	
Personal Services	26,923,499
Fishery Disaster Relief	54,198,217
Materials and Services	36,956,270
Sport Rewards	1,006,294
Other Expense	120,734
Interest Expense	4,996
Depreciation	693,943
Total Program Expenses	119,903,953
NET PROGRAM REVENUES	(303,344)
GENERAL REVENUES	
State Dues	106,000
Interest and Other Income	73,416
Loss on Disposal of Assets	(13,024)
Total General Revenues	166,392
CHANGE IN NET POSITION	(136,952)
Net Position - Beginning of Year	11,189,208
NET POSITION - END OF YEAR	$ 11,052,256

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
BALANCE SHEET — GOVERNMENTAL FUNDS
JUNE 30, 2020

	General	Grants and Contracts	Total
ASSETS			
Cash and Cash Equivalents	$ 2,790,460	$ -	$ 2,790,460
Due from Other Funds	7,259,570	326,061	7,585,631
Receivables:			
Grants and Contracts	-	7,259,570	7,259,570
Other	5,194,931	-	5,194,931
Prepaid Expenses	142,461	-	142,461
Total Assets	$ 15,387,422	$ 7,585,631	$ 22,973,053
LIABILITIES AND FUND BALANCES			
LIABILITIES			
Due to Other Funds	$ 326,061	$ 7,259,570	$ 7,585,631
Accounts Payable	4,248,460	-	4,248,460
Checks Written in Excess	302,463	-	302,463
Payroll Liabilities	780,378	-	780,378
Unearned Rent	255,077	-	255,077
Unearned Revenues	-	326,061	326,061
Total Liabilities	5,912,439	7,585,631	13,498,070
FUND BALANCES			
Nonspendable Fund Balances	142,461	-	142,461
Fund Balances - Unassigned	9,332,522	-	9,332,522
Total Fund Balances	9,474,983	-	9,474,983
Total Liabilities and Fund Balances	$ 15,387,422	$ 7,585,631	$ 22,973,053

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
RECONCILIATION OF THE GOVERNMENTAL FUNDS BALANCE SHEET
TO THE STATEMENT OF NET POSITION
JUNE 30, 2020

Fund Balances - Governmental Funds	$ 9,474,983
Amounts reported for governmental activities in the statement of net position are different because:	
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in governmental funds:	
Capital Assets	7,294,937
Less: Accumulated Depreciation	(5,582,692)
Total	1,712,245
Long-term debt obligations are not due and payable in the current period and, therefore, are not reported in the governmental funds	(134,972)
Net Position	$ 11,052,256

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF REVENUES, EXPENDITURES, AND CHANGE IN FUND BALANCES — GOVERNMENTAL FUNDS
YEAR ENDED JUNE 30, 2020

	General	Grants and Contracts	Total
REVENUES			
Grants and Contracts	$ -	$ 119,600,609	$ 119,600,609
State Dues	106,000	-	106,000
Interest and Other Income	73,416	-	73,416
Total Revenues	179,416	119,600,609	119,780,025
EXPENDITURES			
Current:			
Personal Services	2,793,755	24,129,744	26,923,499
Fishery Disaster Relief	-	54,198,217	54,198,217
Materials and Services	1,459,723	35,496,547	36,956,270
Sport Rewards	-	1,006,294	1,006,294
Capital Outlay	5,237	585,924	591,161
Cost Share	41,128	(41,128)	-
Debt Service:			
Principal	-	19,671	19,671
Interest	-	4,996	4,996
Total Expenditures	4,299,843	115,400,265	119,700,108
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	(4,120,427)	4,200,344	79,917
OTHER FINANCING SOURCES (USES)			
Proceeds from Capital Leases	-	154,643	154,643
Indirect Cost/Administration Transfers In	4,354,987	-	4,354,987
Indirect Cost/Administration Transfers Out	-	(4,354,987)	(4,354,987)
Total Other Financing Sources (Uses)	4,354,987	(4,200,344)	154,643
EXCESS OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER SOURCES	234,560	-	234,560
Fund Balance - Beginning of Year	9,240,423	-	9,240,423
FUND BALANCE - END OF YEAR	$ 9,474,983	$ -	$ 9,474,983

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
RECONCILIATION OF THE GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES, AND CHANGE IN FUND BALANCES TO THE STATEMENT OF ACTIVITIES AND CHANGE IN NET POSITION
YEAR ENDED JUNE 30, 2020

