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Eureka, CA Fishing Community Sustainability Plan

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EUREKA, CA

FISHING COMMUNITY SUSTAINABILITY PLAN

FINAL DRAFT | OCTOBER 2019

Prepared by Lisa Wise Consulting, Inc. and Humboldt State University with a generous grant from the Saltonstall Kennedy Program



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PREFIX

ACKNOWLEDGMENTS

An effort of this type takes commitment, hard work, and attention from many individuals. The completion of the project and the insight of the findings and final recommendations relied very heavily on the individuals who participated generously in personal interviews, as well as those who attended the public workshop. Also, the research team could not have gotten very far in understanding an insider's perspective in Eureka without the patience and generosity of the Advisory Committee which represented a broad cross section of the community. A special thanks to: the elected officials, fishermen, fishing community, and the research team for their dedicated work.

We also need to acknowledge the contributions of the very capable educators and researchers at Humboldt State University (HSU), particularly Principle Investigator, Dr. Laurie Richmond. She and her team's on-going dialogue with the community identified the need for a FCSP, procured grant funding, developed requisite partnerships and an appropriate project framework which assured a comprehensive, high-quality final report and collaboration and cooperation of the community at each phase of the project. The HSU team also included Dr. Steven Hackett, Dr. Joe Tyburczy, Dr. Brian Tissot, and Dr. William Fisher. Thanks to them and their expert guidance. The driving force behind the field research were graduate students. A special thanks to Laura Casali, Rob Dumouchel, and Wyatt Smith who were committed professionally, academically, and personally to the accuracy of findings and assuring the true voice of the community was evident in the report. A very special thanks to all of the members of the Humboldt Fishermen's Marketing Association and all of the fishermen, fishing families, processors, and representatives from the Humboldt Bay mariculture industry for their patience and generosity and sharing their hearts and minds with our team. We would also like to thank the Humboldt County Board of Supervisors, the City of Eureka, and Humboldt Bay Harbor and Recreation, and Conservation District (HBHRCD, or Harbor District). We would also like to acknowledge and thank the generous Saltonstall-Kennedy grant program at NOAA Fisheries, without their support, a project of such a comprehensive nature would have been impossible. We have done our best to be inclusive in our thanks and acknowledgments, if we have forgotten anyone it is due to our own forgetfulness.



ACRONYMS

The following list summarizes acronyms used throughout the document.

- American Albacore Fishing Association (AAFA)
- Bureau of Labor Statistics (BLS)
- Community Development Block Grant (CDBG)
- California Department of Fish and Wildlife (CDFW)
- Comprehensive Economic Development Strategy (CEDS)
- Community Facilities District (CFD)
- California Fisheries Fund (CFF)
- Community Food Projects (CFP)
- Cooperative State Research Extension and Education Services (CSREES)
- California Ocean Fish Harvester Economics Model (COFHE)
- Commercial Passenger Fishing Vessel (CPFV)
- Community Supported Fisheries (CSF)
- Community Sustainability Plan (CSP)
- Economic Development Administration (EDA)
- Economic Exclusion Zone (EEZ)
- Ex-Vessel Value (EVV)
- Food and Agricultural Organization of the United Nations (FAO)
- Fisheries Innovation Fund (FIF)
- Fishing Community Sustainability Plan (FCSP)
- Floating Upwell System (FLUPSY)
- Fishermen’s Marketing Association (FMA)
- Fishery Management Plan (FMP)
- Gross Domestic Product (GDP)
- Humboldt Area Saltwater Anglers (HASA)
- Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD or Harbor District)
- Humboldt Fishermen’s Marketing Association (HFMA)
- Humboldt Open Ocean Disposal Site (HOODS)
- Humboldt State University (HSU)
- Economic Development Bank (IBANK)
- Infrastructure Financing District (IFD)
- Infrastructure State Revolving Funds (ISRF)
- Individual Transferable Quota (ITQ)
- Klamath Management Zone (KMZ)
- Leadership in Efficient Energy and Design (LEED)
- Limited Entry (LE)
- Lisa Wise Consulting, Inc. (LWC)
- Marine Life Protection Act Initiative (MLPAI)
- Marine Protected Areas (MPA)
- Magnuson-Stevens Fishery Conservation and Management Act (MSA)
- Non-Governmental Organizations (NGO)
- National Marine Fisheries Service (NMFS)
- National Oceanic and Atmospheric Administration (NOAA)
- National Ocean Economics Program (NOEP)
- New Resources Bank (NRB)
- Office of Environmental Health Hazard Assessment (OEHHA)
- Pacific Fisheries Information Network (PacFIN)
- Pacific Fisheries Management Council (PFMC)
- Pacific States Marine Fisheries Commission (PSMFC)
- Rockfish Conservation Areas (RCA)
- Request for Proposal (RFP)
- Saltonstall-Kennedy Grant Program (S-K)
- Small Business Administration (SBA)
- State Marine Conservation Area (SMCA)

- State Marine Reserve (SMR)
- State Marine Recreational Management Area (SMRMA)
- Total Allowable Catch (TAC)
- United States Department of Agriculture (USDA)
- Vessel Monitoring System (VMS)
- Water Resources Reform and Development Act (WRRDA)
- Western Fishboat Owners' Association (WFOA)

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TABLE OF CONTENTS

1 INTRODUCTION	1
2 ECONOMICS AND MARKETS	9
3 SOCIAL PROFILE	39
4 ENVIRONMENTAL AND REGULATORY SETTING	57
5 PHYSICAL INFRASTRUCTURE AND CRITICAL SERVICES	71
6 RECOMMENDATIONS	83
7 POLICY FRAMEWORKS RELEVANT TO FISHING COMMUNITY SUSTAINABILITY EFFORTS	95
8 POTENTIAL FUNDING SOURCES	103
BIBLIOGRAPHY	111

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1 INTRODUCTION

The Eureka Fishing Community Sustainability Plan (FCSP) is the product of years of planning, hard work, and collaboration among a wide range of interests, led by local commercial and charter fishermen, processors, representatives from the mariculture industry, fishing-related businesses, fishing families, civic leaders, elected officials, City of Eureka staff, academia, business owners and operators, and funding from the federal government.

An FCSP is a document outlined in the federal Magnuson-Stevens Fishery Conservation and Management Act (MSA) to address “the social development needs of coastal communities.” The word “Fishing” has been added at the community’s discretion to better represent the focus of this strategic planning effort. CSP and FCSP are used interchangeably throughout the document and represent the same outcome.

More specifically, CSPs are indicated in MSA for communities that wish to remain eligible to participate in the Federal Individual Transferable Quota (ITQ) Groundfish Trawl fishery, an important component of the commercial fishing communities on California’s North Coast. However, in the case of this project, as in recent CSP efforts in California, the fishing communities and civic leaders view the CSP as an opportunity to develop a strategic planning document for the entire fishing industry that ensures its place within the greater economic, social, and environmental fabric of the community as well as to better secure access to the groundfish fishery.

MSA, established in 1976, is the primary law governing marine fisheries management in U.S. federal waters and is aimed at fostering long-term biological and economic sustainability.

The Pacific Fishery Management Council is one of eight regional fishery management councils established by the MSA with jurisdiction over the exclusive economic zone off Washington, Oregon and California.

PRIMARY AIMS OF THE EUREKA FCSP

- **Identifying and prioritizing** initiatives needed to ensure greater resilience for the fishing industry
- **Communicating** economic, social and environmental benefits and the vision of the fishing industry to fishery regulators, local officials, and the greater community
- **Positioning** the industry to implement projects and activities
- **Providing** a comprehensive and concise resource for the fishing community to inform them in the promotion and support of their industry and its place in the community.

Interviews focused on 4 key questions: 1) what is working well in the port, 2) what are the challenges, 3) what have you seen in other ports that could help strengthen the fishing industry, and 4) how would you invest \$5 million? The interviews were conducted in a conversational style, where the interviewee drove the discussion.



Fish Hoist on the Eureka Waterfront, HSU 2017

APPROACH AND METHODOLOGY

The Eureka FCSP is a community-driven project. Input and feedback from the community and collaboration with the research team drove the inception and set the direction of the project and ultimately, provided the foundation for the findings and final recommendations. The community engagement process included over 60 personal interviews, hours of field visits, a public workshop, and two meetings with an Advisory Committee, made up of representatives from the commercial and charter fishing industries, mariculture, fishing-related businesses, City staff and local civic leaders.

The project was managed by the Advisory Committee in partnership with a team of researchers from Humboldt State University, led by Principal Investigator, Dr. Laurie Richmond from the Environmental Science and Management Department with co-Principal Investigators Dr. Steven Hackett and Dr. Brian Tissot from the Economics and Marine Coastal Sciences Departments, respectively. Collaborators also included Dr. Joe Tyburczy of the California Sea Grant Extension. The team included three graduate students from the Environmental Science and Management Department who brought an academic and personal commitment to the project which accounted very much to its success. The research and project management team also included Lisa Wise Consulting, Inc. (LWC), an urban planning and economics firm with a strong resume working in California coastal communities. LWC was the lead consultant on the Morro Bay (2014) and Monterey (2013) CSPs, two of the first in California.

Funding for the project was sourced from the Saltonstall-Kennedy Grant Program. Dr. Richmond and the team developed a successful proposal for this competitive and generous grant, which was awarded in September of 2016 to develop CSPs in Eureka and in Shelter Cove. The Saltonstall-Kennedy Grant Program is managed by the National Oceanic and Atmospheric Administration (NOAA), represents a significant partnership with federal regulators and adds to the list of collaborators on this project. Additional funding was secured from the California State University Agricultural Research Institute to support gathering more detailed information about the port's mariculture industry. A more detailed assessment of mariculture in Eureka is included as an appendix.

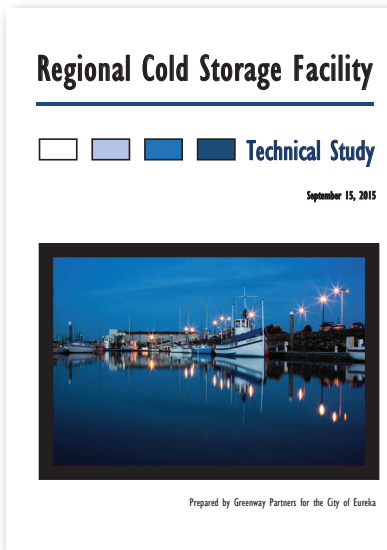
FCSP STRUCTURE

The Eureka CSP is presented in six chapters intended to provide a holistic view of the fishing industry, its place in the community, and the highest priority actions identified by the community to better ensure its long-term sustainability.

1. **Introduction.** Provides a description of the project, motivation and purpose, approach and methods, project management team, document structure, history and background, project setting, and Eureka fishing community and demographic profile
2. **Economic Setting.** Sets the economic context of commercial and charter fishing in Eureka through a discussion of relative national and state performance indicators and a detailed presentation of landings by weight, earnings at the dock by species, employment and active vessels, markets, mariculture production, charter fishing, links to tourism and fishing related businesses.
3. **Social Setting.** Describes the human element of the fishing community, through alliances such as participation in organizations and associations, relationships within and outside of the industry, all illustrations of the fishing community's capacity to manage, advance and sustain itself within the fabric of the entire community. This chapter also discusses cohesion and trust which are indicators of the fishing industry's capacity to self-organize, plan for the future, develop partnerships and participate in public processes that impacts the industry's better interests. The concept of the "graying of the fleet" is also included.
4. **Environmental and Regulatory Setting.** Describes the geographic setting in Eureka and marine environment in which the seafood producers engage as well as the regulatory conditions that fishermen face such as spatial and temporal closures, gear restrictions, size and sex restrictions. Includes discussion on gains in the rebuilding of fish stocks based on the hard work and compliance of fishermen.
5. **Physical Infrastructure and Critical Services.** Provides an inventory of the physical infrastructure on which a sustainable fishing industry depends such as docks and piers, hoists, ice plant, fuel, cold storage/freezer facility and critical services such as processors, buyers, mechanics, electricians.
6. **Recommendations.** The culmination of the input gathered throughout the two-year project aimed at addressing the highest priority needs and leveraging opportunities, recommendations are aimed at perpetuating the resilience of the fishing industry and include: protecting waterfront zoning and land use policies to prioritize fishing fleet use of the Eureka waterfront, ensuring reliable maintenance dredging schedule for city and Harbor District commercial fishing facilities, establishing ice and cold storage, a more reliable dredging and sediment management program, increased gear storage opportunities, maintenance and upgrades of docks and piers, streamlined permitting for mariculture, efforts toward improved water quality and habitat protection, consideration of a community quota fund, improved marketing and distribution, recruitment of new participants, and continued ties and synergies with tourism and recreation.
7. **Potential Funding Sources.** CSPs are intended to provide a blueprint for actions that will strengthen the fishing industry and benefit fishermen and the entire community. To better assure the implementation of the recommendations, the CSP includes, as a final chapter, a list of potential funding sources that could make the recommendations a reality.

OTHER CITY INITIATIVES

In 2015, the City of Eureka hired a consultant team to conduct a demand and technical study for a Regional Cold Storage facility, a need for which had been identified in the Humboldt County 2012 Comprehensive Economic Development Strategy. The project was funded by an Economic Development Administration grant.



Regional Cold Storage Facility Technical Study, 2015

Through the years, the City of Eureka, with the support of the fishing industry, has planned for and obtained millions of dollars in funding (state, federal, local and private sources) and implemented many critical capital projects on the waterfront. Notable successes include the Bonnie Gool Guest Dock, Small Boat Basin Modernization, waterfront land acquisition, Eureka Fishermen's Terminal, Commercial Street dock and fueling facility, EDA fish processing plant, and Eureka flake ice facility. The City is also actively engaged in several planning and economic development efforts which have potential benefit for the fishing industry, such as the Regional Cold Storage Facility Technical Study, Strategic Plan to Create Manufacturing and Industrial Jobs, General Plan Update, and Zoning Code Update, among others. The County also funded and managed the Humboldt Bay Maritime Industrial Market Study which was completed in May 2018. These efforts are evidence of the community's capacity to take projects from start to finish and bode well for the actions identified in the CSP. That said, besides funding, capital projects require recognition to their importance and support from civic leaders and elected officials (City Council and Board of Supervisors) and a champion in the community. Ultimately, the Eureka FCSP is intended to support and guide the fishing and mariculture industries to better generate recognition, support, and funding for measures that will benefit and better assure their long-term sustainability.

HISTORY AND BACKGROUND

Eureka was originally inhabited by the Wiyot peoples, who were known for their extensive knowledge of the fisheries and fisheries management. Humboldt County was established in 1853, and the town of Eureka was made the county seat three years later. By the late 1850s, Eureka developed into a hub for gold mining, timber, and fishing, and became the shipping center for the region, serving gold mining and timber harvesting interests from land-locked Trinity and Siskiyou Counties. Dredging operations began in 1881 as part of a U.S. Army Corps of Engineers effort to improve and maintain navigational channels in the bay. By the late 1880s, the bayside commercial district of Eureka was heavily developed.

The bay was the primary form of transportation for people and goods until the Northwest Pacific Railroad was extended to Humboldt Bay in 1914 and Highway 101, or the Redwood Highway, was completed in 1926. During World War I, the Eureka waterfront briefly became home to shipbuilding operations, however the industry faded after the war and the last shipyard closed in 1921. After World War II, the postwar building boom resulted in an increased demand for construction materials, providing a boost to the local economy. During this time, the availability of affordable automobiles increased tourism along the Redwood Highway.

The new transportation routes eventually precipitated a decline in the marine shipping industry and passenger ship service, and many of the early waterfront facilities, including the Arcata docks, fell into disrepair. Despite the decline, marine shipping has remained important for the distribution of lumber and wood products, with approximately 1.25 million tons of cargo shipped by ocean-going vessels out of Samoa Spit, Fields Landing, and the southern Eureka waterfront in 1968. Throughout this period, fishing remained a key waterfront activity and an important economic driver in the community. The state legislature created the Humboldt Bay Harbor District in 1970, it was officially adopted by area voters in 1973 (Grand Jury, 2015).



S.S. Spokane at Eureka, date unknown, HSU archives



Waterfront - Eureka, date unknown, HSU archives



Eureka docks, ships, boats. Tom Lazio's Fish Co. visible in distance, date unknown, HSU archives

PROJECT SETTING



Humboldt Bay, Google Earth

The City of Eureka is located on Highway 101, approximately 270 miles north of San Francisco and 90 miles south of the California-Oregon border. It is the largest coastal city between San Francisco, California, and Coos Bay, Oregon, and sits on Humboldt Bay, the second largest estuary in the state. The Bay is also the only naturally-enclosed deep draft harbor for major commercial ships between San Francisco and Coos Bay, and supports a diverse ecosystem for commercial, charter, and recreational fishing, as well as mariculture. The bay consists of two wide, shallow, northern and southern arms known as Arcata Bay and South Bay that are connected by a narrow channel. The bay is 14 miles long and 4.5 miles wide at its widest point. A deep-water channel located near the north end of South Bay connects the bay to the ocean. The diverse marine topography provides a rich habitat for a large variety of wildlife. It is estimated that the bay supports more than 250 species of birds, at least 50 species of mammals, and approximately 95 species of marine fish, including serving as a nursery area for English sole and Dungeness crab.



Humboldt Bay supports recreational and commercial uses, HSU 2017

Eureka’s waterfront is integral to its identity and economy, serving as a tourist attraction, shipping port, and fishing hub since the late 1800s. The protected harbor makes the city an ideal destination for bird watching, fishing, and water sports such as kayaking, rowing, canoeing, sailing, and stand up paddle boarding. The bay also supports a vibrant sport fishing community with more than 10,400 people participating in chartered fishing trips in the North Coast region in 2016.

Members of the Wiyot Tribe use the waterfront for subsistence, cultural, and economic purposes. In a June 2017 Coastal Commission meeting, Tom Torma, the Cultural Director of the Wiyot Tribe, said, “Wigi [Humboldt Bay] is a major food provider for recreational anglers and gathers as well as commercial fishermen and crabbers; communities which include large numbers of Wiyot people. And of course it is vital for many for many Wiyot traditional anglers and gatherers who aside from food found driftwood to build homes and tools as well as seaweed, eel grass, botanicals from the surrounding marshlands, and other resources . . . [especially] the native clams and mussels that inhabit the bay.” Tuluwat (sometimes referred to as Indian Island) is the site of the Tribe’s annual World Renewal Ceremony. After the violent massacre of inhabitants of the village during the ceremony in 1860, settlers seized control of the island and put it towards industrial use, leaving a toxic legacy. The Wiyot Tribe regained ownership of portions of Tuluwat through a land purchase and land transfers starting in 2000. Upon regaining ownership, the Tribe led a large-scale effort to clean up the island. After completion of the clean-up in 2014, the Wiyot Tribe held the World Renewal Ceremony once more -- the first time in 154 years. The Tribe uses waterfront infrastructure on Humboldt Bay to launch vessels to access the island site for ceremonial and other uses.

The city also retains Victorian-era buildings and many types of architecture from the 1850s to present and was listed in the National Register in 1991. Construction of the Eureka Waterfront Trail and investment in public spaces such as the Madaket Plaza have increased pedestrian and bike traffic in the area and spurred a resurgence in commercial activity. Rise of the “buy local” movement has increased interest in items produced in Humboldt County, from crafts and personal care products to drinks and food products, including seafood.

FISHING COMMUNITY

Fishing has been and continues to be an important part of the social, cultural, and economic fabric of the Eureka area. The region is marked by the California Current, one of the world’s four major wind-driven upwelling systems, the other three systems being located along the west coasts of South America, and southern and northern Africa (GFNMS, 2014). This offshore transport of surface waters results in the upwelling of cold, nutrient-rich waters from depth into sunlit surface waters to support a food-rich environment and promote the growth of organisms at all levels of the marine web.

In 1857 a colony of Chinese fishermen located on Humboldt Bay caught variety of species, including salmon, sablefish, rockfish, halibut, and sole, as well as some trap-caught crab. The catch was dried and shipped to San Francisco by steamer. From 1858 to 1868 there was an active shark fishery for their oil. Completion of the inland North Western Pacific Railroad in 1914 allowed for fish shipments to San Francisco by rail. In the late 1930s there was a pronounced shift of trawler vessels away from San Francisco to Eureka, resulting in greater landings of flatfishes and establishing Eureka as the most important fishing center north of San Francisco.