Net Change in Fund Balances - Total Governmental Funds	$ 234,560
Amounts reported for governmental activities in the statement of revenues, expenditures, and change in fund balances are different because:	
Governmental funds report capital outlays as expenditures. However, in the statement of revenues, expenditures, and change in fund balances, the cost of those assets is capitalized and depreciated over their estimated useful lives.	
Capital Outlay	470,427
Less: Current Year Depreciation	(693,943)
Total	(223,516)
Repayment of capital lease principal is an expenditure in the governmental funds, but the repayment of principal reduces long-term liabilities in the statement of net position and the amount representing interest is included as an expense in the statement of revenues, expenditures, and change in fund balances:	
Change in Capital Lease Obligations	(154,643)
Capital Lease Payments	19,671
Total	(134,972)
Some expenses report in the Statement of Activities do not require the use of current financial resources and, therefore, are not reported as expenditures in governmental funds	
Loss on disposal of assets	(13,024)
Change in Net Position	$ (136,952)

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF NET POSITION — PROPRIETARY FUNDS
JUNE 30, 2020

	Governmental Activities- Internal Service Fund Type Compensated Absences
ASSETS	
Cash and Cash Equivalents	$ 2,701,693
LIABILITIES	
Accrued Compensated Absences	2,701,693
NET POSITION	
Unrestricted	$ -

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF REVENUES, EXPENSES, AND CHANGE IN NET POSITION — PROPRIETARY FUNDS
YEAR ENDED JUNE 30, 2020

	Governmental Activities- Internal Service Fund Type Compensated Absences
OPERATING REVENUES	
Charges for Services	$ 510,303
OPERATING EXPENSES	
Compensated Absences Expense	510,303
OPERATING INCOME	-
Net Position - Beginning of Year	-
NET POSITION - END OF YEAR	$ -

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
STATEMENT OF CASH FLOWS — PROPRIETARY FUNDS
YEAR ENDED JUNE 30, 2020

	Governmental Activities- Internal Service Fund Type Compensated Absences
CASH FLOWS FROM OPERATING ACTIVITIES	
Charges for Services	$ 510,303
Cash Paid to Employees for Services	(246,173)
Net Cash Used by Operating Activities	264,130
NET CHANGE IN CASH AND CASH EQUIVALENTS	264,130
Cash and Cash Equivalents - Beginning of Year	2,437,563
CASH AND CASH EQUIVALENTS - END OF YEAR	$ 2,701,693
RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES	
Operating Income	$ -
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:	
Changes in Assets and Liabilities:	
Increase in Compensated Absences	264,130
Net Cash Provided by Operating Activities	$ 264,130

See accompanying Notes to Financial Statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations

The Pacific States Marine Fisheries Commission (the Commission) was authorized in 1947 by an act of the Congress of the United States of America granting consent and approval to an interstate compact. The Commission is composed of five member states: Alaska, California, Idaho, Oregon, and Washington. While the Commission has no regulatory or management authority, it was created to provide collective participation by states to work on mutual problems of fisheries resource management. The Commission's principal offices are located in Portland, Oregon.

Financial Reporting Entity

The Commission is a quasi-governmental corporation governed by a 15-member board. As required by accounting principles generally accepted in the United States of America, these basic financial statements present the Commission (the primary government) and any component units. Component units, as established by Governmental Accounting Standards Board (GASB) Statement No. 14, are separate organizations that are included in the Commission's reporting entity because of the significance of their operational or financial relationships with the Commission. The Commission has no reportable component units.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Basis of Accounting and Measurement Focus

The accounts of the Commission are organized on the basis of funds, each of which is considered a separate accounting entity. The operations of each fund are accounted for with a set of self-balancing accounts that comprise its assets, liabilities, fund equity, revenues, and expenditures or expenses, as appropriate. Governmental resources are allocated to and accounted for in individual funds based upon the purpose for which they are to be spent and the means by which spending activities are controlled.

Commission-Wide Financial Statements

The Commission-wide financial statements include the statement of net position and statement of activities and change in net position. These statements present summaries of governmental activities for the Commission.

These statements are presented on an "economic resources" measurement focus and the accrual basis of accounting. Accordingly, all of the Commission's assets and liabilities, including capital assets and long-term liabilities are included in the accompanying statement of net position. The statement of activities and change in net position presents changes in net position. Under the accrual basis of accounting, revenues are recognized in the period in which they are earned, while expenses are recognized in the period in which the liability is incurred.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Commission-Wide Financial Statements (Continued)

Grants and contracts revenue are considered program revenues by the Commission.

Certain eliminations have been made as prescribed by GASB Statement No. 34 in regard to interfund activities, payables, and receivables. All interfund balances in the statement of net position have been eliminated.

Governmental Fund Financial Statements

Governmental fund financial statements include a balance sheet and a statement of revenues, expenditures, and change in fund balances for the following governmental funds:

General Fund – This fund accounts for all financial resources and uses which are not included in the special revenue fund. Resources of the general fund are typically not restricted for use within specific projects. The fund's principal revenue sources are indirect costs charged to the special revenue fund and state contributions.

Special Revenue Fund (Grants and Contracts) – This fund accounts for revenue and expenditures restricted for specific projects or programs. The fund's principal revenue sources are grants and contracts from various federal and member state agencies.

All governmental funds are accounted for on a spending or current financial resources measurement focus and the modified accrual basis of accounting. Accordingly, only current assets and current liabilities are included on the fund balance sheet. The statements of revenues, expenditures, and change in fund balances presents increases (revenues and other financing sources) and decreases (expenditures and other financing uses) in net current position.

Under the modified accrual basis of accounting, revenues are recognized in the accounting period in which they become both measurable and available to finance expenditures of the current period. Accordingly, revenues are recorded when received in cash, except that revenues subject to accrual (generally 60 days after year-end) are recognized when due. Most revenue sources have been treated as susceptible to accrual by the Commission as the amounts due are known at year-end. Interest revenue and some other miscellaneous revenues are not susceptible to accrual because they are usually not measurable until received in cash. Expenditures are recorded in the accounting period in which the related fund liability is incurred.

Unavailable revenues arise when potential revenues do not meet both the "measurable" and "available" criteria for recognition in the current period. Unearned revenues also arise when the Commission receives resources before it has a legal claim to them, as when grant monies are received prior to incurring qualifying expenditures. In subsequent periods, when both revenue recognition criteria are met or when the government has a legal claim to the resources, the unearned revenue is removed from the balance sheet and revenue is recognized.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Governmental Fund Financial Statements (Continued)

Reconciliation of the governmental fund financial statements to the Commission-wide financial statements is provided to explain the differences created by the integrated approach of GASB Statement No. 34.

Proprietary Funds

Proprietary funds account for the operations that are financed and operated in a manner similar to private business, where the determination of operating income, change in net position, financial position, and cash flows is necessary. These funds utilize the accrual basis of accounting.

Internal Service Fund

Internal service funds are used to account for goods and services provided by one department or agency to other departments or agencies of the Commission on a cost reimbursement basis. The internal service fund includes the compensated absences balance of the Commission.

Fund Equity

GASB issued Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions* (GASB No. 54), effective for reporting periods after June 15, 2011. The reporting standard establishes a hierarchy for fund balance classifications and the constraints imposed on the uses of those resources.

GASB No. 54 provides for two major types of fund balances, which are nonspendable and spendable. Nonspendable fund balances are balances that cannot be spent because they are not expected to be converted to cash or they are legally or contractually required to remain intact. Examples of this classification are prepaid items, inventories, and principal (corpus) of an endowment fund.

In addition to the nonspendable fund balance, GASB No. 54 has provided a hierarchy of spendable fund balances, based on a hierarchy of spending constraints.

- Restricted – fund balances that are constrained by external parties, constitutional provisions enabling legislation.
- Committed – fund balances that contain self-imposed constraints of the Commission from its highest level of decision-making authority.
- Assigned – fund balances that contain self-imposed restraints of the Commission to be used for a particular purpose.
- Unassigned – fund balances of the Commission that are not constrained for any particular purpose.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Fund Equity (Continued)

When an expenditure is incurred for purposes for which both restricted and unrestricted fund balances are available, it is the Commission's policy to use restricted first, then unrestricted fund balances. When an expenditure is incurred for purposes for which committed, assigned, and unassigned amounts are available, it is the Commission's policy to use committed first, then assigned, and finally unassigned amounts.

Budgets

The Commission has no legal requirement for a budget, though budget estimates are prepared for the general fund. Certain contracts and grants have budget requirements which must be monitored; however, these budgets are not program-wide. Accordingly, budgetary information has not been included in the basic financial statements.

Grants

Unreimbursed grant expenditures due from grantor agencies are recorded in the Commission-wide financial statements as receivables and revenues. Cash received from grantor agencies in excess of related grant expenditures is recorded as a liability, Unearned Revenues, in the statement of net position.

Capital Assets, Including Equipment Leased Under Capital Leases

Capital assets are recorded at original cost or estimated original cost in the statement of net position. Acquisitions of general capital assets are recorded as expenditures at the major program levels in governmental fund types at the time of purchase. Maintenance, repairs, and equipment replacements of a routine nature are charged to expenditures as incurred and are not capitalized. Upon disposal of capital assets, the related cost or estimated cost and any proceeds from such disposal are accounted for as other financing sources. At their inception, capitalized leases are recorded as capital assets at the net present value of future minimum lease payments to be made.

The portion of the payment applicable to principal, determined by using interest rates implicit in the lease, is reported as a reduction of the capitalized lease obligation.

Depreciation is recorded in the statement of activities and change in net position. The statement of net position reflects the cost of capital assets net of depreciation and is computed on the straight-line basis over the following estimated useful lives. Assets acquired by capital lease are amortized over their estimated useful lives using the straight-line basis. Amortization is included in depreciation expense in these financial statements.