The Wiyot people have been involved in the cultivation and consumption of bivalves in Humboldt Bay traditionally and into the present. Large-scale oyster production began in Humboldt Bay in the mid-1950s, reaching more than 1.4 million pounds per year between 1957 and 1963. Production fell after 1963, but in 1971 oyster farmers produced more than 690,000 pounds of oysters, making up 70% of all oyster production in the state. Commercial fishing continued to thrive during this time as well. Commercial fishing was valued at \$12 million in 1964, representing 5.5% of Eureka’s economy. In 1969, approximately 450 commercial fishing vessels operated out of Humboldt Bay, and landed more than 26 million pounds of fish including 1 million pounds of salmon, 3 million pounds of market crab, and 17 million pounds of trawl-caught fish. By the early 1970s there were 6 processors in Eureka with a thriving oyster production industry and trawl fleet, with more than half of the seafood produced and consumed in California landed in the Humboldt Bay area. Recreational private boat and charter fisheries targeted salmon and other species, further supporting the local economy.



Offshore currents, NOAA



Boat basin at the foot of Commercial Street, year unknown, HSU archives



Examining oyster shells, 1971, HSU archives

DEMOGRAPHIC PROFILE

The population of Eureka was 27,191 in 2010, according to the U.S. Census. Eureka’s overall population has increased from 26,128, reported in the 2000 census. Eureka is located within Humboldt County, which had a population of 134,623 in 2010.

The age distribution of residents shows a slightly lower percentage of persons 65 years of age and older residing in Eureka at 11.8%, compared to Humboldt County at 13.2%. In Eureka and Humboldt County, persons under 18 years represent 20.1% of the population (2010 U.S. Census).

Residents have a median household income of \$39,063 in Eureka, compared to \$42,685 in Humboldt County (2016 dollars). In Eureka, 23.4% of individuals live below poverty level, compared to 20.0% in Humboldt County (2012-2016 ACS).

Approximately 87.1% of Eureka residents age 25 and up have graduated high school, compared to Humboldt County at 90.3% and California at 82.1%. Those older than 25 with bachelor’s degrees make up 25.7% of the population, 2.5% lower than the County average and 6.3% lower than in the state (2012-2016 ACS).

The City has a foreign-born population of 6.6%, compared to the County average of 5.3%. Approximately 13% of persons ages five and up speak a language other than English at home, compared to Humboldt County at 10.9% (2012-2016 ACS).

Eureka has a larger percentage of persons under 65 years without health insurance at 21.5% compared to Humboldt County at 8.3%.

The total civilian work force in Eureka, defined as those over the age of 16, is 60.4%, compared to 58.9% in Humboldt County (2012-2016 ACS). Management, business, science, and arts occupations make up 33.6% of jobs. This is followed by sales and office occupations, at 23.8%, and service occupations at 23.3%. Approximately 1,630 people, or 13% of the active workforce, is self-employed.



Eureka Waterfront, HSU 2017

2 ECONOMICS AND MARKETS

INTRODUCTION

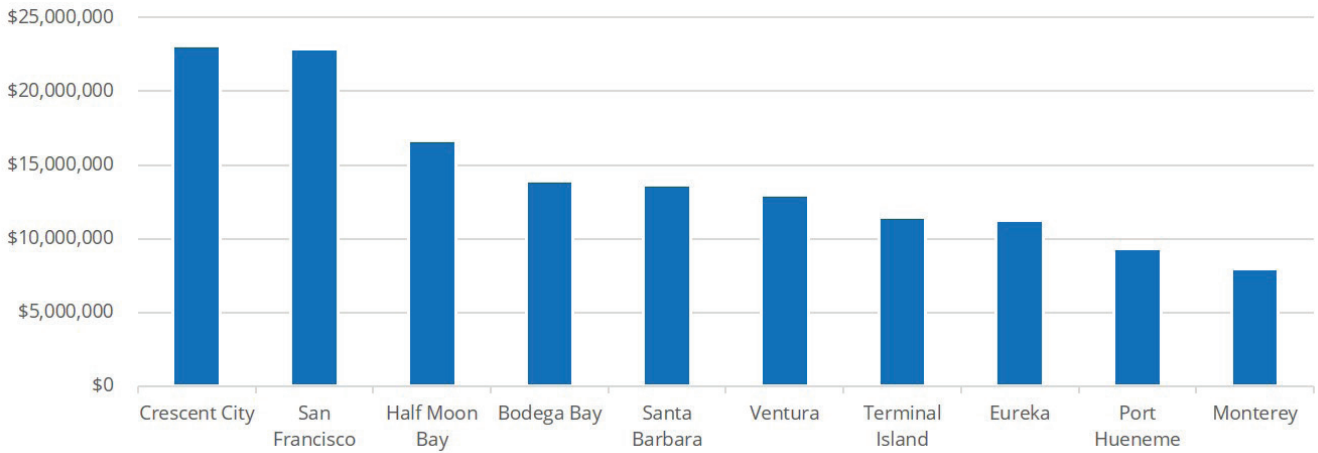
Humboldt Bay is the second-largest estuary in California, and the only deep-water port between San Francisco and Coos Bay, Oregon. The primary port in Humboldt Bay, Eureka is also home to one of the top commercial fishing fleets in the state. Humboldt Bay also has a thriving shellfish mariculture industry that produces about 70% of California's oysters. The Bay is not only a large part of the community's social identity, but it's also a key economic driver.

The economic performance of the Eureka fishing community is fundamental to its sustainability. Earnings from selling seafood landed in Eureka generates income for skippers and deckhands, as well as for business owners and employees who provide ice, fuel, bait, gear, and supplies. The local commercial fishing industry also supports local tradespeople and boatyards that provide vessel repair services and creates income from slip fees, wharfages and other marina services. The Commercial Passenger Fishing Vessel (CPFV) and recreational fishing fleets likewise contribute to the vibrancy of local employment, and businesses which support a robust working waterfront, one of the most unique and valuable features of Eureka. The shellfish mariculture industry also provides jobs and economic benefit related to seafood production.

Eureka is consistently among the top earning commercial fishing ports in the state, as measured by ex-vessel value (EVV). In 2016, Eureka was the seventh highest, making up 5.6% of the state total. As noted above, earnings by fishermen at the dock is an important measure of economic performance as it is the source of earnings for others in the fishing industry complex. EVV does not include wages or business income associated with the "downstream" processing, distribution, or retail sales of fish.

The Economics Chapter is part of a comprehensive assessment of commercial fishing and its place on the Eureka working waterfront. Economics represents a significant influence on the final recommendations for a more resilient fishing industry and synergies with charter and recreational fishing, mariculture and tourism.

TOP EARNING PORTS, CALIFORNIA EVV, 2016



Source: CDFW

The California Department of Fish and Wildlife requires a commercial fisherman to complete and submit a fish ticket with each sale upon each trip. If a fisherman sells to 3 buyers, then 3 fish tickets are required. Fish tickets include the skipper’s name, start date of the trip, landing date, vessel name, buyer name, vessel registry, permit numbers, identification of geographic areas fished, type of gear used, species, weight and price. This level of transparency and self-reporting is a hallmark of a sustainable industry and makes the U.S. commercial fleet, particularly California, one of the most highly regulated in the world.

Economic performance directly influences the attraction and retention of workers, and it spurs and enhances relationships within and outside of the fishing community. Economics also influences the fishing community’s sense of accomplishment, well-being, and perspective for the future.

Data on earnings, landings, species, vessel IDs and trips is gathered by the California Department of Fish and Wildlife (CDFW) through fish tickets (landings receipts), which are generated at the completion of each commercial fishing trip when fish are sold to a receiver or receiver-processor at the dock. Information on commercial passenger fishing vessel (CPFV or charter) activity and employment is gathered from logbooks provided to CDFW, as well as surveys conducted by the National Marine Fisheries Service (NMFS), National Ocean Economics Program (NOEP) or entities such as HSU faculty researchers. Information on mariculture production in Humboldt Bay was sourced from NMFS, the Humboldt Bay Harbor, Recreation, and Conservation District, other local governments, and from direct survey research led by HSU faculty. To the extent possible, the authors used the most recent data available.

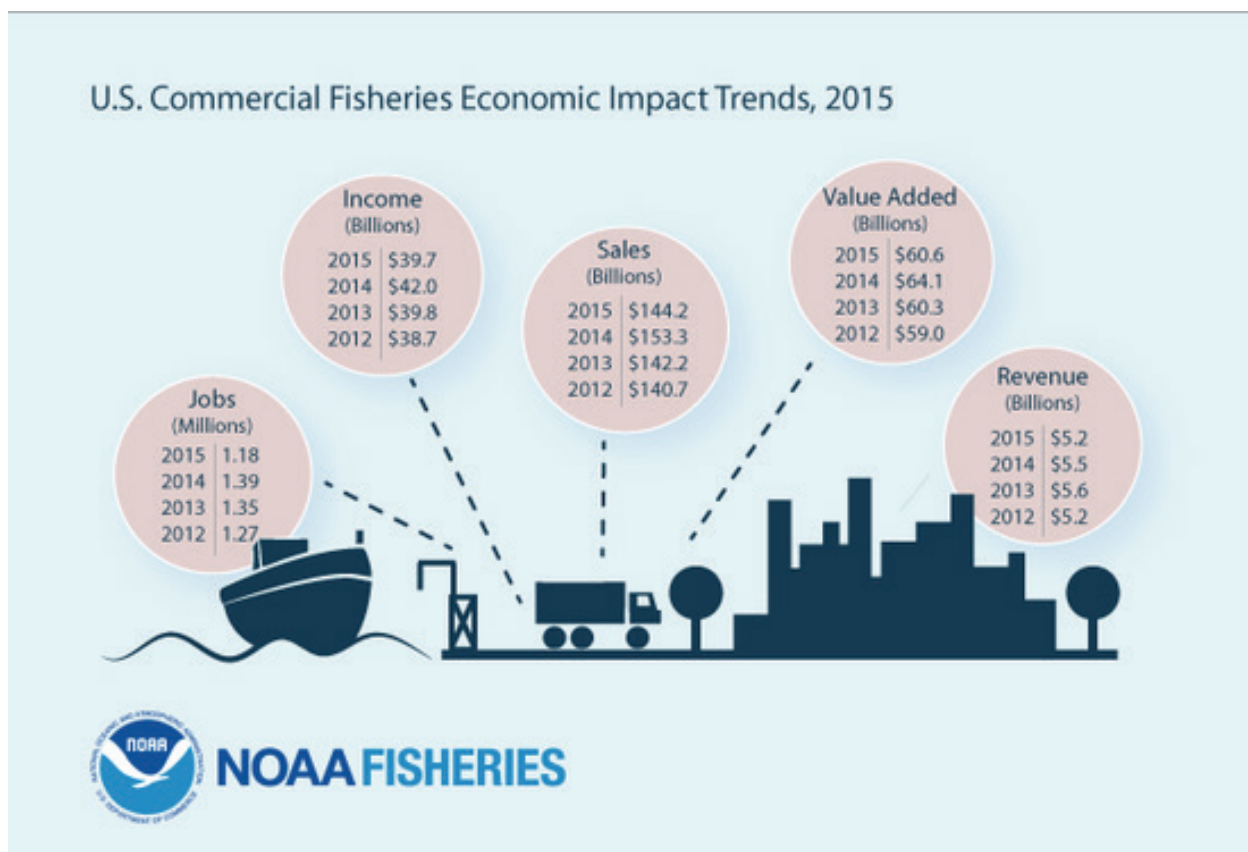
COMMERCIAL FISHING AND THE U.S. ECONOMY

The Eureka commercial fishing fleet is part of a vibrant industry that generated more than \$5.36 billion in United States' ports from over 9.6 billion pounds of landings in 2016.

In 2015, commercial fishing in the U.S. supported over 1.18 million jobs (NOAA Fisheries, Fisheries Economics of the United States-2015).

The impact of commercial fishing extends beyond the boat and the dock. It directly supports jobs "downstream" in seafood processing, distribution, retail and food service; and "upstream" in vessel and gear sales and repair, bait and fuel purchases, and indirectly supports jobs in tourism. Commercial, charter, and recreational fishermen also employ diesel mechanics, electrical and electronics technicians, welders, and a host of other craftsmen and businesses.

Since 1990, commercial fishermen in Eureka have generated \$324 million at the docks, with an average of \$12 million per year.



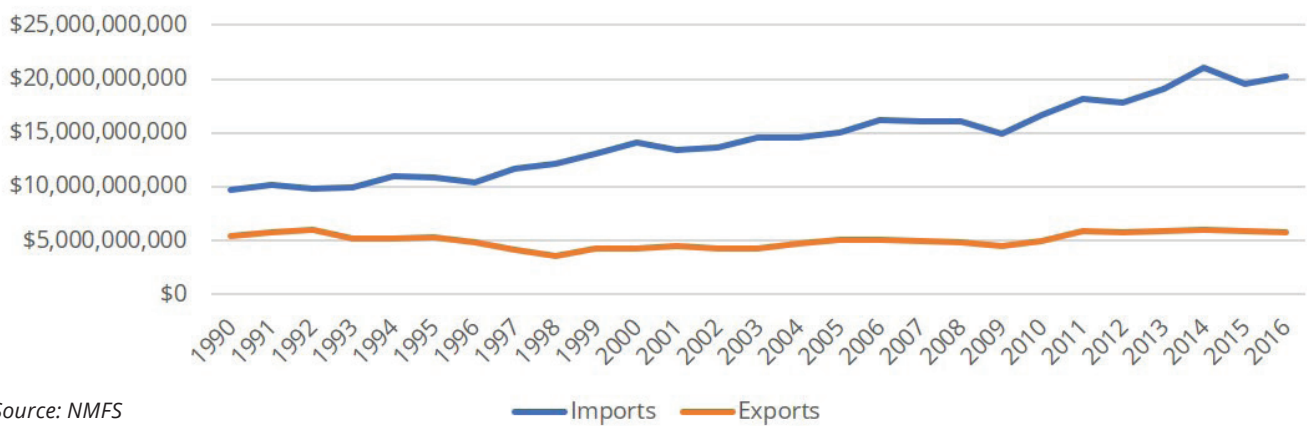
NOAA Fisheries, *Fisheries Economics of the United States, 2015*

IMPORTS AND EXPORTS

Commercial fishing connects Eureka to a global industry that includes processing, distribution, retail sales, and food service. The amount of U.S. seafood landings that are exported has been rising over the past 27 years, from 24% in 1990 to 35% in 2016. In 2015, the U.S. exported 3.4 billion pounds of seafood and fish products, worth \$5.7 billion. The largest export markets for U.S. harvested seafood between 1990 and 2016 were Japan, Canada, China, South Korea, and the Netherlands.

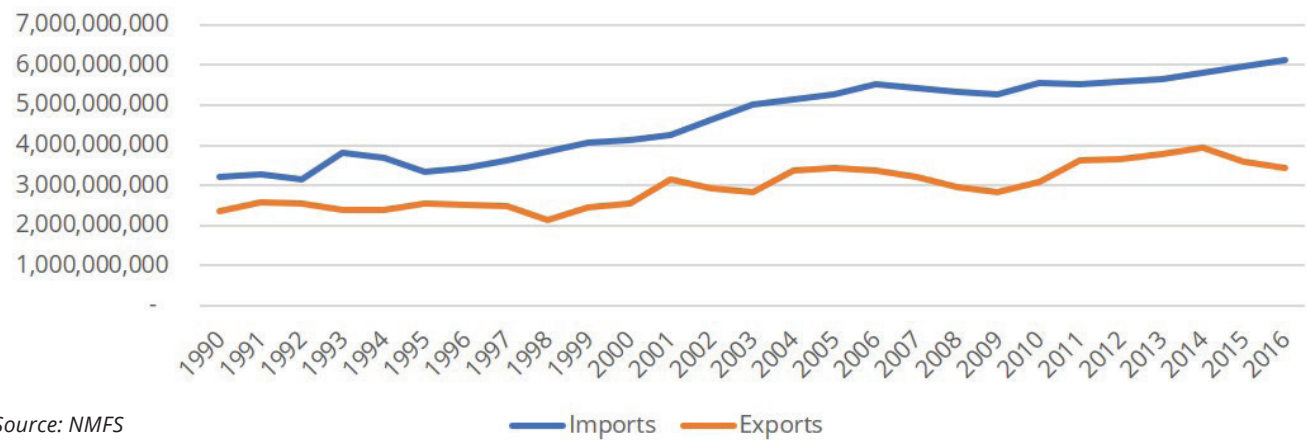
Imports have also been rising. In 2015, the U.S. imported 5.7 billion pounds of seafood products worth \$19.7 billion, up from \$9.7 billion in 1990. In 2017, NOAA reported that the U.S imported more seafood than any time in its history, 6 billion pounds valued at \$21.5 billion.

ALL SEAFOOD IMPORTS AND EXPORTS 1990 - 2016



Source: NMFS

ALL SEAFOOD IMPORTS AND EXPORTS BY POUND 1990 - 2016



Source: NMFS

WEST COAST COMMERCIAL FISHING

Eureka, as part of the U.S. West Coast, represents a significant portion of U.S. commercial fishing activity. Commercial Fishermen in California, Oregon, and Washington have generated more than \$15 billion in EVV between 1990 and 2016, and in 2016 earned approximately \$655 million, over 8.2% of the total for the entire nation (not adjusted for inflation).

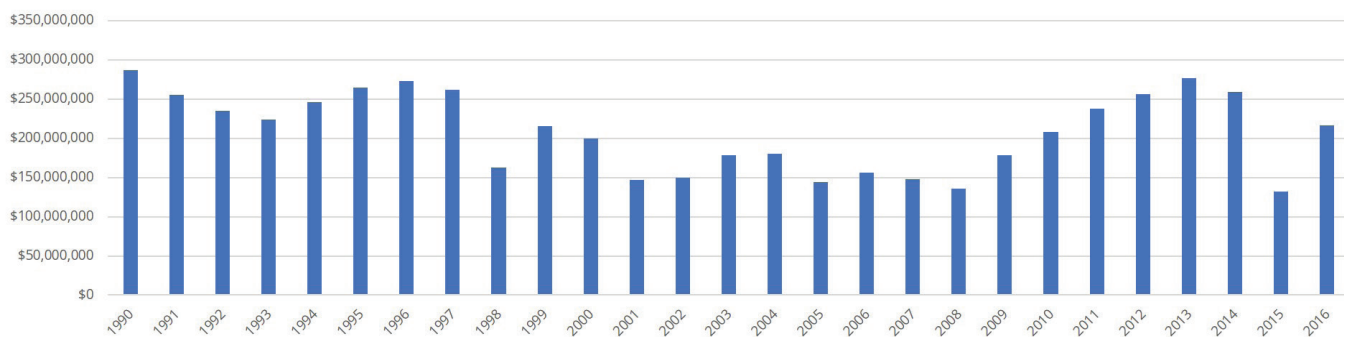
COMMERCIAL FISHING IN CALIFORNIA

Commercial fishermen in Eureka contribute to the U.S.'s largest seafood market, with total California seafood sales in 2015 of \$21.3 billion, outpacing all other states.

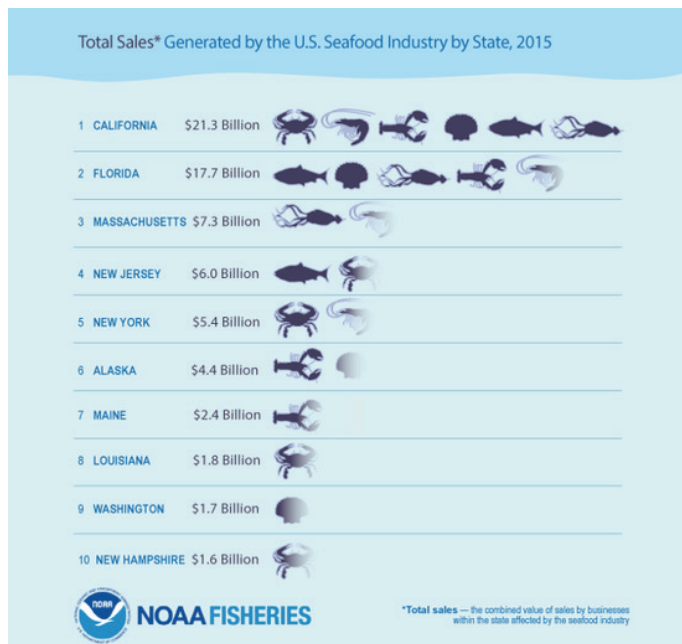
California commercial fishermen generated over \$200 million in earnings at the dock in 2016, according to the National Marine Fisheries Service (NMFS).