Buildings and Improvements	30 Years
Computers, Furniture, Office, and Field Equipment	5 to 10 Years

Capital assets include assets which were purchased with funds from various federal and state agencies. Those funding agencies retain residual interests in certain assets, which are exercised upon disposal.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Cash and Investments

The Commission maintains its cash either in bank deposit accounts that are insured by the Federal Deposit Insurance Corporation (FDIC) up to a limit of $250,000 per depositor or in certain noninterest bearing accounts that are fully insured by the FDIC. The Commission had $10,749,425 in cash that was exposed to uninsured deposit risk at June 30, 2020. To reduce its overall exposure, the Commission holds its funds in banks that participate in the Oregon Public Funds Collateralization Program. This program provides additional protection for public funds in Oregon, but does not guarantee the funds fully. The Commission has not experienced any losses in such accounts, and believes it is not exposed to any significant credit risk on cash.

Grants and Contracts Receivable

The majority of receivables are comprised of claims for reimbursement of costs under various federal and state grant programs. The Commission considers all receivables to be substantially collectible. Accordingly, no allowance for doubtful accounts has been established.

Accrued Compensated Absences

Vacation pay is vested when earned. Employees earn annual leave based on length of service to the Commission. Unpaid vested vacation and 50% of vested sick pay that is expected to be paid with current resources is shown as accrued compensated absences payable on the statement of net position and recorded as expenditures when earned.

Unearned Rent

The Commission recognized escalating rent provisions on straight-line basis over the lease term.

Retirement Plans

Commission employees meeting eligibility requirements are participants in a defined contribution pension plan. Contributions to this plan are made on a current basis as required by the plan and are charged to expenditures as the related liabilities are incurred.

Employees of the Commission are also allowed to participate in a Northwest Plan Services, Inc. IRC 457 Plan. The plan permits employees to voluntarily defer a portion of their compensation. The Commission makes no contributions to this plan. Northwest Plan Services, Inc., as the plan administrator, retains custody and fiduciary responsibility for all funds deposited into the plan.

Interfund Transactions

Activity between funds represent short-term receivables or payables in the normal course of the Commission's operations or are reimbursements for administrative expenses that are outstanding at the end of the fiscal year. All outstanding balances are reported as either due to or due from other funds in the fund financial statements.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 2 CASH AND INVESTMENTS

The Commission maintains a cash pool that is available for use by all funds. Each fund type's portion of this pool is reported on the statement of net position as cash and investments.

Cash and investments (recorded at cost) consisted of the following at June 30, 2020:

Deposits with Financial Institutions:	
Demand Deposits	$ 189,225
Money Market	253,629
Savings	5,049,299
Total Cash and Cash Equivalents	$ 5,492,153

Custodial Credit Risk – Deposits. Custodial credit risk is the risk that in the event of a bank failure, the Commission's deposits may not be returned to it. The Commission does not have a deposit policy for custodial credit risk. To reduce its overall exposure, the Commission holds its funds in banks that participate in the Oregon Public Funds Collateralization Program. This program provides additional protection for public funds in Oregon, but does not guarantee the funds fully. The Commission has not experienced any losses in such accounts, and believes it is not exposed to any significant credit risk on cash.

The Commission's bank balance was exposed to custodial credit risk as follows at June 30, 2020:

Uninsured and Uncollateralized	$ 10,749,425

NOTE 3 CAPITAL ASSETS

Capital asset activity was as follows at June 30, 2020:

	Balance June 30, 2019	Additions	Deletions	Transfers	Balance June 30, 2020
Capital Assets:					
Computers	$ 2,067,329	$ 5,237	$ 85,673	$ -	$ 1,986,893
Furniture and Office Equipment	141,621	-	9,309	-	132,312
Leasehold Improvements	407,971	-	-	-	407,971
Field and Scientific Equipment	3,493,842	299,272	67,011	-	3,726,103
Truck/Boat	875,740	165,918	-	-	1,041,658
Total Capital Assets	6,986,503	470,427	161,993	-	7,294,937
Accumulated Depreciation:					
Computers	1,400,507	217,199	85,673	-	1,532,033
Furniture and Office Equipment	120,492	4,964	9,309	-	116,147
Leasehold Improvements	395,541	6,773	-	-	402,314
Field and Scientific Equipment	2,379,085	393,582	53,987	-	2,718,680
Truck/Boat	742,093	71,425	-	-	813,518
Total Accumulated Depreciation	5,037,718	693,943	148,969	-	5,582,692
Total Assets	$ 1,948,785	$ (223,516)	$ 13,024	$ -	$ 1,712,245

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 4 LONG-TERM LIABILITIES

Compensated Absences

The following is a schedule of the compensated absences as of June 30, 2020:

Balance - Beginning	$ 2,437,563
Incurred	510,303
Retired	(246,173)
Balance - Ending	$ 2,701,693
Due Within One Year	$ 276,391
Long-Term Portion	$ 2,425,302

Capital Lease Obligations

The following is a schedule of the capital lease obligations as of June 30, 2020:

Balance - Beginning	$ -
Additions	154,643
Payments	(19,671)
Balance - Ending	$ 134,972

The total interest incurred for the year ended June 30, 2020 was $4,996.

Minimum future lease payments are as follows:

Year Ending June 30,	Amount
2021	$ 59,380
2022	59,378
2023	27,409
Total Minimum Lease Payments	146,167
Less: Amounts Representing Interest	(11,195)
Present Value of Minimum Lease Payments	134,972
Less: Current Portion	(52,273)
Total Long-Term Portion	$ 82,699

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 5 PENSION PLAN

The Commission sponsors the Pacific States Marine Fisheries Commission Employees Pension Plan (the Plan), which is a defined contribution pension plan.

A defined contribution pension plan provides pension benefits in return for services rendered, provides an individual account for each participant, and specifies how contributions to the individual's account are to be determined instead of specifying the amount of benefits the individual is to receive. Under a defined contribution pension plan, the benefits a participant will receive depend solely on the amount contributed to the participant's account, the returns earned on investments on those contributions, and forfeitures of other participant's benefits that may be allocated to such participant's account.

Employees must meet eligibility requirements based upon hours and length of service to participate in the Plan. The Commission is required to contribute an amount equal to 14% of the eligible employee's gross earnings. Vesting is based on a schedule that provides 100% vesting at the end of five years of qualified employment. An employee who leaves the employment of the Commission is entitled to his or her vested interest in the Plan.

Forfeitures are used to reduce future contributions. For the year ended June 30, 2020, the Commission contributed $1,924,185 to the Plan, net of forfeitures. There were 399 participants in the Plan at June 30, 2020.

NOTE 6 POSTEMPLOYMENT HEALTH PLAN

The Commission sponsors a Postemployment Health Plan (PEHP), which helps participants pay for certain qualified medical expenses after their retirement or termination. Once an employee has qualified to be in the pension plan they can participate in the PEHP. The PEHP has two individual accounts: 1) Universal Reimbursement Account, in which the Commission contributes a fixed amount ($10) each month for each eligible participant; and 2) Insurance Premium Reimbursement Account, which is funded at termination or retirement with a portion of accrued sick leave. To be eligible for the second account, the employee must be 100% vested in the Commission Pension Plan and have accrued sick leave at termination. Employees are responsible for directing their PEHP contributions among the various funds selected by the plan administrator. The participant's account is passed on to a spouse and/or dependents if the participant were to die. As of June 30, 2020, there were 430 participants in the plan, and the Commission contributed $97,124 into the plan. The liability increased $73,443 to an ending balance of $1,003,562 as of June 30, 2020. This is included in the compensated absences liability (see Note 4).

NOTE 7 RISK MANAGEMENT

The Commission is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees, and natural disasters. The Commission purchases commercial insurance to minimize its exposure to these risks. Settled claims have not exceeded this commercial coverage for any of the past three years.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2020

NOTE 8 COMMITMENTS AND CONTINGENCIES

As discussed in Note 1, the Commission holds capital assets for which granting agencies, principally federal agencies, have residual interests. The granting agencies, at their discretion upon disposition of these assets, are entitled to possession of the assets or the proceeds from their sale.

Substantially all amounts received or receivable from grantor agencies are subject to audit and adjustment by grantor agencies, principally the federal government. Any disallowed claims, including amounts already collected, may constitute a liability of the applicable funds. The amount, if any, of expenditures which may be disallowed by the grantor cannot be determined at this time, although the Commission's management expects such amounts, if any, to be immaterial.

NOTE 9 OPERATING LEASES

The Commission, as lessee, leases office space, vehicles, and equipment under various operating leases. The total amount expended under such leases was $722,123 for the year ended June 30, 2020.

Future minimum lease payments for the noncancellable leases with initial or remaining lease terms of one year or more are as follows:

Year Ending June 30,	Amount
2021	$ 646,149
2022	600,188
2023	545,545
2024	459,494
2025	144,289
Thereafter	14,462
Total	$ 2,410,127

NOTE 10 RISKS AND UNCERTAINTIES

During the fiscal year, the World Health Organization declared the spread of Coronavirus Disease (COVID-19) a worldwide pandemic. Subsequent to year end, the COVID-19 pandemic continues to have significant effects on global markets, supply chains, businesses, and communities. Specific to Pacific States Marine Fisheries Commission, COVID-19 may impact various parts of its 2021 operations and financial results, including, but not limited to, costs for increased use of technology, or potential shortages of personnel. Management believes Pacific States Marine Fisheries Commission is taking appropriate actions to mitigate the negative impact. However, the full impact of COVID-19 is unknown and cannot be reasonably estimated as these events are still developing.