In 2015, the California commercial seafood industry supported 114,000 jobs and recreational fishing approximately 16,000 jobs (NOAA Fisheries).

CALIFORNIA COMMERCIAL FISHING EVV, 1990 – 2016



Source: NMFS



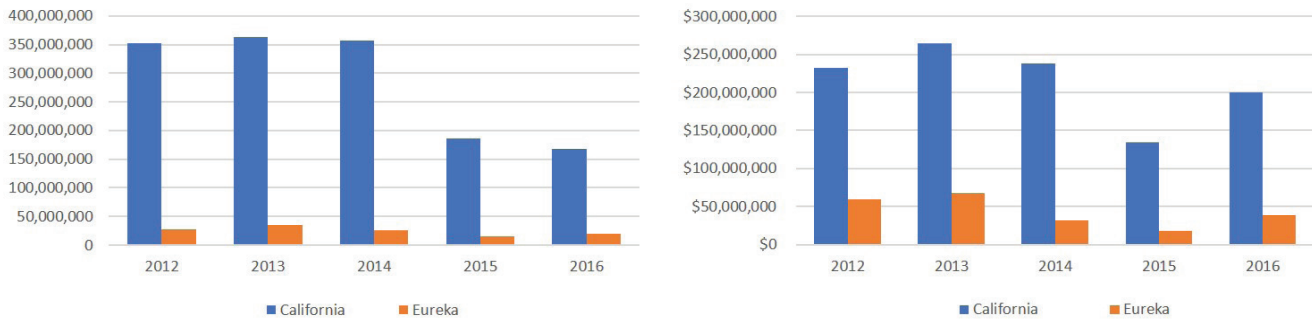
In 2015, California outpaced all other states in the U.S. in combined sales by seafood-related businesses.

NOAA Fisheries, Fisheries Economics of the United States, 2015

RELATIVE PERFORMANCE

In the five years between 2012 and 2016, commercial fishermen in Eureka have produced between 2% and 6% of the State’s entire landings by weight, and since 2000, between 4% and 10% of statewide earnings at the dock.

TOTAL LANDINGS (POUNDS) AND EVV; CALIFORNIA, 2012 - 2016



Source: CDFW

Multipliers in the California commercial fishing industry are typically around 1.5 at the County level, due to greater economic leakage from purchase of non-local inputs and are typically around 2 at the state level (S. Hackett, et al. 2009).

MULTIPLIER EFFECT AND THE IMPACT OF COMMERCIAL FISHING

Each dollar earned by a commercial fisherman in Eureka generates roughly 1.5 that value for the Humboldt County economy through the ripple or multiplier effect (The Economic Structure of California’s Commercial Fisheries, S. Hackett, et al. 2009).

In 2009, Dr. Steven Hackett (et al.) of Humboldt State University created the California Ocean Fish Harvester Economics model (COFHE), an economic impact model that generates a comprehensive set of multiplier values that can be used to estimate the total economic impact of commercial fishing to California, by fishery and by geographic area. Multipliers are typically around 1.5 at the County level, due to greater economic leakage from purchase of non-local inputs and are typically around 2 at the state level.

Despite the significance in economic contributions of the commercial and recreational fishing industries, they are often overlooked and misunderstood.

Despite the significance in economic contributions of the commercial and recreational fishing industries, they are often overlooked and misunderstood. This work is intended, in part, to raise awareness among civic leaders, elected officials, regulators, industry participants and the public about fishing’s contribution to local communities and the overall economy. The work is also aimed at giving fishing industry participants and industry managers the tools with which to chart progress, anticipate changes, and make adjustments to better assure a robust and on-going future for their fishing industry.

ECONOMIC INDICATORS

Key economic measures in the commercial fishing industry include earnings at the dock (ex-vessel value or EVV), landings by weight, price per pound, species diversity, employment, availability and condition of related infrastructure, number of active fishermen and vessels, and connections to markets. Internal alliances among fishermen and external alliances with civic leaders, agencies, academia, and tourism are also important measures of economic performance and capability.

PERFORMANCE METRICS AND INDICATORS IN EUREKA, CA

Indicator	Metric
Production	Landings by weight
Revenue (Gross)	Earnings at the dock, Ex Vessel Value (EVV)
Production Value	Price per pound
Diversity	Relative species weight and earnings
Employment	Number of jobs and job types
Port capacity	Presence and condition of critical infrastructure and services and active vessels
Awareness	Level of waterfront tourism, demand for product, consideration in policymaking
Trends	Change in metrics over time

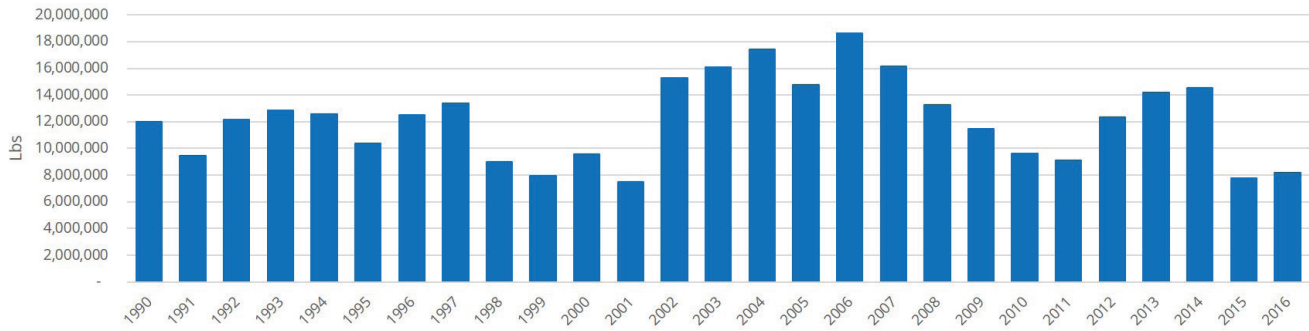
EUREKA LANDINGS, EARNINGS, AND PRICE PER POUND

Overall Landings. Since 1990, commercial fishermen in Eureka have landed approximately 327 million pounds of seafood, at an average of 12.1 million pounds per year. Annual landings by have ranged between a low of approximately 7.5 million pounds in 2001 to a high of 18.6 million in 2006. The commercial fleet logged two powerful seasons in 2013 and 2014 clearing 14 million pounds each year. The drops in 2015 and 2016 were largely attributed to shortened Dungeness crab seasons due to regulatory closures based on the presence of domoic acid found in some samples of the population. While as of April 2018, no human cases of domoic acid poisoning have been reported in California, the Office of Environmental Health Hazard Assessment (OEHHA) has made numerous recommendations to close or delay the opening of Dungeness crab, rock crab, and razor clam fisheries, in various coastal locations, when levels of domoic acid exceeded the federal action level for this toxin (Office of Environmental Health Hazard Assessment, 2018)

The economic data in this section (unless otherwise indicated) has been adjusted for inflation to 2016 levels using the Consumer Price Index.

Applying the multiplier, it can be estimated that commercial fishing has resulted in approximately \$486 million circulating throughout the Humboldt County economy since 1990.

EUREKA LANDINGS - ALL SPECIES, 1990 - 2016

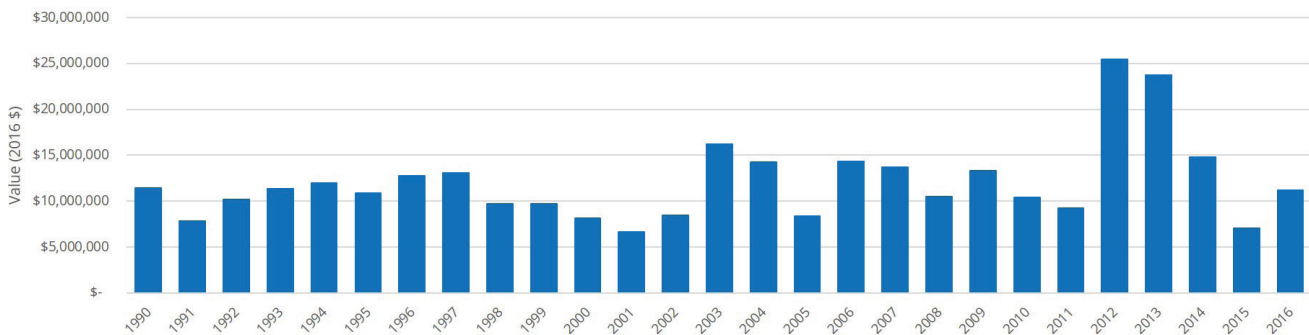


Source: CDFW

Overall Earnings. Earnings at the dock, or ex-vessel value (EVV), is one of the strongest indicators of economic activity and an important component of sustainability. Since 1990, commercial fishermen in Eureka have generated \$324 million at the docks, with an average of \$12 million per year.

The value of landings in Eureka ranged from \$6.6 million in 2001 to \$25 million in 2012. Variability in earnings depends on a variety of factors including fluctuations in fish stocks, market conditions (supply and demand), and the regulatory landscape. The spike in earnings during 2012 and 2013 corresponds with high landings of Dungeness crab making up 80% of the total in 2012 and 75% of total earnings in 2013. In 2016, commercial fishermen in Eureka earned over \$11.2 million at the dock.

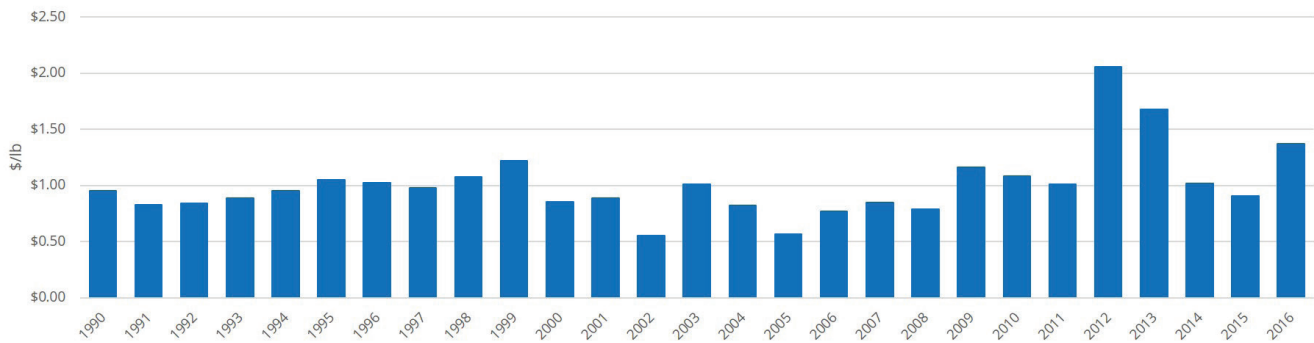
EUREKA EVV - ALL SPECIES, 1990 - 2016



Source: CDFW

Overall Price Per Pound. Price per pound is an important economic performance indicator that reflects the effectiveness of the commercial fishing fleet to capture value for their landings while adapting to ever-changing supply, demand, environmental, and regulatory conditions. The overall average price per pound for all species also reflects the mix of fisheries in which the local fleet participates. Participation in high volume, lower value fisheries such as Dover sole and Ocean shrimp lowers the overall average price per pound, while low volume, higher value fisheries such as salmon increase average price per pound. Between 1990 and 2016, commercial fishermen in Eureka have earned \$1.00 per pound averaged over all landed species. The highest average price per pound was \$2.08 (in 2016 dollars) in 2012 and the lowest was \$0.56 per pound in 2002. In 2016, overall average price per pound was \$1.37.

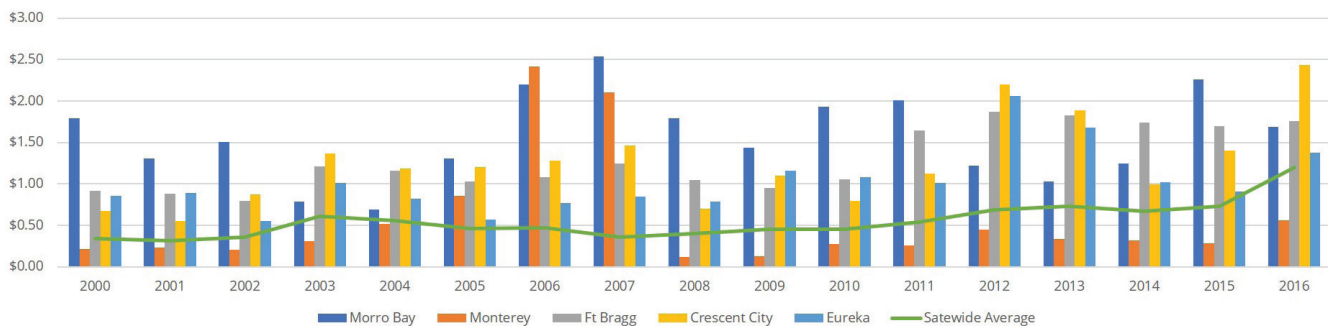
EUREKA PRICE PER POUND - ALL SPECIES, 1990 – 2016



Source: CDFW

Price per pound is primarily an outcome of market forces such as consumer preferences and income, competition from imports, stock abundance and availability, existing frozen inventory, and the effectiveness of local processing and distribution channels. In the last 17 years, Eureka commercial fishermen have outpaced the California average price per pound every year and have competed shoulder to shoulder with the top performing ports in the northern half of the state. The chart below shows Eureka’s average price per pound (all species) relative to Morro Bay, Monterey, Fort Bragg, Crescent City, and the statewide average.

PRICE PER POUND 2000-2016, MORRO BAY, MONTEREY, FORT BRAGG, CRESCENT CITY, EUREKA



Source: CDFW

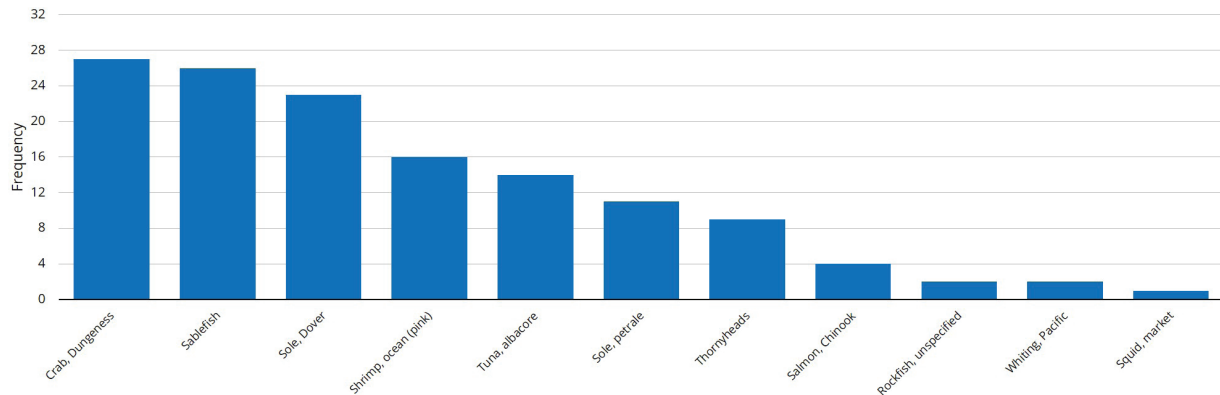
Eureka has one of the few live herring and anchovy fisheries in the state, an essential part of the West Coast commercial Albacore fishery.

IMPORTANT FISHERIES

The ability of Eureka commercial fishermen to adapt to complicated and changing regulations, market, and ocean conditions is an indicator of performance and resilience. One measure of resilience is the diversity of species targeted by the fleet.

Species Diversity. Eureka is highly dependent on a few key fisheries, primarily Dungeness crab, sablefish, Dover sole, Ocean shrimp, albacore tuna, Petrale sole and thornyheads. Dungeness crab was the top landed species in Eureka every year from 1990 – 2016 except for 2015, when it was second to sablefish. These key fisheries are targeted with a diversity of gear types on a diversity of habitats. The Dungeness crab fleet deploys traps, while sablefish and Dover sole are caught using bottom trawl and benthic long line, and salmon and albacore are caught one fish at a time by trolling or using chum and bare hooks. Despite a heavy reliance on Dungeness crab, if in one season or another, landings or market demand for one species is down or regulations are imposed on one gear type or location, a fishing fleet that is able to shift from one fishery to another will tend to be better able to sustain themselves over time.

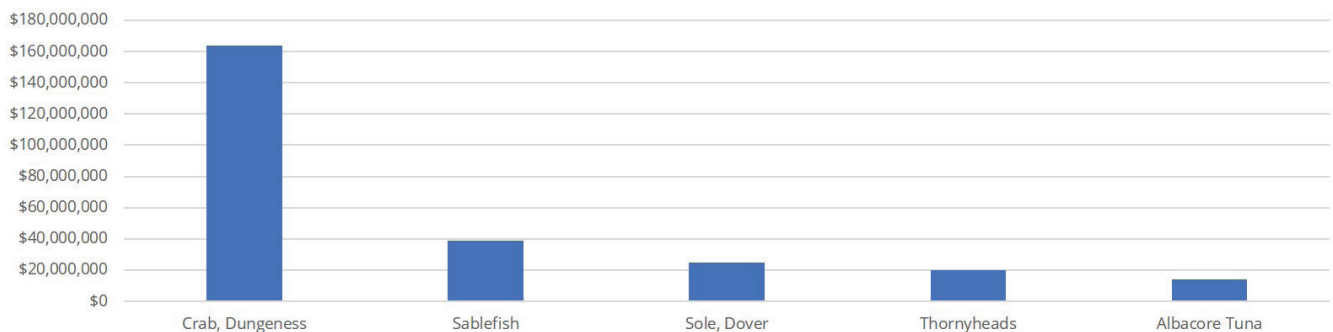
FREQUENCY AT WHICH A SPECIES RANKS IN TOP 5 EARNING SPECIES, 1990 - 2016



Source: CDFW

Top Species. The five highest value fisheries in Eureka since 1990 are Dungeness crab, sablefish, Dover sole, thornyheads, and albacore tuna. Together, these fisheries have resulted in earnings at the dock of \$259 million, or 80% of overall earnings during the 27-year study period.

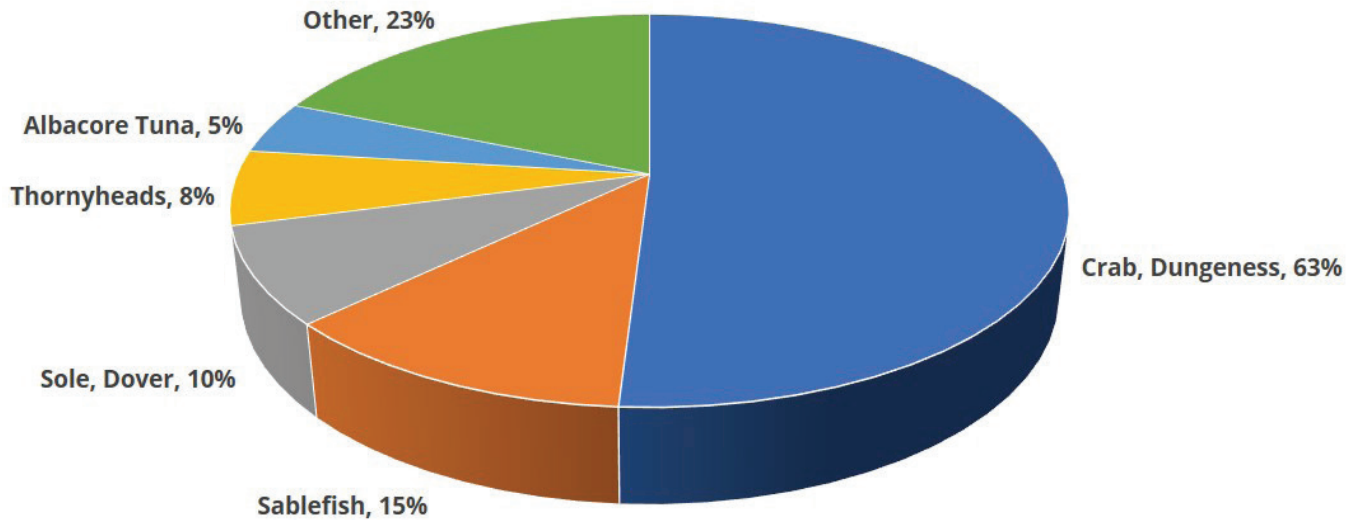
EUREKA, TOP 5 EARNING SPECIES 1990 – 2016



Source: CDFW

Top Species Distribution. Between 1990 and 2016, commercial Dungeness crab fishermen in Eureka brought in approximately 63% of all earnings in Eureka. Sablefish represented 15% of total earnings, while Dover sole made up 10%, thornyheads (short- and long-spine) 8%, and albacore tuna 5%.

EVV OF TOP 5 SPECIES, 1990 – 2016



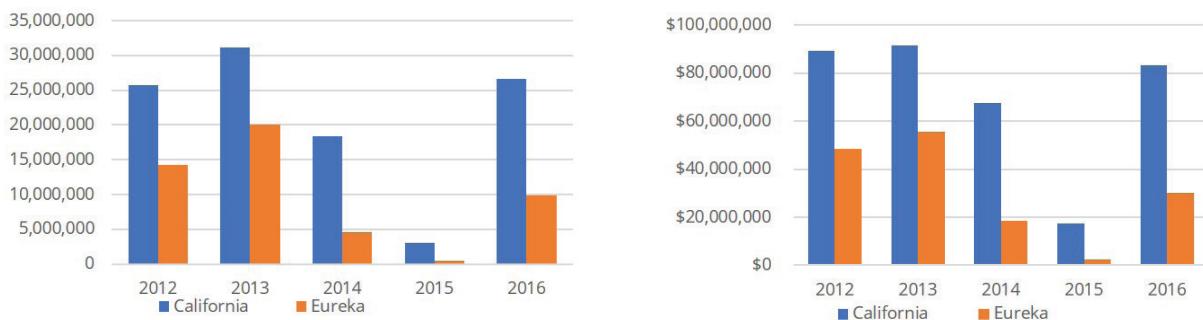
Source: CDFW

Dungeness Crab. Dungeness crab is one of the most valuable of all West Coast commercial fisheries, representing nearly \$4 billion in EVV in California, Oregon, and Washington since 1990. Commercial fishermen on the West Coast generated \$214 in EVV from Dungeness crab in 2016, with nearly 40%, or \$83 million, from the California fleet and nearly \$6 million from Eureka.

CDFW preliminary data shows Eureka landings at 4.5 million pounds of Dungeness crab in 2017, nearly the total for the entire Central Coast Region at 5.1 million pounds.

Eureka is a major contributor to the state’s performance in Dungeness crab fishery. Between 2012 and 2016, commercial fishermen in Eureka landed between 16% and 64% of California’s total by weight and generated between 15% and 62% of earnings at the dock.

DUNGENESS CRAB LANDINGS (POUNDS) AND EVV; CALIFORNIA VS. EUREKA, 2012 - 2016



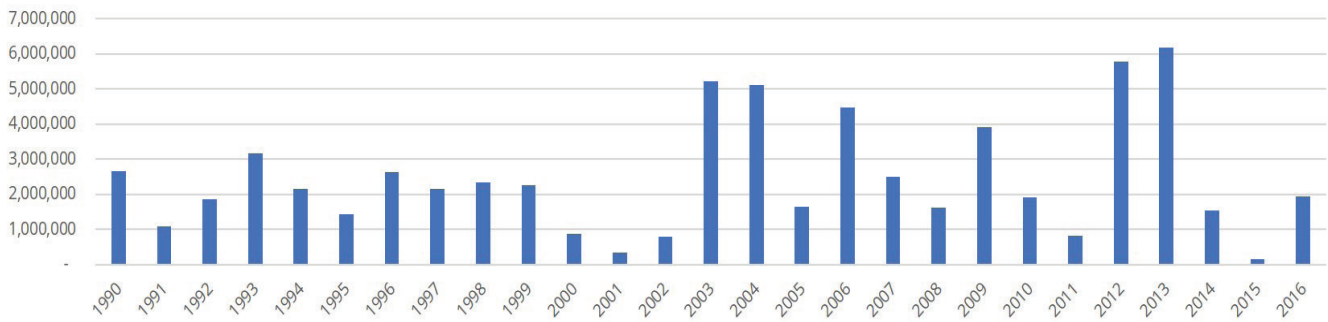
Source: CDFW

2 Economics and Markets

Commercial fishermen in Eureka have landed over 66.6 million pounds and generated more than \$165 million from Dungeness crab between 1990 and 2016. Dungeness crab was one of the top five landed species in each of the past 27 years in Eureka and is the single highest source of overall revenue for Eureka commercial fishermen.

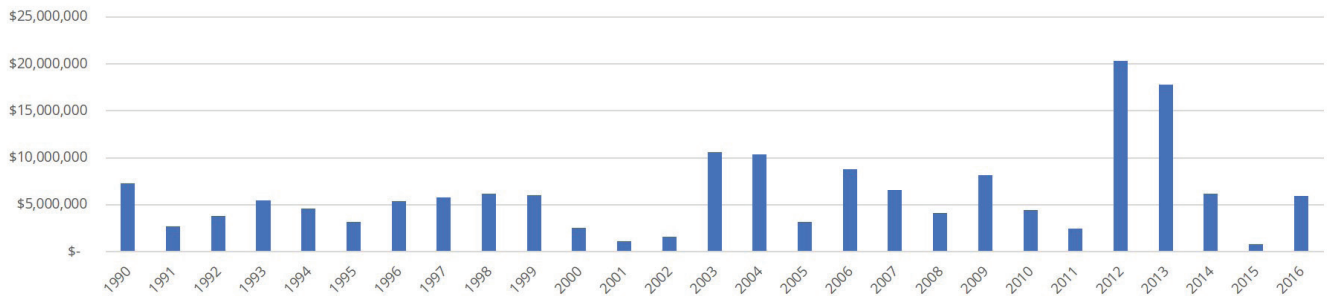
Dungeness crab landings vary depending on cyclical (approximately 10 years) population dynamics and regulatory conditions.

EUREKA, DUNGENESS CRAB LANDINGS (POUNDS) 1990 – 2016



Source: CDFW

EUREKA, DUNGENESS CRAB EVV 1990 – 2016

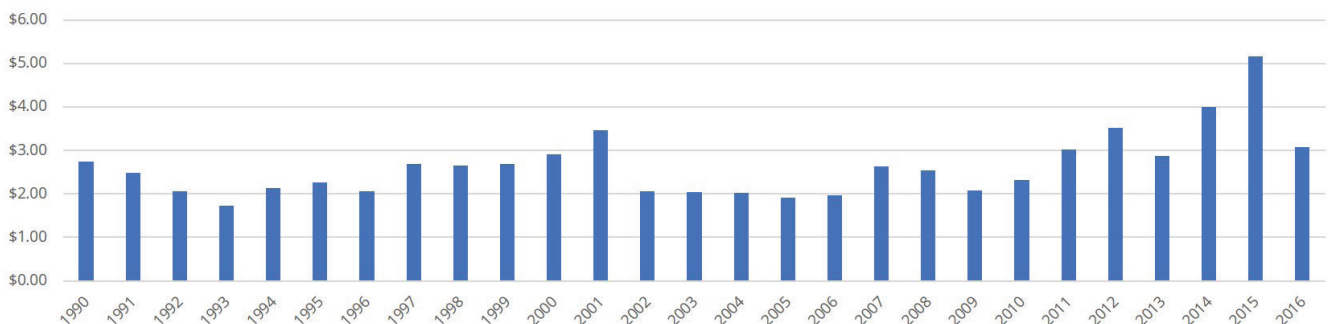


Source: CDFW

Earnings from Dungeness crab in Eureka followed a similar pattern as landings, ranging from a low of \$787,000 in 2015 to a high of \$20.2 million in 2012 and \$17.7 million in 2013. In 2016, Eureka fishermen earned nearly \$6 million at the dock from Dungeness crab.

The average price per pound for Dungeness crab ranges from a low of \$1.73 per pound in 1993 to \$5.16 per pound in 2015. Eureka fishermen earned an average of \$3.08 per pound for Dungeness crab in 2016.

EUREKA, DUNGENESS CRAB PRICE PER POUND 1990 – 2016

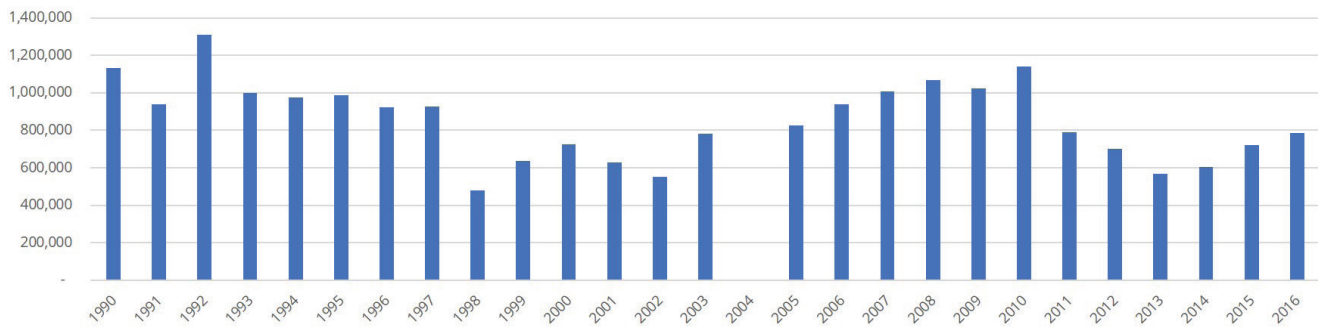


Source: CDFW

Sablefish. Sablefish, also known as blackcod, has been one of the top landed species in Eureka for 26 of the past 27 years. Since 1990, Eureka fishermen have landed more than 22 million pounds of sablefish. Since 1990, Eureka fishermen have landed more than 22 million pounds of sablefish.

Sablefish landings peaked in 1992 with more than 1.3 million pounds. Landings exceeded 1 million pounds per year again between 2007 and 2010, and then declined gradually to 568,000 pounds in 2013. Landings have increased steadily since 2014. In 2016, Eureka fishermen landed 784,000 pounds of sablefish.

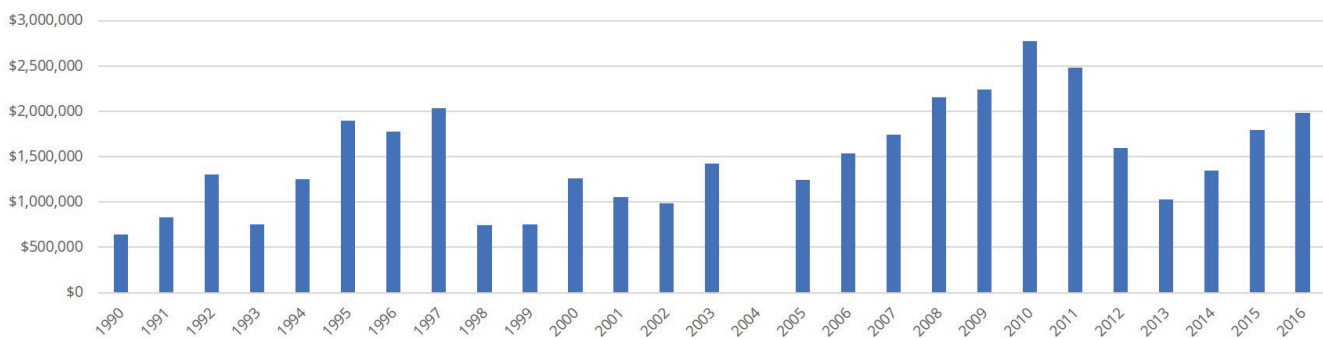
EUREKA, SABLEFISH LANDINGS (POUNDS) 1990 - 2016



Source: CDFW

Since 1990, commercial fishermen in Eureka have generated over \$38 million, or approximately 15% of all earnings from sablefish. Earnings in Eureka from sablefish have been more than \$1.2 million per year since 2003, peaking at nearly \$2.8 million in 2010 and \$2.4 million in 2011. In 2016, Eureka fishermen earned \$1.9 million in EVV from sablefish.

EUREKA, SABLEFISH EVV 1990 - 2016

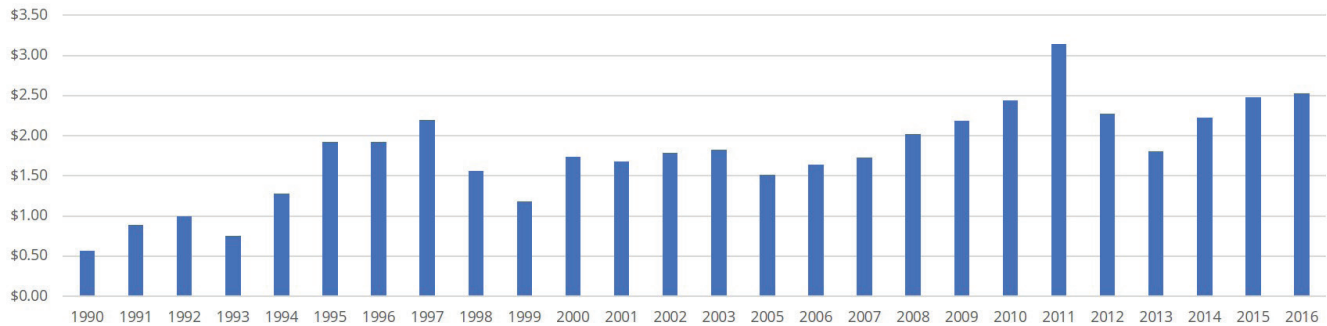


Source: CDFW

2 Economics and Markets

Commercial fishermen in Eureka have steadily earned more per pound for sablefish since 1999. The average price per pound generated by commercial fishermen in Eureka in the early 1990s ranged from \$0.57 per pound in 1990 to \$2.19 in 1997. Since 1999, when price per pound dropped to \$1.19, the average price per pound for sablefish has risen steadily, spiking in 2011 at \$3.14. In 2016, Eureka fishermen earned \$2.53 per pound for sablefish.

EUREKA, SABLEFISH PRICE PER POUND 1990 - 2016



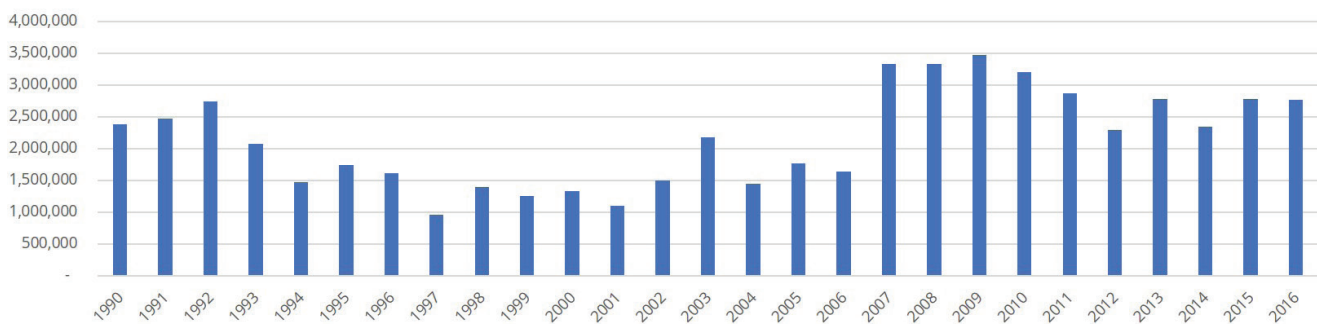
Source: CDFW

Since 1990, commercial fishermen in Eureka have landed over 58 million pounds of Dover sole, more than any California port, for the past 14 years.

Dover Sole. Dover sole are harvested throughout the Pacific Coast, from Santa Barbara to the Canadian border. Initially a by-catch of the early trawl boats, Dover sole were not targeted intentionally until the mid-1940s, to meet the demand of World War II military personnel. Landings increased rapidly from the 1960s into the early 1990s.

Coast-wide, landings fell in the early 1990s due increased regulation and resulting loss of markets. In Eureka, landings have increased steadily from a 27-year low in 1997, peaking in 2009 at 3.4 million pounds. In 2016, Eureka fishermen landed 2.7 million pounds of Dover sole.

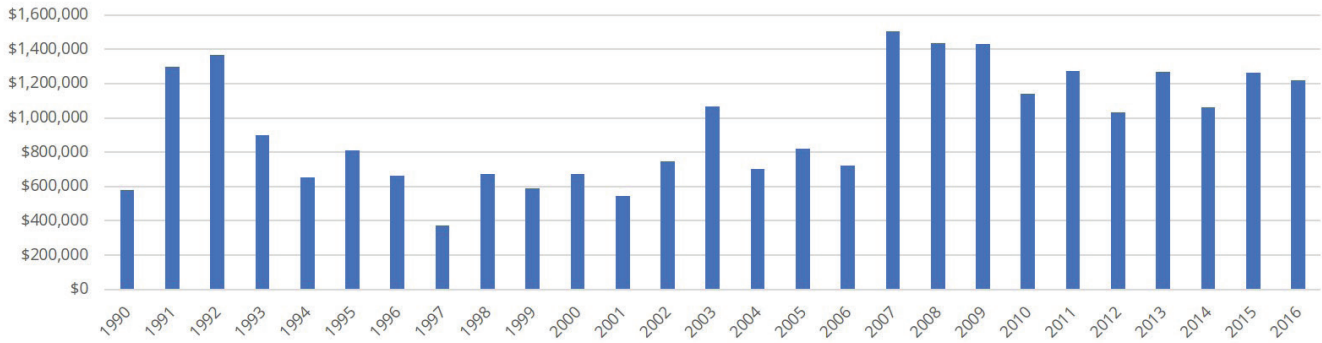
EUREKA DOVER SOLE LANDINGS (POUNDS) 1990 - 2016



Source: CDFW

Since 1990, Eureka fishermen have earned a total of \$25.8 million from Dover sole. Earnings followed a similar pattern as landings, falling through the mid-1990s and rising steadily from 1997. Earnings from Dover sole reached a 27-year high of \$1.5 million in 2007. Eureka fishermen generated \$1.2 million in EVV from Dover sole in 2016.

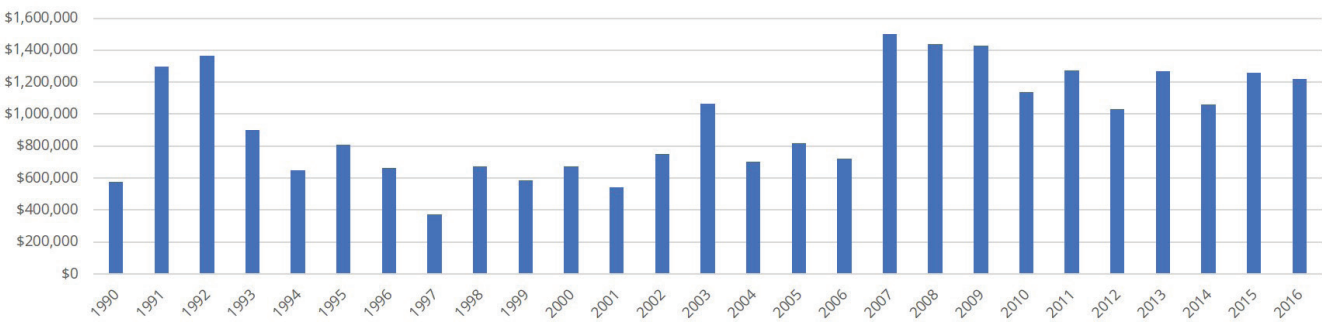
EUREKA DOVER SOLE EVV 1990 - 2016



Source: CDFW

The average price per pound fishermen earned for Dover sole jumped from \$0.24 per pound in 1990 to \$0.53 per pound in 1991. Since then, prices have remained fairly consistent, ranging from \$0.36 in 2010 to \$0.51 in 2000. In 2016, Eureka fishermen received \$0.44 per pound for Dover sole.