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

Board of Commissioners
Pacific States Marine Fisheries Commission
Portland, Oregon

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the commission wide governmental activities, each major fund, and the aggregate remaining fund information of Pacific States Marine Fisheries Commission (the Commission), as of and for the year ended June 30, 2020, and the related notes to the financial statements, which collectively comprise Pacific States Marine Fisheries Commission's basic financial statements, and have issued our report thereon dated October 30, 2020.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Commission's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control. Accordingly, we do not express an opinion on the effectiveness of the Commission's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that have not been identified. We did identify a certain deficiency in internal control, described in the accompanying Schedule of Findings and Questioned Costs as item 2020-001 that we consider to be a material weakness.

Board of Commissioners
Pacific States Marine Fisheries Commission

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Commission's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards.*

Pacific States Marine Fisheries Commission's Response to Finding

The Commission's response to the finding identified in our audit is described in the accompanying Schedule of Findings and Questioned Costs. The Commission's response was not subjected to the auditing procedures applied in the audit of the financial statements and, accordingly, we express no opinion on it.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Bellevue, Washington
October 30, 2020

INDEPENDENT AUDITORS' REPORT ON COMPLIANCE FOR EACH MAJOR FEDERAL PROGRAM AND REPORT ON INTERNAL CONTROL OVER COMPLIANCE REQUIRED BY THE UNIFORM GUIDANCE

Board of Commissioners
Pacific States Marine Fisheries Commission
Portland, Oregon

Report on Compliance for Each Major Federal Program

We have audited Pacific States Marine Fisheries Commission's (the Commission's) compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the Commission's major federal programs for the year ended June 30, 2020. Pacific States Marine Fisheries Commission's major federal programs are identified in the summary of auditors' results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the Commission's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the Commission's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the Commission's compliance.

Opinion on Each Major Federal Program

In our opinion, Pacific States Marine Fisheries Commission complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2020.

Board of Commissioners
Pacific States Marine Fisheries Commission

Report on Internal Control Over Compliance

Management of the Commission is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the Commission's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the Commission's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Bellevue, Washington
October 30, 2020

PACIFIC STATES MARINE FISHERIES COMMISSION
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
YEAR ENDED JUNE 30, 2020

Federal Grantor/Program or Cluster Title	Federal CFDA Number	Pass-Through Organization (From)	Pass-Through Identifying Number	Total Federal Expenditures	Passed Through (to) Subrecipient
National Oceanic and Atmospheric Administration					
Bipartisan Budget Act of 2018	11.022	Direct		$ 57,385,051	$ 4,477,818
	11.022 Total			57,385,051	4,477,818
Total National Oceanic and Atmospheric Administration				57,385,051	4,477,818
U.S. Department of Commerce (NOAA)					
Interjurisdictional Fisheries Act of 1986	11.407	Direct		1,678,841	681,070
	11.407 Total			1,678,841	681,070
Columbia River Fisheries Development Program	11.436	Direct		1,105,512	1,079,358
	11.436 Total			1,105,512	1,079,358
Pacific Fisheries Data Program	11.437	Direct		19,368,364	6,615,921
	11.437 Total			19,368,364	6,615,921
Pacific Coast Salmon Recovery Pacific Salmon Treaty Program	11.438	California Department of Fish and Wildlife	P1810502	140,590	-
	11.438	California Department of Fish and Wildlife	P1850904	241,484	-
	11.438	California Department of Fish and Wildlife	Q1910503	333,992	-
	11.438	California Department of Fish and Wildlife	P1510507	816	-
	11.438	California Department of Fish and Wildlife	P1510551	1,915	-
	11.438	California Department of Fish and Wildlife	P1530409	975	-
	11.438 Total			719,771	-
Marine Mammal Data Program	11.439	Direct		242,665	177,278
	11.439 Total			242,665	177,278
Regional Fishery Management Councils	11.441	PAC Fishery Management Council	05-19	4,116	-
	11.441	PAC Fishery Management Council	2018-4	10,166	-
	11.441	N PAC Fish Management Council	2019-4	27,744	-
	11.441	N PAC Fish Management Council	2020-PSMFC	18,160	-
	11.441	N PAC Fish Management Council	NPFMC 1137	9,164	-
	11.441	N PAC Fish Management Council	PSMFC02-TECHNOLOGY	10,853	-
	11.441 Total			80,202	-
Unallied Industry Projects	11.452	Direct		355,020	409,024
	11.452 Total			355,020	409,024

See accompanying Notes to Schedule of Expenditures of Federal Awards.