EUREKA DOVER SOLE PRICE PER POUND 1990 - 2016

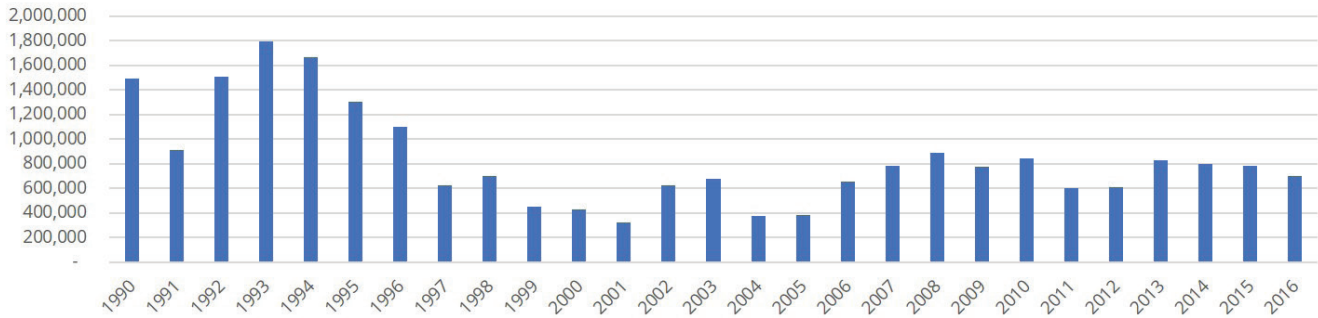


Source: CDFW

In 2016, Eureka was the highest earning port in the state for Dover sole for the 14th year in a row.

Thornyheads. Eureka is situated among one of the richest thornyhead fishing areas on the West Coast and is one of the top ports for thornyheads in the state. Landings and earnings of shortspine and longspine thornyheads were not recorded individually until 1995 and are combined for the purposes of consistency. Combined, thornyheads have been one of the top five landed species in Eureka in 9 of the past 27 years and represent 10% of overall EVV.

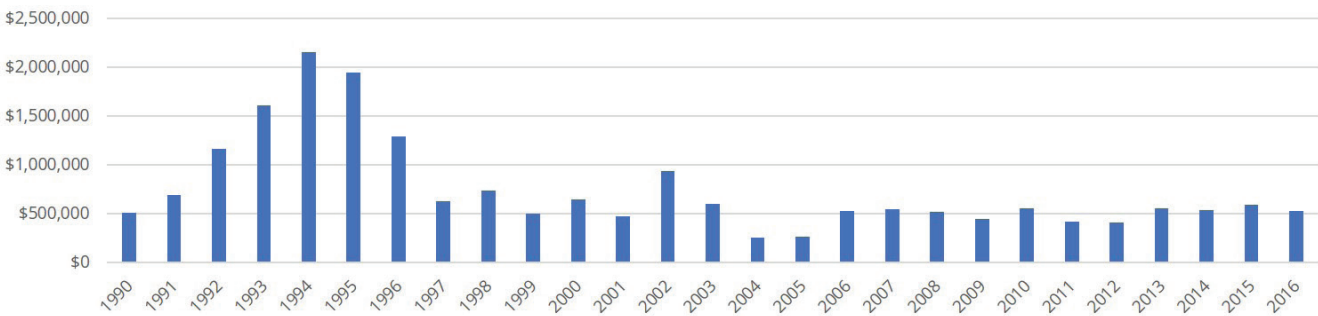
EUREKA THORNYHEAD LANDINGS (POUNDS) 1990 - 2016



Source: CDFW

Thornyhead landings in Eureka peaked in the early-1990s, with 1.7 million pounds in 1993, and 1.6 million pounds in 1994. Landings declined in the late 1990s to a 27-year low of 318,000 pounds in 2001 and have risen gradually since. In 2016, Eureka fishermen landed 699,000 pounds of thornyheads.

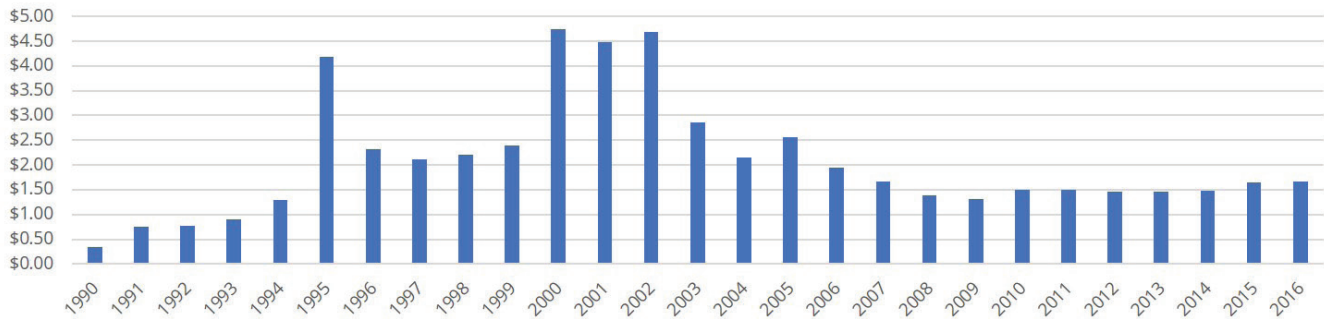
EUREKA THORNYHEAD EVV 1990 - 2016



Source: CDFW

Since 1990, thornyheads have represented more than \$20 million in EVV for commercial fishermen in Eureka. EVV from thornyheads rose quickly in the early 1990s, peaking at \$2.1 million in 1994 and dropped through the late 1990s, and early 2000s. EVV from thornyheads has been stable since 2006, ranging from

EUREKA THORNYHEAD PRICE PER POUND 1990 - 2016

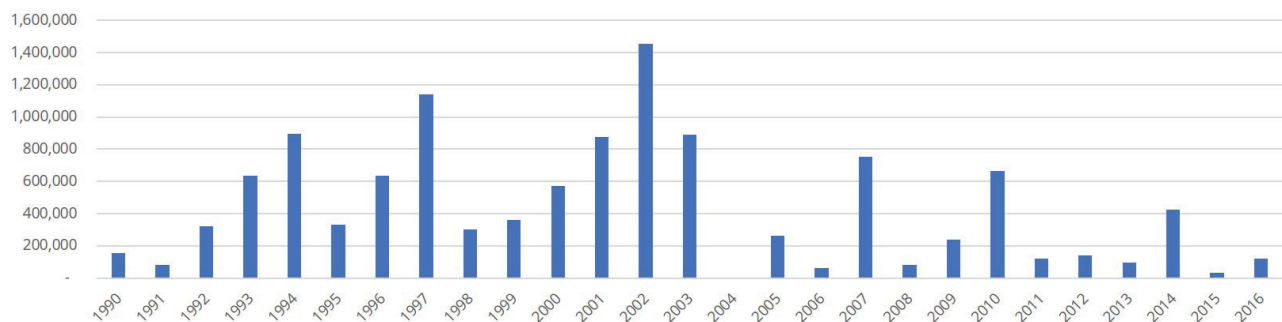


Source: CDFW

\$400,000 per year to nearly \$600,000 per year. In 2016, fishermen earned \$524,000 at the docks from thornyheads.

In 1990, fishermen earned \$0.34 per pound for thornyheads. Prices climbed through the early-2000s, peaking in 2000 and 2002 at \$4.74 and \$4.69 respectively and then dropped through 2009. Price per pound has remained steady, exceeding \$1.45 per pound in every year from 2009 to 2016. In 2016, fishermen earned \$1.66 per pound of thornyheads.

EUREKA ALBACORE TUNA LANDINGS (POUNDS) 1990 - 2016

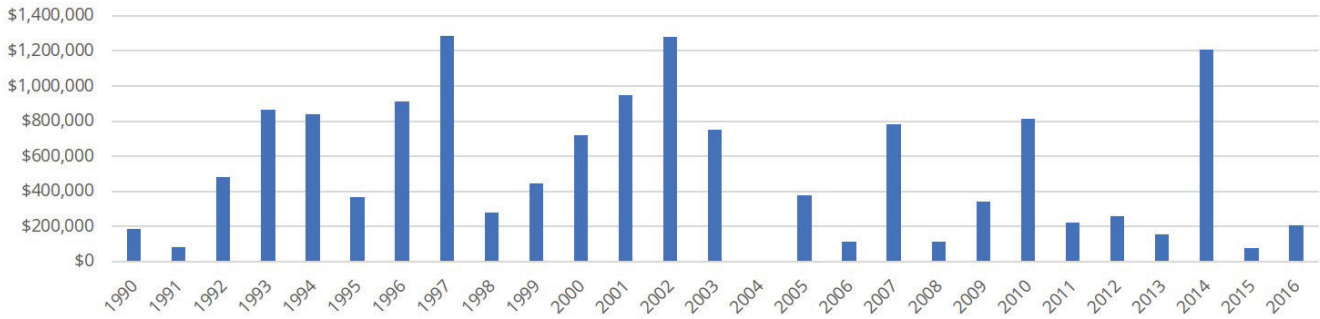


Source: CDFW

Albacore Tuna. Albacore is an important contributor to the Eureka commercial fishing economy. Since 1990, commercial fishermen in Eureka have landed 11.6 million pounds of albacore tuna. Since the 1970s, landings of albacore have shifted away from California to Washington and a lesser degree, Oregon (Childers and Pease, 2012). The shift has been precipitated by changes in albacore migratory patterns due to ocean conditions as well as the influence of higher cost of inputs in California, primarily fuel and landing fees (Lisa Wise Consulting, Inc., 2013). The highest landings of albacore during the 27-year study period occurred in 2002, when commercial fishermen offloaded 1.4 million pounds in Eureka. In 2016, commercial fishermen landed 121,000 pounds of albacore in Eureka. The loss of Eureka's ice and cold storage facility has made it difficult for albacore fishermen to offload frozen product in Eureka because there is no longer a facility to store volumes of frozen fish before containerization for overseas export

2 Economics and Markets

EUREKA ALBACORE TUNA EVV 1990 - 2016

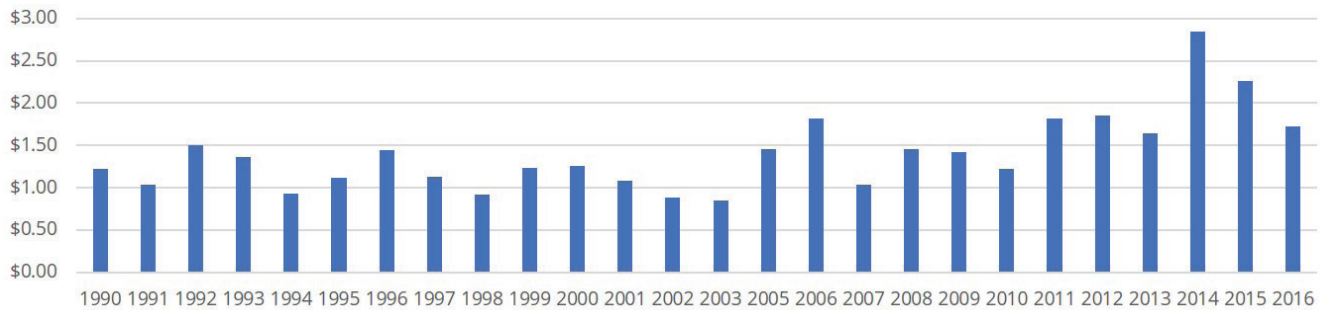


Source: CDFW

Since 1990, Eureka fishermen have generated more than \$14 million in earnings at the dock from albacore. Earnings exceeded \$1.2 million per year in 1997, 2002, and 2014. In 2016, Eureka fishermen earned \$209,000 from albacore, up from approximately \$78,000 in 2015.

Since 1990, the price per pound for albacore has ranged from \$0.84 to \$2.85. In 2016, commercial fishermen in Eureka earned \$1.73 per pound for albacore.

EUREKA ALBACORE TUNA PRICE PER POUND 1990 - 2016



Source: CDFW

MARKETS

There are several seafood receiver-processors serving as a primary market for commercial fishing operations in and near Eureka and providing additional regional employment and income. The Port of Eureka is home to a modern fish processing plant owned by the City of Eureka and operated by Pacific Choice. In addition to Pacific Choice, Caito Fisheries, Wild Planet, and Albers Seafood are located within the City of Eureka as well as a Pacific hagfish buyer on the Samoa Peninsula that specializes in exporting live fish to Korea.

Most of the seafood purchased and/or processed in the Port of Eureka is shipped out of the region for distribution to points all over the globe.

DIRECT-TO-MARKET SALES

Sales of locally-caught commercial fish products in Eureka is fairly limited. The mariculture industry, however, has a strong local market. Three of the smaller businesses operating in Humboldt Bay reported that 80% of their product is sold in Humboldt County.

Direct sales typically yield a higher price per pound and give fishermen greater control but require specific licenses, registrations, permits, and certificates from several state and local agencies in addition to the licenses and permits required to fish commercially. Direct sales also require that fishermen manage transactions, maintain a contact list and system for alerting buyers when they have seafood for sale. Successful direct sales also require establishing consistency of supply.

A small number of fishermen make direct sales to the public at Woodley Island. Direct-to-consumer sales are typically informal and there are no designated facilities for fish sales. Fishermen can also diversify their sales and distribution opportunities by selling directly to restaurants and farmer's markets, which requires establishing and maintaining relationships with restaurant owners and chefs and managing billing and collections. There are several grocery stores or food co-ops in the area that sell local seafood products when in season and available, and there are plans to develop a fish market at a location on the Eureka waterfront.

This section is intended to highlight the contributions of fishing to the local economy. A brief discussion on markets is included due to their importance and deserves further attention and research.



Oysterfest Arcata, LWC 2017

Selling seafood off the boat enables fishermen to earn more per pound for their catch, and enlivens the docks, attracting tourists and raising awareness about sustainable fishing practices and the working waterfront.

Community Supported Fisheries, in the model of Community Supported Agriculture, where local producers distribute directly to shareholders at predetermined drop off locations and times.

At this time, there are no known community supported fisheries (CSFs) although the community supported agriculture model is popular in the region and development of a CSF may provide an alternative or supplemental market for fishermen.

Unlike wild-harvested seafood, mariculture producers in Humboldt Bay, particularly the smaller companies, sell a large amount of their product locally (directly to consumers, restaurants, retailers, Oyster Festival) rather than to wholesalers.

INDUSTRY ALLIANCES

Relationships within and outside of the commercial fishing industry complex are an important part of establishing, maintaining, and expanding markets as well as promoting commercial fishing. There is strong mutual dependence throughout the fishing industry supply chain. For example, if commercial landings decline sharply due to regulatory or other changes, that could imperil receiver-processor operations and markets and funds to maintain port infrastructure, thus contributing to additional industry decline. Strategic alliances enable fishermen to better pool limited resources, obtain more competitive prices for inputs, and expand market segments and geographic reach. Effective alliances create benefits for all partners and develop additional value. Alliances also can give individuals and groups a stronger voice, be it supporting or opposing fishing regulations, facilitating pursuit of funding for key projects or working with local elected officials to ensure regular dredging of the harbor. Alliances are addressed more extensively in the Social Settings chapter.



Commercial Fishing, HSU 2017

MARICULTURE

Eureka is a participant in the global mariculture industry. According to the United Nations Food and Agriculture Organization, mariculture provides more than half of all seafood consumed by humans around the world. 167.2 million tons of seafood was produced globally through mariculture effort in 2014. The United States ranked 15th in mariculture with 425.9 thousand tons. The U.S. aquaculture industry was valued at \$1.33 billion in 2014 and is expected to grow as demand for seafood rises.

In 2013, there were 124 mariculture businesses in California with a collective revenue of \$83.5 million, an increase of 20% over 2005, when there were 118 farms with a collective revenue of \$69.6 million (U.S. Department of Agriculture (USDA) Census of Aquaculture). Of the farms in California in 2013, 71 raised fish for human consumption, up from 69 in 2005. Sales in fish for food increased from \$36.8 million in 2005 to nearly \$37.4 million in 2013.

In 2016, the shellfish mariculture industry in California generated revenues of \$15.8 million. The two largest regions for mariculture production are Humboldt Bay and Tomales Bay, with Humboldt Bay accounting for approximately \$10 million of total revenue.

Mariculture is a thriving and important component of commercial seafood production in Eureka. There are currently six companies cultivating shellfish in Humboldt Bay. Nearly 70% of the oysters farmed in California are cultivated in Humboldt Bay, according to Harbor District estimates from 2011. While approximately 4,045 acres of tidelands in Humboldt County are permitted for shellfish cultivation, only 9.5%, or 386 acres, is currently used for shellfish cultivation. Note, some of this area, because of depth, tides and other features, is not suited for mariculture.



Offloading crabs, HSU 2017

“The fishery is a boon for the economy” - FCSP Interview Respondent, 1, 2017

2 Economics and Markets

The Harbor District is actively engaged in increasing shellfish farming in the Bay, and recently created the Mariculture Pre-Permitting project. Through the project, the Harbor District obtains the permits to conduct mariculture operations on various locations throughout the Bay and then lease those permits to interested mariculture businesses. So far, they have received the permits for three sub-tidal sites in the bay totaling 21 acres and they are working to get approvals for an additional 266 acreage in the intertidal areas (Harbor District, 2019). Since the Harbor District takes on the expenses and challenges of permitting the areas up front, they can streamline the permitting process for growers that meet environmental standards and increase economic opportunity in Humboldt Bay and Humboldt County. In 2016, the mariculture industry reported \$9.8 million in revenue and an estimated \$19.3 million in economic impact given the multiplier effect. The bay produced nearly 10 million mature oysters and countless seed.

A recent mariculture business survey conducted by researchers at HSU found that in 2016, approximately 101 people were directly employed in the shellfish mariculture industry in Humboldt Bay, which resulted in \$3 million in payroll. The number of mariculture businesses could total seven if the Yueng Oyster company permit is approved in northeast Humboldt Bay.

Of the industry revenue for the bay, 62% comes from the sale of Kumamoto whole oysters, 3% from the sale of Pacific whole oysters, and 34% from the sale of seed and larvae. Production of shellfish seed is also a growing part of the mariculture industry in the Bay. Two mariculture businesses on the bay operate exclusively in the production and sale of oyster seed and larvae and do not have grounds for mature oyster production. In 2017, the Hog Island Oyster Company opened up the first shellfish hatchery in Northern California on Humboldt Bay.



Oyster Fest 2017, HSU 2017

RECREATIONAL AND CHARTER FISHING

Recreational fishing is an important part of the economic landscape in Humboldt Bay.

It is estimated that recreational fishing supported 16,500 jobs in California in 2015, resulting in \$797 million in wages and \$2.1 billion in sales. A majority of the economic impact from recreational fishing is attributable to the sale of durable goods, including fishing rods, reels, bait, tackle, and boat and vehicle expenses. Recreational activities have further economic impacts in the community through spending at local restaurants, purchase of supplies, and in hotels.

Eureka has a strong recreational fishing community that is actively engaged in ensuring access to the Bay, a healthy ecosystem, and basic infrastructure necessary to support the thriving industry.

There are currently at least seven charter operators in Eureka, some with multiple vessels.



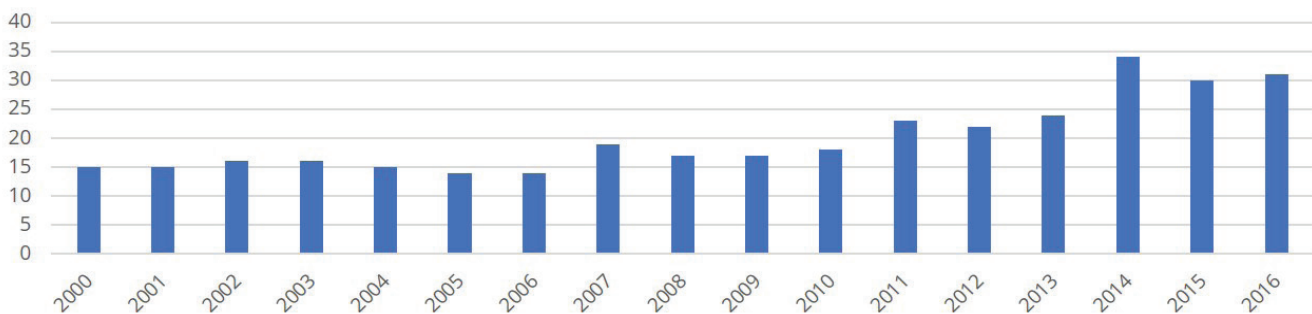
Waterfront walking path in Eureka, HSU 2017

CHARTER FISHING

Charter fishing has been part of the waterfront in Eureka since the early 1960s, when there were 5 charter boats operating in Humboldt Bay. The charter fishing, or commercial passenger fishing vessel (CPFV, or charter fishing), industry has been affected by rising operating costs, fishery closures, changing trends in recreational spending, and regulations including the Marine Protected Areas (MPAs). In recent years there has been increasing numbers of CPFV operators and trips out of Eureka.

There were 31 CPFVs operating between Fort Bragg to Crescent City in 2016, double the number reported in 2000. The CPFV industry is a contributor to tourism, employment, and consumer spending. CPFV operations rely on much of the same infrastructure and services as the commercial fleet, including the docks, slips, accessible entries, channels, launch facilities, and supplies.

NORTH COAST COMMERCIAL PASSENGER FISHING VESSELS 2000 - 2016

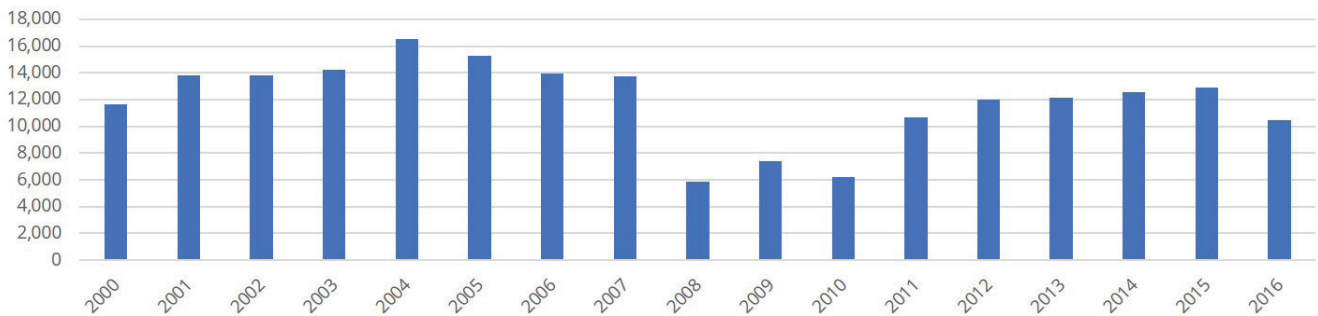


Source: CDFW

Commercial Passenger Fishing Vessel (CPFV) operations are licensed to take passengers for hire to engage in recreational or sport fishing activities. Fish caught in these operations may not be sold. CPFV operations are also referred to as “party boats.”

While the number of vessels participating in the charter fishing industry has increased over the past 15 years, the number of people fishing on CPFVs has fluctuated due to economic conditions and changing habits in recreational activity. Participation rates dipped during the 2008 – 2010 economic crisis but increased every year between 2011 and 2015 (the most recent data available). More than 10,000 people participated in CPFV trips on the North Coast in 2016.

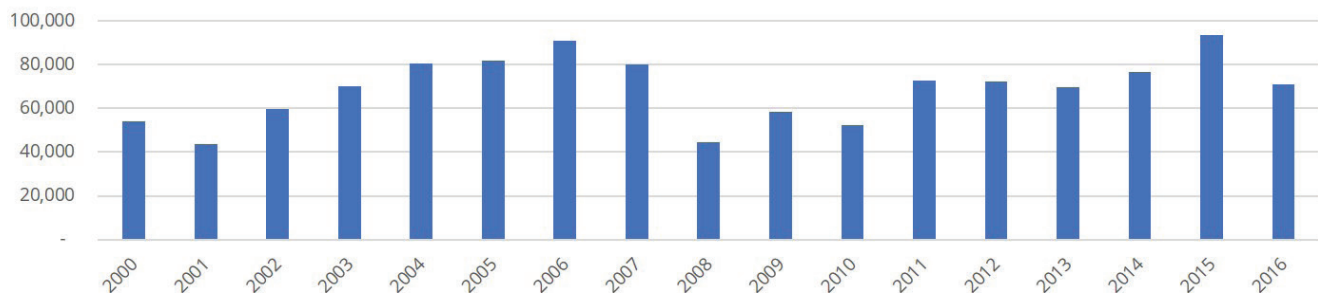
NORTH COAST COMMERCIAL PASSENGER FISHING PARTICIPANTS 2000 - 2016



Source: CDFW

Total CPFV landings were 70,800 pounds in 2016, among the highest in the last 17 years. When the recession hit in 2008, landings fell from more than 80,000 pounds in 2007 to around 44,500 pounds.

NORTH COAST CPFV LANDINGS (LBS) PER YEAR 2000 - 2016



Source: CDFW

CPFVs target many of the same species as commercial fishermen. The top species caught by CPFVs on from Fort Bragg to Crescent City are reported to be unspecified Rockfish, invertebrates (including Dungeness crab), blue rockfish, Chinook salmon, and lingcod. Salmon is the top targeted species for sportfishing outside of Humboldt Bay, and Pacific Halibut is the second top species. California halibut are targeted in the bay

According to local sport fishing websites, a charter fishing trip on the North Coast ranges from \$75 to \$350 per person, depending on the type of operation, length of the trip and the species targeted. With more than 10,000 people fishing on CPFVs on the North Coast in 2016, economic impact can be estimated between \$780,000 and \$3.6 million. The National Marine Fisheries Service estimated in 2013 that sales by charter fishing companies in the North Coast were \$4.37 million.

In 2013, the most recent year for which employment data is available, the National Marine Fisheries Service estimated that recreational fishing from Fort Bragg to Crescent City supported 30 jobs on charter boats, 82 jobs in private boat rental businesses, and 46 jobs serving shore fishing. These estimates include full and part time employment.

CPFV patrons also play a role in the larger economy and the vibrant tourism business. In Eureka, the number of CPFV vessels has risen from 3 in 2011 to more recently approximately 10, while the average number of trips has declined (the most recent data).

TOURISM

Access to charter fishing opportunities and the presence of commercial fishing vessels with strong landings, earnings, and offloading activity cement Eureka's place and identity as a vibrant working port. A working port is an important draw for tourism and tourism spending. A 2007 opinion poll of more than 800 California residents found that 71% "seek out and enjoy going to working waterfronts" (Responsive Management, 2007). Furthermore, in a 2008 survey of more than 140 tourism professionals in Morro Bay, Monterey, and Crescent City, respondents gave, "tourism from having an active waterfront," a mean rating of 8.82 out of 10 in importance (Responsive Management, 2008).

Tourism is a vehicle through which the commercial fishing industry communicates with the public. Tourist dollars support local businesses and generate tax revenue for the County.



Tourists can explore Humboldt Bay from the shore and also on the water by renting kayaks or stand up paddle boards, or taking guided tours aboard the Madaket, HSU 2017

In that same survey, tourism professionals indicated that, “having local, fresh seafood available was of great importance in attracting business to their community.” Interviews conducted in Eureka for this project suggest that the sentiments expressed in these reports have remained, and perhaps grown stronger, in support and acknowledgment of the draw and importance of a working waterfront and access to fresh, local, sustainable seafood.

In 2015, visitors to Humboldt County spent approximately \$158 million on taxable items, or 7.9% of all taxable sales. In total, travel spending was directly responsible for \$415.5 million in the Humboldt County economy.

The Humboldt Bay mariculture industry invests in and cultivates tourism through the Arcata Bay Oyster Festival. The festival, which has been held every summer for 28 years, attracts more than 15,000 visitors and locals. The Festival is known as an opportunity to purchase cooked and raw oysters as well as learn about shellfish cultivation in the Bay. The Eureka Main Street organization also hosts a crab festival every winter which can draw fishing tourists to the area in the low-tourism season.

“Fishing and tourism go hand in hand” – Recreational fisherman, personal communication, 2017

FISHING-RELATED EMPLOYMENT

The commercial and CPFV fishing operations in Humboldt Bay provide employment opportunities for skippers and deckhands, dockworkers, local mechanics, technicians, haulout services, bait and tackle, as well as in seafood processing, distribution and sales.

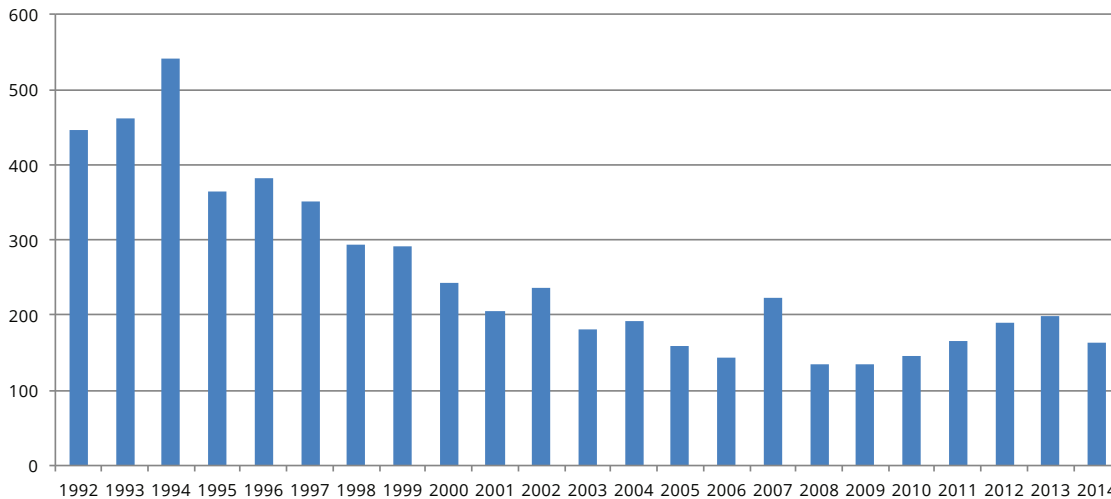
ACTIVE FISHERMEN

The number of active fishermen is a critical metric in the commercial fishing industry. Attracting and retaining new participants was one of the primary concerns for a sustainable future voiced by the community for this project.

Commercial fishing is a difficult undertaking and involves long hours outdoors, often in poor weather, hard physical labor, dangerous sea conditions while operating miles from assistance, and has high barriers to entry in the cost of a vessel, gear, permits, and gathering industry knowledge. Those who are successful are hearty, capable and very independent.

In Eureka, the drop in the number of participants between 1992 and 2006 (445 to 143 vessels) is troubling and the result of decreased opportunities in commercial fishing due to increases in regulation, competition from inexpensive imports, high start-up costs and rising costs of inputs, among others. Since 2006, however, there has been eight years of a relatively stable number of participants with some evidence of increase; a good sign. There has consistently been 135 or greater commercial fishermen operating out of Eureka between 1992 and 2014.

ACTIVE COMMERCIAL FISHERMEN IN EUREKA



Source: Hackett, et al. and CDFW, 2017

FISHING RELATED BUSINESSES

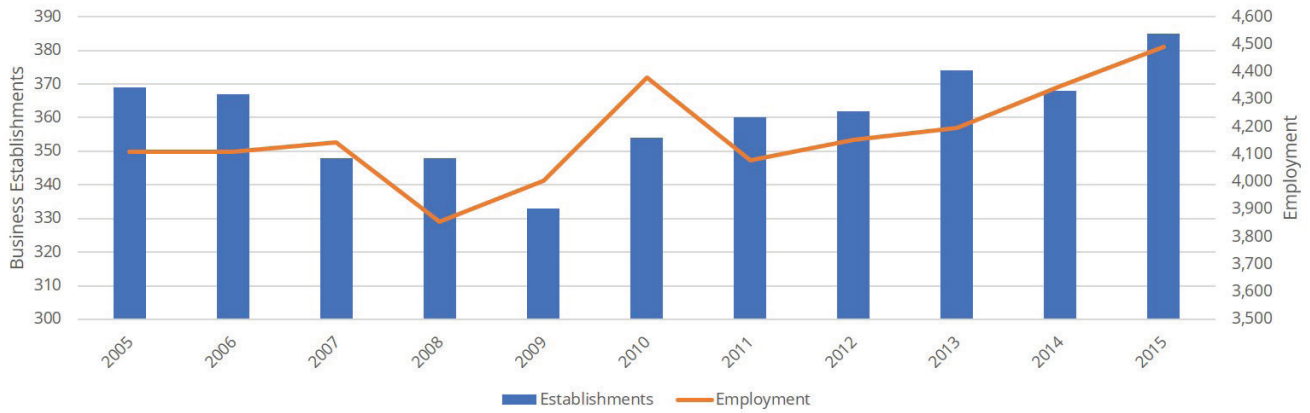
According to the NOEP, there were approximately 385 fishing-related business establishments in Humboldt County in 2015, employing nearly 4,500 people. This includes employment in all industries that are dependent on the ocean, including fish processing, marine construction, and boat building. This does not include unincorporated self-employment, which is defined as any person working for themselves without a company structure.

The number of fishing-related businesses in Humboldt County decreased from 374 in 2013 to 368 in 2014, while the number of people employed increased by approximately 150, showing that while there was consolidation in ocean-dependent businesses, the businesses that remained open expanded. Employment grew by an additional 142 persons in 2015, providing a total of 4,490 jobs in ocean-related industries in the County.

Workers tend to move to industries where there is more opportunity for earnings, advancement and other benefits and away from industries where they perceive a lack in thereof.

2 Economics and Markets

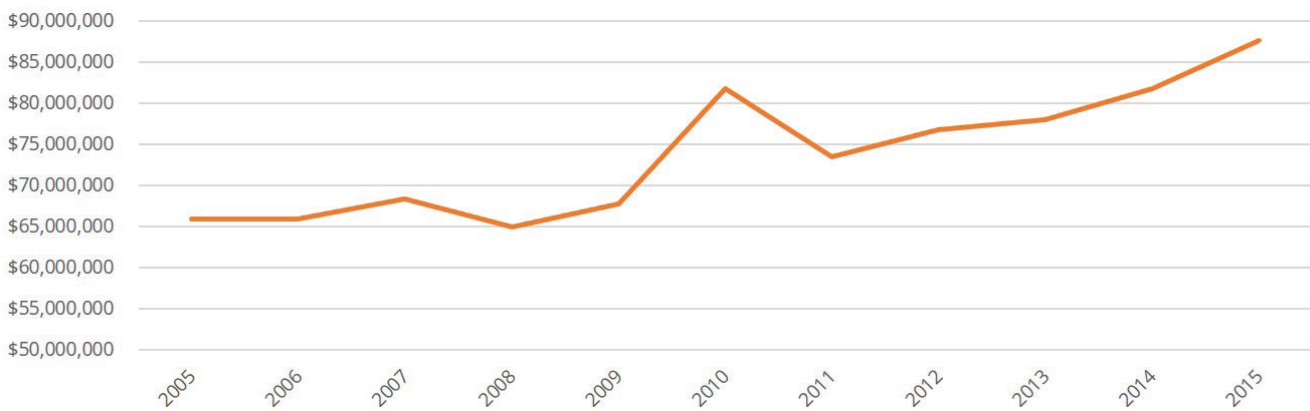
HUMBOLDT COUNTY FISHING-RELATED BUSINESSES 2005 – 2015



Source: NOEP

Total annual wages for ocean-related employment in Humboldt County ranged from \$65 million in 2005 to \$87 million in 2015. The average annual salary of those employed in ocean-related jobs is \$19,500, including all part-time and seasonal workers. This is compared to an annual median household income of \$39,063 in Eureka.

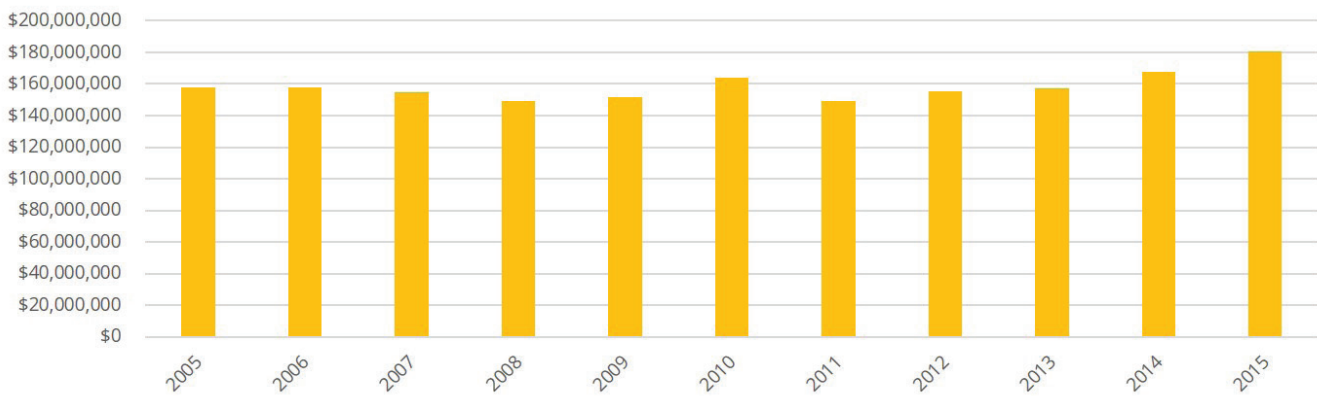
HUMBOLDT COUNTY FISHING COMMUNITY TOTAL ANNUAL WAGES 2005 – 2015



Source: NOEP

The Gross Domestic Product (GDP) created by Humboldt County's ocean-dependent industries increased by nearly 15% between 2005 and 2015. GDP spiked in 2010 at nearly \$164 million, which corresponded to a similar spike in employment and wages. GDP, employment, and wages fell in 2011, but have all grown steadily since 2012. In 2015, GDP from ocean-dependent industries was \$180.1 million.

HUMBOLDT COUNTY FISHING-RELATED GDP 2005 – 2015



Source: NOEP

KEY TAKEAWAYS

Overall, the most powerful takeaway in the Eureka Community Sustainability Plan effort is the Eureka fishing community's capacity to identify opportunities and constraints, develop key partnerships, successfully attain funding, and plan for the sustainability of their working waterfront. The following are takeaways related to economic performance.

- **Part of a Powerful Industry:** Commercial fishing in Eureka is part of a \$200 million annual industry in California which generates billions of dollars in seafood-related sales and income, hundreds of thousands of jobs, and provides a healthy, sustainable source of protein.
- **Top Performer:** Eureka is consistently one of the top earning commercial fishing ports in the state of California, seventh in 2016. Eureka is also the top earning port in the State for Dover sole, generating \$25.8 million at the dock between 1990 and 2016.
- **Economic Driver:** The Eureka commercial fleet has generated \$324 million since 1990 at an average of \$12 million per year and has exceeded the state average price per pound for 27 years (1990-2016).
- **Economically-Important Waterfront:** Eureka has a unique and powerful industry cluster on its working waterfront. Commercial fishing, recreational and charter fishing, seafood processing, and a mariculture industry that produces 70% of the state's oysters provide a diversity of local jobs and strong draw for the County's \$158 million tourist industry.
- **Challenges to Diversification:** Eureka relies heavily on Dungeness crab, Sablefish and Dover sole. Recently, this has created challenges for the port as the Dungeness crab fishery has experienced closures linked to high levels of domoic acid. Regulatory access to a greater range of species could provide a better buffer to downturns in markets or environmental factors.

- **Attraction and Retention of Workers:** Eureka has experienced downturn in the number of participants in commercial fishing from the early and mid-1990s but has maintained a stable level from 2006 to 2014, with over 300 every year (except 2014). Aging demographics in the commercial fishing industry also suggest that the industry has trouble attracting younger participants.
- **Opportunities for the Future:** The Eureka fishing and mariculture community has shown a powerful ability to adapt to major regulatory and market shifts and stabilize and maintain earnings, production and workforce participation. Through this FCSP planning effort, the community has created another resource to identify and fund strategies for a more resilient future.