PACIFIC STATES MARINE FISHERIES COMMISSION
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS (CONTINUED)
YEAR ENDED JUNE 30, 2020

Federal Grantor/Program or Cluster Title	Federal CFDA Number	Pass-Through Organization (From)	Pass-Through Identifying Number	Total Federal Expenditures	Passed Through (to) Subrecipient
U.S. Department of Commerce (NOAA) (Continued)					
Unallied Science Program	11.472	Direct	NA17NMF4720267	$ 31,252	$ -
	11.472	Direct	NA18NMF4720007	777,380	594,214
	11.472	Direct	NA18NMF4720283	136,632	-
	11.472	Direct	NA18NMF4720285	130,262	-
	11.472	Direct	NA19NMF4720225	14,146	-
	11.472	Direct	NPRB-1804	24,471	-
	11.472	North Pacific Research Board	NPRB-1816	9,751	-
	11.472 Total			1,123,894	594,214
Atlantic Coastal Fisheries Cooperative Management Act	11.474	Atlantic States Marine Fish Commission	ASMFC-1104	231,839	192,290
	11.474 Total			231,839	192,290
Fisheries Disaster Relief	11.477	Direct	NA20NMF4770021	2,198,192	2,168,240
	11.477 Total			2,198,192	2,168,240
Total U.S. Department of Commerce				27,104,299	11,917,396
U.S. Department of the Interior					
Central Valley Project Improvement Act, Title XXXIV	15.512	Bureau of Reclamation	R14AP00125	827,465	610,753
	15.512	Bureau of Reclamation	R16AC00149	1,217,009	-
	15.512	Bureau of Reclamation	R18AP00009	73,481	-
	15.512	Bureau of Reclamation	R20AP00042	581,524	-
	15.512 Total			2,699,479	610,753
Fish and Wildlife Cluster					
Sport Fish Restoration	15.605	US Fish and Wildlife Service	F18AP00131	6,897	-
	15.605	US Fish and Wildlife Service	F19AP00031	146,090	-
	15.605	US Fish and Wildlife Service	F20AP00111	14,582	-
	15.605	US Fish and Wildlife Service	ODFW-321-19	165,406	-
	15.605 Total			332,975	-
Fish and Wildlife Management Assistance	15.608	US Fish and Wildlife Service	F14AP00903	10,910	3,300
	15.608	US Fish and Wildlife Service	F16AC00318	20,691	-
Fish and Wildlife Management Assistance	15.608	US Fish and Wildlife Service	F16AC00608	138,106	136,229
	15.608	US Fish and Wildlife Service	F17AP00258	190,883	-
	15.608	US Fish and Wildlife Service	F17AP00757	1,832	-
	15.608	US Fish and Wildlife Service	F18AC00519	237,381	-
	15.608	US Fish and Wildlife Service	F18AP00231	(10,946)	-
	15.608	US Fish and Wildlife Service	F18AP00599	20,723	-
	15.608	US Fish and Wildlife Service	F18AP00682	32,641	-
	15.608	US Fish and Wildlife Service	F18AP00832	49,616	-
	15.608	US Fish and Wildlife Service	F19AC00035	104,291	-
	15.608	US Fish and Wildlife Service	F19AP00445	26,779	26,050
	15.608	US Fish and Wildlife Service	F20AC00007	42,247	41,083
	15.608	US Fish and Wildlife Service	F20AP00052	19,811	-
	15.608 Total			984,704	226,162

See accompanying Notes to Schedule of Expenditures of Federal Awards.

PACIFIC STATES MARINE FISHERIES COMMISSION
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS (CONTINUED)
YEAR ENDED JUNE 30, 2020

Federal Grantor/Program or Cluster Title	Federal CFDA Number	Pass-Through Organization (From)	Pass-Through Identifying Number	Total Federal Expenditures	Passed Through (to) Subrecipient
U.S. Department of the Interior (Continued)					
Fish and Wildlife Management Assistance	15.628	National Fish Habitat Partnership	F19AP00105	$ 18,003	$ -
	15.628 Total			18,003	-
Central Valley Project Improvement Act (CVPIA)	15.648	US Fish and Wildlife Service	F14AC00524	5,880	-
	15.648	US Fish and Wildlife Service	F16AC00127	111,073	-
	15.648	US Fish and Wildlife Service	F17AP00361	35,414	-
	15.648	US Fish and Wildlife Service	F20AP00227	24,410	-
	15.648 Total			176,777	-
Lower Snake River Compensation Plan	15.661	US Fish and Wildlife Service	F16AC00045	326,175	-
	15.661	US Fish and Wildlife Service	F16AC00046	470,594	-
	15.661 Total			796,769	-
National Fish and Wildlife Foundation	15.663	National Fish Wildlife Foundation	0208.18.060476	22,189	-
	15.663 Total			22,189	-
Total U.S. Department of the Interior				5,030,896	836,915
Environmental Protection Agency - Office of Environmental Information					
Puget Sound Action Agenda: Technical Investigations and Implementation Assistance Program	66.123	University of Washington	UWSC10379	31,153	-
	66.123 Total			31,153	-
Total Environmental Protection Agency - Office of Environmental Information				31,153	-
Department of Energy					
Bonneville Power Administration - Environment, Fish and Wildlife	81.999	Direct		13,692,972	4,975,019
	81.999	WA Department of Fish and Wildlife	19-14083	31,431	-
	81.999	CRITFC	V19-24	45,674	-
	81.999	CRITFC	V20-11	2,126	-
	81.999 Total			13,772,202	4,975,019
Total Department of Energy				13,772,202	4,975,019
Total Federal Assistance - All Awards				$ 103,323,602	$ 22,207,148

See accompanying Notes to Schedule of Expenditures of Federal Awards.