3 SOCIAL PROFILE

SOCIAL FRAMEWORK AND RELATIONSHIPS

The port of Humboldt Bay and the City of Eureka are located along the coast on Highway 101. Its location has caused it to be semi-isolated from other major population centers, including San Francisco 270 miles to the south and Portland, OR 400 miles to the north. Though the City and harbor developed as a central hub for neighboring communities and a major fishing, shipping, and timber center, the newer dominant economies including tourism, healthcare services, and cannabis point to changing social demographics and changing dynamics in community relationships. Where the harbor and the City once were characterized by a highly vibrant commercial fishing fleet and fishing community, today they are characterized by a mix of economies, some recreational and leisure-based, others are industrial and commercial oriented.

This chapter assesses the social capacity of the fishing industry in Eureka. The ability of fishermen to develop alliances and trust with other fishermen, local civic leaders, Harbor District, regulatory agencies, academia and the local community relate directly to the long-term viability of fishing in Eureka. The chapter also touches on how the Eureka fishing fleet has adapted to huge shifts in the industry and the drop in younger entrants, which is a key concern for fishermen as noted in the extensive interviews conducted for the project.

Fishing has been important to the economy and lifeways of Humboldt Bay since time immemorial. Commercial fishing has been an important part of the economy for more than a century and a half. In the mid-20th century, Humboldt Bay was a hub of commercial fishing and seafood processing activity. Today, two seafood processing facilities and four buyers sustain the operations for the approximately 100 commercial fishing vessels that are homeported in Eureka (North Coast Strategy for Economic Development, 2007) and for visiting vessels. Eureka's working waterfront has also expanded to include mariculture, primarily rearing oysters and oyster seed.

The social capacity of the fishing community in Eureka is the “human element” of the industry, equally as valuable, powerful and necessary as economic performance, environmental health, regulatory conditions or the presence or absence of physical infrastructure.



Public Workshop, LWC 2017



Woodley Island Marina, HSU 2017

The fishing community of Eureka has witnessed a great deal of encroachment on the working-waterfront over the past 50 years. The amount of waterfront space available for fishing and working-waterfront activities in the Eureka area is only a fraction of what it was in the 1970s. The process of working-waterfront uses being pushed to the margins for tourist-serving and other uses – sometimes referred to as the “gentrification” of ports – is a phenomenon being noted in ports throughout the U.S. (Colburn & Jepson, 2012; Gale, 1991; Thompson, Johnson, & Hanes, 2016). Since the 1980s, individual fishermen and the Humboldt Fisherman’s Marketing Association have been politically active at the local level to try and prevent encroachment and protect waterfront zoning for waterfront properties. Their efforts have no doubt protected the working-waterfront of Eureka from further losses. However, fragmentation of the waterfront and continuing contentious discussions surrounding waterfront zoning has taken its toll on fishermen and the waterfront community, potentially serving to erode cohesion among fishermen as well as between fishermen and local elected leaders.

Humboldt Harbor contains two marinas, the Eureka Small Boat Basin and Woodley Island Marina. The Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) manages Woodley Island while the City of Eureka manages the Eureka Boat Basin. Despite the fractional layout of commercial fishing berthing facilities and corresponding management, commercial fishermen maintain a relatively strong sense of community cohesion and a strong sense of place with Woodley Island Marina serving as the heart of action. Woodley Island is a vibrant marina where commercial fishermen, recreational fishermen, charter fishing operators, and the general public come together.

The Harbor District and City have actively sought to increase and diversify much-needed income sources on the waterfront. In many cases, due to market demand, these have been non marine-related businesses. This is an on-going struggle in Eureka and in many California coastal communities. For example, the 2003 Port of Humboldt Bay Revitalization Plan notes, “Although the Humboldt Bay fishery has declined in recent years, the industry remains an important part of Eureka’s economy. Diversification efforts have succeeded in bringing people and other businesses closer to the water, but they have contributed to a sense among the commercial [fishing industry] that it is subject to displacement.” These changes have shifted the social framework of the working waterfront in recent years, resulting in realigning relationships, some based on greater levels of trust than others.

ALLIANCES, TRUST, AND COMMUNITY COHESION

Cultivating sustainability within a fishing community, whether at the economic, environmental, or social level, begins through the formation of positive relationships between fishermen and civic leaders, regulatory agencies, and academia. The level of trust among fishermen and management entities (governmental and non-governmental) reflects the level of cohesion in the local fishing community and the degree to which beneficial partnerships can be formed and funding opportunities realized. Opportunities to form key partnerships and acquire funding for critical infrastructure upgrades and expansion, engage in strategic planning, and to manage resources effectively are more attainable when the level of trust and cooperation within the fishing community and with outside entities is high.

Management entities, civic leaders, regulatory agencies, and academia are more trusted if they have a history of ongoing, meaningful, and effective engagement with fishermen and the extended fishing community. Conversely, fishermen act more effectively if they can consolidate opinions and form a unified voice, often through fishing associations. Many of Eureka's commercial and recreational fishermen are active in a variety of fishing associations, providing them access to the local, regional, state, and inter-state decision-making processes, group insurance pools and more bargaining power with buyers and processors.

RELATIONSHIPS AMONG LOCAL FISHERMEN

The Eureka-based commercial fishing community is comprised of a close group of charter, recreational, and commercial fishermen and shellfish growers, who are more strongly-knit within individual fisheries and when faced with common problems and challenges. Shared reliance on the same facilities generates cooperation and an expression of respect and good relationships among fishermen and other water-dependent users. An HSU study on the Socioeconomics of North Coast Fisheries assessed fishermen's level of trust in a variety of government entities as well as in each other. Study results showed that fishermen trusted each other more than they did any external groups, however, even the level of trust among fishermen was not exceptionally high and there appeared to be room for improvement.

The Eureka commercial fishing community maintains its strength in marketing and pricing through its connection to several fishing associations. Locally, Humboldt Fishermen's Marketing Association (HFMA), represents commercial fishermen at local, state, and federal levels. Regionally, Western Fishboat Owner's Association (WFOA), American Albacore Fishermen's Association (AAFA), Fishermen's Marketing Association (FMA), and Pacific Coast Federation of Fishermen's Associations (PCFFA) represent fishing interests on the West Coast.



Caito Fisheries, Inc., HSU 2017



Englund Marine Supply, HSU 2017

Eureka's association with AAFA and WFOA represent a strong link with the U.S. West Coast's \$40 million commercial albacore fishery and another contributor to the port's resilience.

“There’s no social fabric in this fishing fleet anymore” - Eureka fisherman, personal communication, 2017

The 50 year-old Western Fishboat Owner’s Association (WFOA) represents about 400 albacore trollers in California, Oregon, Washington, Alaska, and Hawaii and their support businesses, and it assists fishermen in marketing, pricing, and regulation at the local, state, and international levels. WFOA is made up of 10 geographical districts and is managed by 20 directors, including one from Eureka. Approximately 15 Eureka fishermen are members of the organization.

The American Albacore Fishing Association is a non-profit organization that works to protect the market and regulatory interests of its members and to ensure environmentally sustainable management practices while securing the economic viability of the albacore fishery. Its members are commercial pole and line fishermen. Many Eureka-based fishermen are members of AAFA and one Eureka fisherman serves on its board.

The Pacific Coast Federation of Fishermen’s Association (PCFFA) was established in 1976 to represent commercial fishermen and communities. It conceived of and implemented the California Commercial Salmon Stamp program, was active in the Magnuson Stevens Act reform in 1996 and 2006, and runs programs focused on the salmon fishery, climate change and ocean acidification, and marine spatial planning and habitat restoration.

The Fishermen’s Marketing Association (FMA) is comprised of trawl vessel owners and operators and was founded in 1952 to establish stable pricing and a consistent flow of groundfish and shrimp to about 20 fish processing companies through 40 buying stations along the entire West Coast. Several trawlers from Eureka and Astoria are included in the membership of this association.



HFMA logo



Fishermen's Marketing Association logo

Humboldt Fishermen’s Marketing Association (HFMA), a 501(c)3 non-profit corporation, was formed in 1955 to negotiate market prices and conditions of numerous fish species on behalf of its membership and the fishing fleet at large. While the pricing of seafood has been altered by globalization, the sphere of interest addressed by HFMA has also changed during the past sixty years, as reflected in its corporate bylaws: “HFMA may represent member interest and opinion at local, state and federal levels concerning, but not limited to: fisheries management and access, ecological and environmental concerns, navigation and marine safety, price, conditions and terms of sale of members fish products, land based zoning and port infrastructure issues, non-fishing based spatial challenges to fishing ground access.” HFMA is managed by an elected volunteer board of directors. Membership fluctuated between 65 and 150 fishermen vessel owners.

Various fishermen also belong to a range of high-profile organizations that guide policy and conservation, including but not limited to: the Joint Committee on Fisheries and Aquaculture and its subsidiary unit, California Citizens Advisory Committee on Salmon and Steelhead Trout; California Dungeness Crab Fishing Gear Working Group; and California Dungeness Crab Task Force.

Recreational fishermen also belong to key organizations, including Humboldt Area Saltwater Anglers (HASA) and Nor Cal Kayak Anglers. HASA is the central recreational fishing organization in Eureka and was formed in 2008 with a board of 9 and 300 paid members. The organization also works to represent the recreational fishing community in the regulatory arena.

Commercial, charter, and recreational fishermen in the harbor are generally cohesive, and leadership of fishermen is best reflected in the work of HFMA on commercial issues and HASA on recreational. The commercial fishermen’s wives also play a central role in supporting and sustaining the industry. The cohesion among the commercial fishing fleet has, however, leant toward insularity, and lacks close, established ties with the general public and the business community and a centralized voice in the local, state, and federal regulatory and policy arena. Several fishermen stated that the fishing community is not as socially connected as it has been in the past.

The Humboldt Bay Harbor, Recreation and Conservation District was created in 1973 to address the unique management needs of Humboldt County’s tidelands, bays, and estuaries. The District oversees planned development of the harbors and ports within its boundaries, as well as protection of the natural resources. It is a countywide agency with permit jurisdiction over all tide, submerged and other lands granted to the District, including all of Humboldt Bay.



Humboldt Area Saltwater Anglers logo

The Harbor District, the City and the County expressed written support for this project and the pursuit of grant funding and have participated in interviews, workshops and public meetings and engaged in regular updates. This is an extremely positive outcome of the FCSP process and highlights the community's ability to implement projects to achieve a common goal....a hallmark of resilience.

RELATIONSHIP WITH HARBOR DISTRICT, CIVIL LEADERS AND ELECTED OFFICIALS

The Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) was created in part to promote marine commerce and today it serves as the Port Authority for the Port of Humboldt Bay. The Harbor District oversees incoming cargo and shipping; pilotage for vessel arrivals, departures, and vessel logistics within the harbor; is responsible for the port development projects and programs, maintaining the harbor mouth and shipping channels; shoreline protection and maintenance; Oil Spill Co-op coordination; maintenance, repair, and improvement of commercial fishing facilities; mariculture; aquaculture; and port marketing.

The Harbor District and the City of Eureka coordinate efforts and funding on a number of projects, including the dredging of the harbor, the attraction of cruise ship visits, and management of the commercial and recreational fishing infrastructure.

The Harbor District operates Woodley Island Marina, under specific guidelines from the California Coastal Commission and the City of Eureka. It is the largest marina in Humboldt County with 237 slips and facilities serving commercial and recreational fishing boats. Larger vessels, including R/V Coral Sea, the Humboldt State University's primary marine research vessel, and a Coast Guard patrol boat, are berthed at Dock A, a 200-foot dock on the west end of the marina. The Woodley Island Marina facility provides work and storage areas, hoist and forklift services, restaurant, ships chandlery, offices, laundry, and restroom facilities. It is also home to the region's National Weather Service facility.



Fisherman's Terminal, HSU 2017

The City of Eureka owns and oversees the Eureka Public Marina, a 134-slip facility located near downtown on the 26-foot Outer Reach of Eureka Channel. This facility serves local and visiting commercial and recreational vessels and pleasure crafts.

Relations between the commercial fishing fleet and Eureka government officials, the Harbor Commission, and civic leaders are functional, but they are also cited as an area that could be strengthened. In general, there is a sense that the Harbor Commissioners, like civic leaders, do not understand commercial fishing business and fishermen needs because commissioners and civic leaders work off the water. In interviews, many working waterfront stakeholders and fishermen expressed concerns that local elected officials and agency staff members did not seem well-versed in the historical context of the waterfront or the complexities and unique needs of the fishing community. Other fishermen commented on a perceived cultural divide between agency and elected officials and them – working class people who make their living off the ocean. According to one fisherman, for example, “Commissioners aren’t fishing or water-oriented.” However, several past and current commissioners have been connected to fishing and mariculture endeavors for recreation and for business. One outcome of this study shows that the perspectives between civic leaders and fishermen are generally consistent but that they do differ significantly on some key issues. For example, although fishermen and civic leaders agree that maintenance dredging the marina is of highest priority, fishermen prioritized addressing dilapidated port infrastructure far over the homelessness and vagrancy whereas civic leaders prioritized addressing the homeless population far above the dilapidated port infrastructure.

Coordinated efforts between the City of Eureka and the Harbor District are reflected in their ability to meet (or not meet) the general needs of the port overall, including maintenance dredging and working with regulatory agencies including the Coastal Commission and Regional Water Quality Control Board and research institutes such as Humboldt State University. The City and the Harbor District also work closely with the larger environmental community. In the past, when the Marine Life Protection Act process to develop MPAs arrived to the California North Coast, the City, the Harbor District and commercial fishermen worked closely to protect fishing interests. Yet, coordinated efforts between these entities and the local commercial fishing fleet are seen as an area in need of improvement. During a public meeting, the need to “create a bridge between the Harbor District and the fishermen” was listed as a recommendation to help secure the sustainability of the commercial fishing industry. Stronger communication and efforts to work more closely and effectively together is seen as key to future success in the industry.

“It’s kinda gonna be a tough one when a lot of us leave, there’s not many behind us” - FCSP Interview Respondent, 2017

3 Social Profile

The table below shows the similarities and differences regarding top priorities for the sustainability of the fishing community, solely from personal interviews. The items are ranked on the frequency and order in which they were raised by the respondents. Misaligned priorities between the groups is cited as one sign of an area of needed improvement in the fishermen's relationship with the Harbor District, civic leaders, and elected officials.

FISHING COMMUNITY PRIORITIES

Concerns of Harbor District, Civil Leaders and Elected Officials	Concerns of Fishermen
1. Dredging	1. Dredging
2. Permits and Regulations	2. Permits and Regulations
3. Homelessness	3. Condition of Infrastructure
4. Relationships with Agencies and Non-Governmental Organizations (NGOs)	4. Relationship with Agencies and NGOs
5. Ice and Cold Storage	5. Recruiting and Retaining fishermen
6. Access to Distribution Networks	6. Limited Buyers and Lack of Price Competition
7. Condition of Infrastructure	7. Encroachment of non-fishing activities
8. Environmental Threats	8. Access to Distribution Networks
9. Recruiting and Retaining Fishermen	9. Ice and Cold Storage
10. Limited Buyers and Lack of Price Competition	10. Homeless Population
11. Cannabis	11. Environmental Threats
	12. Cannabis

RELATIONSHIPS WITH FISHERY REGULATORY AGENCIES

Eureka-based fishermen have had a long history of interacting with federal and state regulatory agents and agencies, from National Marine Fisheries to California Department of Fish and Wildlife. Often, the interaction and relationships between Eureka fishermen and regulatory agencies have occurred over policy that generally curtails the fishing activity, and hence livelihoods, of fishermen and affects the size of the fleet and the attraction of new, younger entrants. After the growth in Eureka's recreational and commercial fisheries between 1960 and 1980, and the establishment of the Magnuson Stevens Act in 1976, regulatory agencies enacted policies designed to ensure sustainability in the fishing stocks.

Through the 1960s and 1970s, Eureka fishermen benefited from a number of federal funding and loan programs and their catch was regulated by nature, through availability of resources and weather (Pomeroy, et al. 2010) Beginning in the early 1980s, however, brought a different type of relationship between fishermen and regulatory agencies, marked by a number of restrictions on the industry, including:

- Limited entry program for commercial trollers (1982);
- West Coast Groundfish Federal Management Program (1982);
- New restrictions on the Klamath Management Zone (KMZ) for salmon (1980s through 1993) followed by the salmon fishery disaster declarations (2006, 2008, and 2009);
- Limited entry for on the Dungeness crab fishery (beginning 1995);
- Groundfish harvest rate (1992) followed by the groundfish disaster declaration (2000);
- Nearshore Fishery Management Act (1998) followed by spatial closures (2001) and gear and seasonal restrictions (2003) of nearshore species;
- Rockfish Conservation Areas (2002);
- Trawler Buyback Program (2003);
- Essential Fish Habitat establishment (2006) and Vessel Monitoring Programs (2007);
- Marine Life Protection Act (1999) and implementation of Marine Protected Areas (beginning 2007).

Unpredictability and increasing restrictions in the regulatory arena have undermined the relationship between fishermen and regulators. In a 2017 study by Hackett, et al. (2017) from HSU, findings revealed that the fishermen's trust in fisheries regulatory agencies is low throughout the California North Coast, with trust in CDFW, PFMC, Pacific States Marine Fisheries Commission (PSMFC), and the Marine Life Protection Act Initiative (MLPAI) reported as "below neutral" and in need of improvement.

RELATIONSHIP WITH ACADEMIA

The proximity of Humboldt State University (HSU) a few miles north of Eureka in the City of Arcata allows the harbor and coast to serve as a premier research sites for environmental, economic, and social science departments in the university. Consequently, close, positive relationships have formed with researchers through collaboration on several projects with HSU, including but not limited to Socioeconomics of North Coast Fisheries in the Context of Marine Protected Area (MPA) Formation (2017) as well as the Fishing Community Sustainability Plan. HSU and Eureka fishermen also collaborate in the North Coast California Collaborative Fisheries Research Program which partners researchers to charter captains, recreational anglers, and volunteers to monitor fish populations in and near MPAs.

The 2017 study by HSU researchers revealed that fishermen's trust in university researchers is slightly above neutral.



Humboldt State University logo

Eureka is consistently in the top ten earning ports in California's \$250 million commercial fishing industry and commercial fishermen generated more than \$20 million dollars at the dock in 2012 and 2013, following the most recent statewide dip in commercial landings between 2006 and 2009.

"People wax poetic and romanticize our fisheries' operations, our fishermen, and our boats until we wake them up at 4 a.m. or stink the docks up with fish. We need a commercial fishery specific marina away from all these sailboats. Give fishermen the opportunity to be fishermen; we are sick and tired of tip-toeing around this marina."
- Eureka Fisherman, personal communication, 2017

RELATIONSHIPS WITHIN THE LOCAL COMMUNITY

Eureka-based fishermen are part and parcel of the larger local community, providing a portion of the City's and the County's overall GDP and having shaped the harbor's layout and the city's history and identity. However, though the relationships between local commercial fishermen and the greater community are seen to be functioning, fishermen express a sense that they are not openly supported and understood by the greater local community. Change in waterfront activity over the past half century has brought a diverse range of users, and while cooperation exists between commercial fishermen and these users, fishermen express a sense that they do not always feel accepted.

With regard to the relationship between fishermen and the larger community, participants cited mixed views. There is the view that the community strongly supports the fishing fleet, captured by one fisherman who noted, "They (the community) like that they can buy tuna and crab at the dock" and "having a working fleet here is part of people's sense of place."

Conversely, some participants cited that, compared to other ports, there is not a strong sense of appreciation and awareness of the commercial fishing industry. Some report that, in comparison to other ports where "they're more fishermen friendly," the general Eureka public is distant from the goings-on of the fishing community. Further, relationships with other harbor users can feel strained at times, with fishermen feeling marginalized. There is also a sense that the relationship between fishermen and tourists could be improved.