PACIFIC STATES MARINE FISHERIES COMMISSION
NOTES TO SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
YEAR ENDED JUNE 30, 2020

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Expenditures

Expenditures reported on the schedule of expenditures of federal awards (the Schedule) are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years. Pacific States Marine Fisheries Commission has elected not to use the 10-percent de minimis indirect cost rate as allowed under the Uniform Guidance.

Pass-Through Entities

Pass-through entity identifying numbers are presented where available.

NOTE 2 BASIS OF PRESENTATION

The accompanying Schedule includes the federal award activity of Pacific States Marine Fisheries Commission under programs of the federal government for the year ended June 30, 2020. The information in this Schedule is presented in accordance with the requirements of 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance).* Because the Schedule presents only a selected portion of the operations of Pacific States Marine Fisheries Commission, it is not intended to and does not present the financial position, changes in net assets, or cash flows of Pacific States Marine Fisheries Commission.

PACIFIC STATES MARINE FISHERIES COMMISSION
SCHEDULE OF FINDINGS AND QUESTIONED COSTS
YEAR ENDED JUNE 30 2020

Section I – Summary of Auditors' Results

Financial Statements

Type of auditors' report issued:	Unmodified	
Internal control over financial reporting:		
• Material weakness(es) identified?	x yes	____ no
• Significant deficiency(ies) identified?	____ yes	____ none reported
Noncompliance material to financial statements noted?	____ yes	x no

Federal Awards

Internal control over major federal programs:		
• Material weakness(es) identified?	____ yes	x no
• Significant deficiency(ies) identified?	____ yes	x none reported
Type of auditors' report issued on compliance for major federal programs:	Unmodified	
Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	____ yes	x no

Identification of Major Federal Programs

CFDA Number(s)	Name of Federal Program or Cluster
11.022	Bipartisan Budget Act of 2018

Dollar threshold used to distinguish between Type A and Type B programs:	$ 3,000,000 / 750,000	
Auditee qualified as low-risk auditee?	____ yes	x no

PACIFIC STATES MARINE FISHERIES COMMISSION
SCHEDULE OF FINDINGS AND QUESTIONED COSTS (CONTINUED)
YEAR ENDED JUNE 30 2020

Section II – Financial Statement Findings

2020 – 001

Type of Finding:

- Material Weakness in Internal Control over Financial Reporting

Condition: Accounts payable was materially understated.

Criteria or Specific Requirement: Payables should be recorded based on the date the liability is incurred.

Context: CliftonLarsonAllen LLP (CLA) identified some state bill accruals were not recorded for one state agency at year-end.

Effect: Accounts payable and the related accounts receivable and program revenue and expenses were understated.

Cause: The state bill accruals were misrecorded due to some of them being encumbered in the purchase order module at the time of cutoff for the year. The state bill accruals received in late July were being entered with other fiscal year 2021 invoices and were recorded at July 1, 2020 with those invoices.

Repeat Finding: This is a repeat finding.

Recommendation: CLA recommends developing internal procedures that will facilitate accurate recording of all state bill accruals at fiscal year-end.

Views of Responsible Officials and Planned Corrective Actions: There is no disagreement with the audit finding.

Section III – Findings and Questioned Costs – Major Federal Programs

Our audit did not disclose any matters required to be reported in accordance with 2 CFR 200.516(a).

HEADQUARTERS LEADERSHIP STAFF 2020

Randy Fisher, Executive Director
Pam Kahut, Finance Officer
Shannon McKewon, Human Resources Director

— SENIOR PROGRAM MANAGERS —

Stan Allen,
Fisheries/Habitat Assistance Programs

Dave Colpo,
Commercial Fisheries Data Programs

Stephen Phillips,
Aquatic Nuisance Species Programs

Steve Williams,
Northern Pikeminnow Sport-Reward Program
Recreational Fisheries Information Network

Pacific States Marine Fisheries Commission

CELEBRATING 73 YEARS OF SERVICE

Established in 1947 by consent of Congress, the Pacific States Marine Fisheries Commission (PSMFC) is an interstate compact agency that helps resource agencies and the fishing industry sustainably manage our valuable Pacific Ocean resources in a five-state region. Member states include Alaska, California, Idaho, Oregon, and Washington, each represented by three Commissioners.