CULTURAL AND SOCIAL SUSTAINABILITY

The Eureka fishing industry has played a huge role in the state for more than a century, with over half of the fish produced in California landed in Eureka in the 1970s. Since this time, the fleet has contracted due to increased regulations, competition from inexpensive imports, rising costs and shifts in consumer seafood preferences. The number of boats participating in the Eureka-area crab fishery, for example, reduced from 205 vessels in 1981 to 94 in 2007 (Pomeroy, et al. 2010), which industry participants attribute to limited entry regulations, despite the fact that the fishery itself has increased in importance (Impact Assessment, Inc. 2010, pg. 65). While Eureka fishermen comprise 22% of the North Coast fleet (Hackett, Richmond, and Chen 2017), it is significantly reduced. In the 20-year period from 1994 to 2014, the Eureka fleet decreased from 297 participants to 147 (ibid.). Presently, there are an estimated 160 active commercial fishery participants.

With the increased closures in the groundfish and salmon fisheries starting in the 1980s, the port has seen a significant contraction of the fleet and an exodus of fishermen from the industry. In particular, the decline in the groundfish stock and subsequent restructuring of this fishery, coupled with salmon closures in the Klamath Management Zone (KMZ), brought about changes to the face of the Eureka commercial – and recreational – fishing industry. Regulatory restrictions and uncertainty have contributed to declining retention of fishermen and entrance of younger generation fishermen, and have forced remaining fishermen to diversify their fisheries and their livelihoods. Factors such as the implementation of the limited entry program for the commercial salmon fleet, loss of fish stock due to El Niño, pressures of spawning habitat, restrictions on seasons and quotas of the salmon fishery and KMZ and statewide closures since the early 1990s have contributed to a decline in the salmon fishery and have forced fishermen to find other fisheries and downsize their already small-scale operations. Many have shifted their focus to the Dungeness crab, which is highly variable in season and in pricing. Furthermore, industry participants report that some Eureka fishermen have relocated to other ports due to decreasing infrastructure and strained relations with the Harbor District.

Graying of the Fleet or increasing average age of fishermen operating out of the Eureka area directly relates to the social sustainability of the fishing community. According to Hackett, Richmond and Chen (2017), in 2013 the average age of the Eureka fleet was approximately 52 years of age, with an average of 26 years of experience in commercial fishing, compared to CPFV fishermen from Eureka with an average age of 46. Though average age for commercial fishermen is marginally lower than the regional average of 53, the number points to the lack of younger fishermen entering the industry. By comparison, the 2017 Bureau of Labor Statistics Labor Force Statistics from the Current Population Survey reports that in the U.S. the average age in Agriculture, forestry, fishing, and hunting to be 42.2, Mining, quarrying, and oil and gas extraction, 42.6, Construction, 42.6, and Manufacturing, 44.5 years of age.



Fisherman statue at Woodley Island, HSU 2017

“We need to preserve the fishing community regardless of what it adds to the economy. It’s kinda what gives this place character” - FCSP Interview Respondent, 1, 2017



Boats at Woodley Island Marina, HSU 2017

The maintenance and continuity of employment in the commercial fishing industry overall is of concern to local Eureka fishermen and elsewhere deemed essential to the sustainability of an industry (Carothers, 2008. Changes in the fishing industry, including increasing regulations and closures, rising operational costs, competitive product pricing, and diminishing waterfront infrastructure have reduced the Eureka fleet significantly in the last 20 years; but these are also deterrents to new participants entering into the industry, lack of capital, and perceived lack of respect, concerns about maintaining a sustainable livelihood, concerns about safety, conflicts with current lifestyles (e.g. family life and values, and loss of knowledge also contribute to the lack of new entrants into the fisheries. During public meetings, Eureka-based fishermen cited intergenerational employment in the fisheries as a key concern.

As Hackett, Richmond, and Chen point out, “Declines in commercial fishing participation, reduction in fisheries access, the aging of commercial fishermen, the dependency on a highly variable Dungeness crab fishery, and worries over the economics of maintaining port infrastructure and support businesses are important challenges for the port to address moving forward” (2017).

Mariculture was established in Humboldt Bay in the 1950s. Expansion of the industry in recent decades has brought increased employment for a diversity of skill sets (biologist to business owner to laborer and investment opportunities as well as challenges and mariculture business owners and employees see themselves as an important part of Eureka’s economy, social fabric, and future.

Researchers conducted a written survey of shellfish mariculture businesses in Humboldt Bay, as well as semi-structured interviews with 21 mariculture business owners and employees about the current state of the industry and projections for the future. The key concerns on the part of the mariculture community include: tideland access, clean water, regulatory changes, permitting costs, changing ocean conditions, availability of seed, and community perceptions.



Mariculture in Humboldt Bay at sunrise, HSU 2017

The study found that there is great cohesion among the mariculture operators in the bay. The businesses regularly lend gear and assistance to one another. Smaller growers appreciate the larger operators who do a lot of the permitting and monitoring work that enables them all to continue business in the Bay. Mariculture operators expressed concerns about their relationship with other waterfront stakeholders and with the broader community. High-profile efforts for the largest company on the bay to expand its grow-out grounds was met with opposition from environmental groups, marine scientists, hunters, and some fishermen. The Wiyot Tribe also expressed concerns about how large-scale expansion of the industry could affect native clam and mussel populations and interact with culturally important sites. Ultimately the expansion effort was denied by the California Coastal Commission. Mariculture participants indicated that they were interested in improving community relationships and viewed community relationships and perceptions as a potential challenge to their industry going forward.

When the interview responses from mariculture industry participants were tallied on their own, the following investment priorities emerged (Smith, 2018):

1. Pre-Permitting Project, Permit Streamlining, & Fee Assistance
2. Water Quality Protection & Improve Sewage Infrastructure
3. Land-based Mariculture Special-Use Property & Gear Storage
4. Ocean Acidification Research
5. Cold Storage
6. Fix Docks & Pilings

COMMUNITY PERSPECTIVE AND PARTICIPATION

The Fishing Community Sustainability planning project was generated from the close relationship among HSU researchers and the fishing and civic communities on the 2017 Socioeconomics of the North Coast Fisheries in the Context of Marine Protected Area Formation and the community's decision that cataloging existing conditions and strategy development are critical to Eureka fishing community's future. Preliminary concerns on the part of Eureka fishermen included:

1. Maintenance dredging of docks and marina for accessibility and safety
2. Increasingly limited access to fishing areas and untenable quotas
3. Lack of new participants entering the industry.



Fishing Community Sustainability Plan Advisory Committee Meeting, June 2017



Public Workshop September 2017, LWC 2017

Through the project, the Eureka community identified and prioritized 12 critical needs. They are listed here and form the basis of the final Recommendations.

Throughout the project, the Eureka community was responsive to questions posed by the team, in writing and in conversation, and meetings and workshops were well attended. The Advisory Committee was prepared, engaged, generous with time and information and brought broad perspectives to the project.

As established in the grant proposal for the project and the scope of work, input from the community is of primary importance in this planning effort and drives key findings and recommendations. As such the community outreach effort included personal interviews with commercial and charter fishermen, fishing families, deckhands, local business owners and operators, local civic leaders, Wiyot Tribe employees, and elected officials and interested citizens. Outreach efforts included:

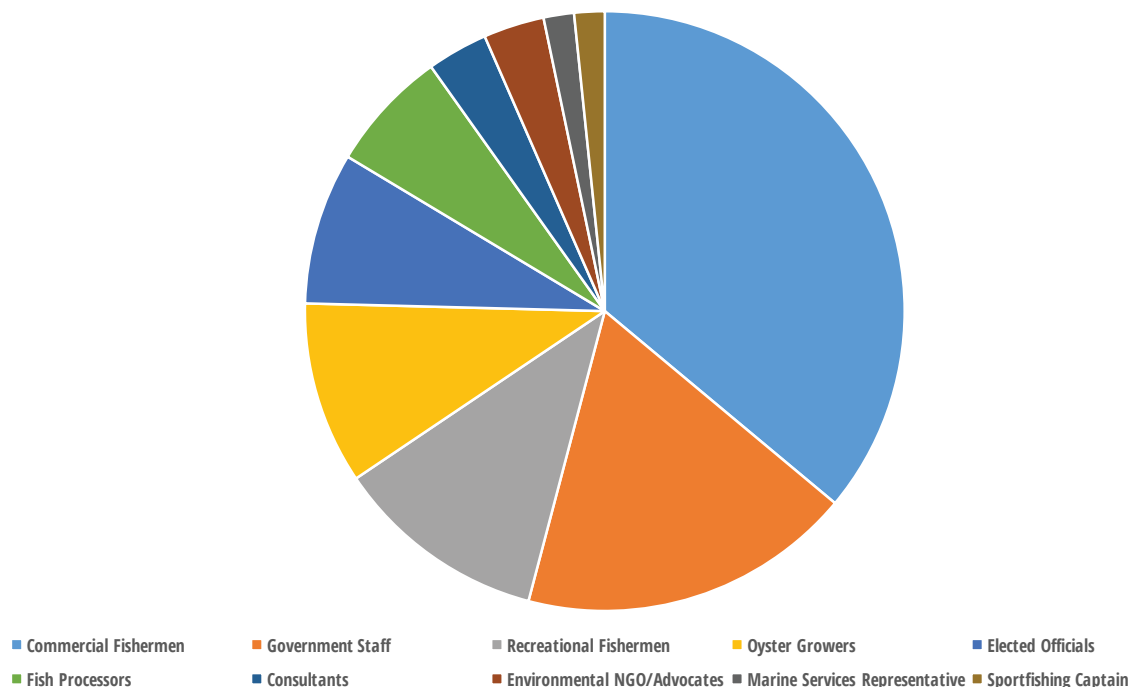
Two (2) Advisory Committee Meetings where representatives of the fishing, local business community and elected officials met with the project team to ensure that the planning process was truly constituent-driven. The Advisory Committee was made up of representatives from commercial and recreational fishermen, processors, fishing related businesses, CPFV operators, mariculture industry, Harbor District and city officials. In the first meeting, members provided input into the project design and identified the top challenges facing Eureka. At the second meeting, they identified and prioritized actions needed to strengthen the commercial fishing industry and how those actions should appear in this report as Recommendations.

61 Personal Interviews that focused on broad context building and aimed at deriving a general consensus of strengths, weaknesses, and potential future of the port. The interviews were based on four primary questions:

1. What is going well in Eureka?
2. What needs improvement?
3. What have you seen in other ports that help to strengthen the fishing industry?
4. If you had \$5 million to make improvements to the local fishing industry, how would you invest it?

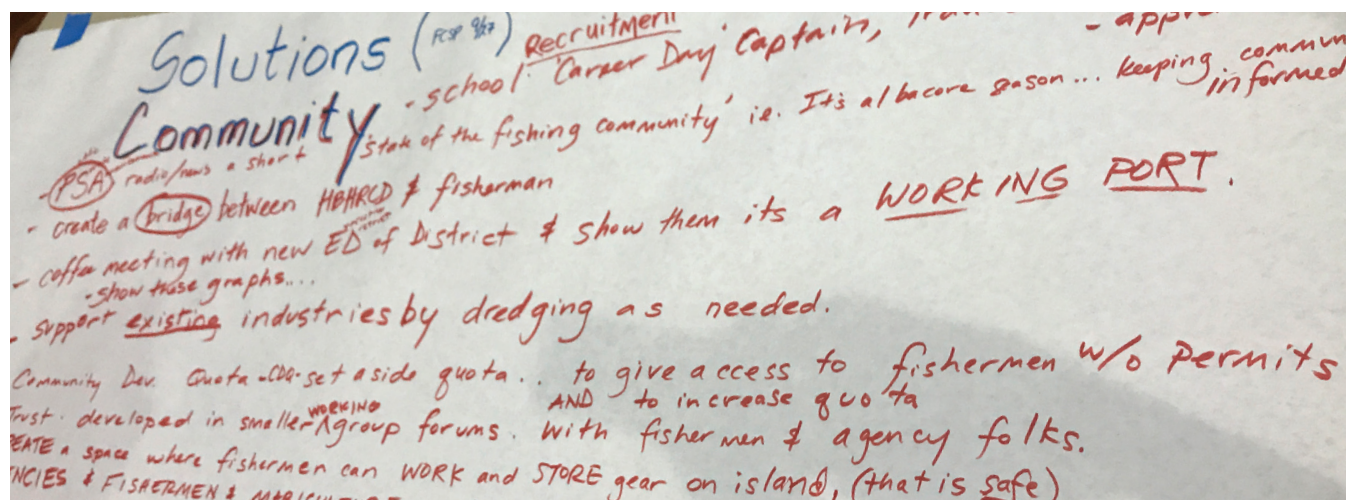
Personal interviews were conducted with 22 commercial fishermen, 11 government staff, 7 recreational fishermen; 6 oyster growers; 5 elected officials; 4 fish processors; 2 consultants; 2 environmental NGO/advocates; 1 marine services representative; and 1 sportfishing captain.

PERSONAL INTERVIEWS, GROUPS INTERVIEWED



The questions were designed to enable the respondent to drive the interview in a conversational style. Each interview took approximately 45 minutes and offered an “insider’s” insight into the needs and strengths of the industry, “personality” of the community, and consensus across diverse respondents.

Public Workshop that attracted approximately 75 individuals including Eureka residents, representatives from the City and Harbor District, commercial and recreational fishermen, fishing families, CFPV operators and crew, oyster growers, researchers, representatives from the fish processing and marine service industries, local press and environmental advocates. Attendees at the interactive event offered written and spoken input on their perspective of the highest priority opportunities and constraints facing the fishing community associated with economics, infrastructure and the unique community, and offered solutions to improve the sustainability of the industry.



Public Workshop September 2017, LWC 2017

PRIORITIES OF NEED AND KEY ISSUES

Input gathered through public workshops, personal interviews and Advisory Committee meetings reveal a consensus about needs and key issues to build greater resilience in the Eureka fishing community.

The project team analyzed the interview data in order to identify the most commonly cited strengths, weaknesses, and areas for investment. Findings from three of the interview questions are contained below. The responses are ranked based on frequency with which they were cited across the different interviews and the number of interviewees who mentioned a specific response is included after each response.

Question: “What is going well in Eureka?”

Top Responses:

1. Recreational Fishing and Tourism (22)
2. Ecological Health and Quality of the Resource (21)
3. Existing Infrastructure (20)
4. Relationships with Communities, Agencies, and NGOs (18)
5. Mariculture (16)
6. Access to Buyers (10)
7. Continued Drag Boat Presence (9)
8. Fishermen Knowledge and Expertise (5)
9. Status Quo (4)
10. Access to the Water (2)

Question: “What needs improvement or what are key challenges?”

Top Responses:

1. Dredging (42)
2. Permits and Regulations (37)
3. Relationships with Agencies and NGOs (25)
4. Condition of Infrastructure (23)
5. Recruiting and Retaining Fishermen (16)
6. Environmental Threats (13)
7. Access to Distribution Networks (13)
8. Homeless Population (13)
9. Ice and Cold Storage Needed (13)
10. Limited Buyers and Lack of Price Competition (10)
11. Impacts from Cannabis Industry (5)
12. Encroachment of Non-Fishing Activities on Waterfront (4)

Question: "If you had \$5 million to make improvements to the local fishing industry, how would you invest it?"

Top Responses:

1. Dredging (26)
2. Ice and Cold Storage (23)
3. Maintenance of Existing Marina and Dock Facilities (22)
4. Transportation Improvements (11)
5. Plans and Pre-permitting Projects (10)
6. Habitat Restoration and Environmental Protection (6)
7. Security (5)
8. Fish Market (5)
9. Tourism and Recreation Investments (5)
10. Gear Storage (4)
11. More Slips for Boats (4)
11. Increased Public Education (\$53)
12. Docks for Larger Vessels (\$52)
13. Boat Ramp Improvements (\$50)
14. Fish Cleaning Station (\$50)
15. Lobbyist for Fishing Concerns (\$50)
16. Artificial Reef (\$47)
17. Gear Storage (\$46)
18. Transportation Improvements (\$45)
19. Increase Quota and/or no VMS (\$40)
20. Marketing for Locally Caught Fish (\$38)
21. Wheelchair Accessibility (\$30)
22. Breakwater for Eureka Marina (\$22)
23. Increase Fish Processing Facilities (\$21)
24. Security Improvements (\$21)
25. Fuel Dock Upgrades (\$20)
26. Fishermen Public Relations (\$20)
27. A Historic Fisheries Data Report (\$20)
28. Boat Cleaning Station (\$11)
29. Marine Electrician (\$11)
30. Jetty Enhancements (\$5)
31. Additional Hoists (\$1)

At the public workshop, attendees were give 50 "Eureka bucks" that they could choose to invest across a range of project ideas. They could also suggest new project ideas and invest their money in those. Some of the top investments selected for funding by workshop participants (in order based on fake dollars invested) included:

1. Ice and Cold Storage (\$200)
2. Environmental Protection (\$200)
3. Fish Market (\$194)
4. Mariculture Pre-permitting (\$173)
5. Dredging (\$171)
6. Community Quota Fund (\$88)
7. Planning and Research (\$72)
8. Dock and Marina Maintenance (\$64)
9. Recruit and Train New Fishermen (\$62)
10. Commercial Fishing Professor at Humboldt State University (\$57)

As an additional recommendation, respondents connected to the Wiyot tribe expressed an interest in the construction of a dock on Tuluwat (sometimes referred to as Indian Island) to facilitate easier transport to and from the island.

One of the greatest strengths in Humboldt Bay Harbor is the presence of an engaged, knowledgeable, deferential community of recreational and commercial fishermen, government officials and staff, NGOs, and related business owners and operators, all of whom recognize the economic, environmental and cultural value of fishing and its place on the waterfront and in the community. The fact that relationships between fishermen, agencies and NGOs was identified as a strength by community members (28% of government officials and fishermen combined) points to an important

opportunity in the community. The ability to recognize areas of weakness in the relationship between these entities and to strengthen them may also be considered a positive feature that, properly harnessed, can help sustain commercial and recreational fisheries in the long term.

The single most-cited constraining factor to the advancement and sustainability of the commercial fishing industry is funding. Dredging, securing permits, bringing back an ice and cold storage facility, and addressing infrastructure needs requires a range of finance opportunities and channels. Diversification of funding opportunities established through partnerships, grants, and other mechanisms can help overcome some of the challenges the harbor faces.

Given a hypothetical funding source, informants for this study identified, through individual interviews, three major areas where funding would be most helpful:

- Dredging of docks and marinas
- Ice and cold storage
- Maintenance and upgrade of existing marina and dock facilities

KEY TAKEAWAYS

- **Capacity:** the Eureka community has shown the capacity to identify opportunities and constraints, develop key partnerships, successfully pursue funding and engage in substantive strategic planning as is evidenced by this FCSP and successful collaborations like Fisherman's Terminal and research aimed at infrastructure needs such as Prosperity 2012 and the Cold Storage Technical Study (2015).
- **Broad, Inclusive Perspective:** wide range of respondents participated in this project: commercial, recreational and charter fishermen, the Harbor District and city officials, local business owners and operators, oyster growers, Wiyot Tribe employees, and environmental advocates. Input was gathered through personal interviews, public workshops and meetings of an Advisory Committee. From these efforts, consensus was achieved on 12 Recommendations aimed at greater sustainability for the Eureka fishing industry.
- **Ability to Form Key Partnerships:** Alliances among the Eureka fishing community, with academia and the community at large are strong and the level of trust relatively high. Alliances and the level of trust with fishery regulators, local civic leaders, elected officials and the HBRCHD are lower, although there have been recent improvements.
- **Adaptability:** Eureka's long and rich fishing history has given rise to a capable and highly knowledgeable and adaptable fleet, which is marked as one of the community's key strengths and a hallmark of sustainability.
- **Aging Industry:** lack of new, younger entrants, the graying of the fleet, as confirmed by academic research, and the loss of the transfer of knowledge and profession as passed down through the generations presents a key concern for the community and one of the greatest threats to fishing in Eureka.
- **Continuing Struggle:** the fleet has and continues to work collectively through challenges associated with a high level of regulation, deterioration of physical infrastructure, competition for waterfront property from non-water dependent uses, competition from inexpensive imports, rising costs, and shifting demands from the consumer market, like the availability of farmed salmon 12 months a year.

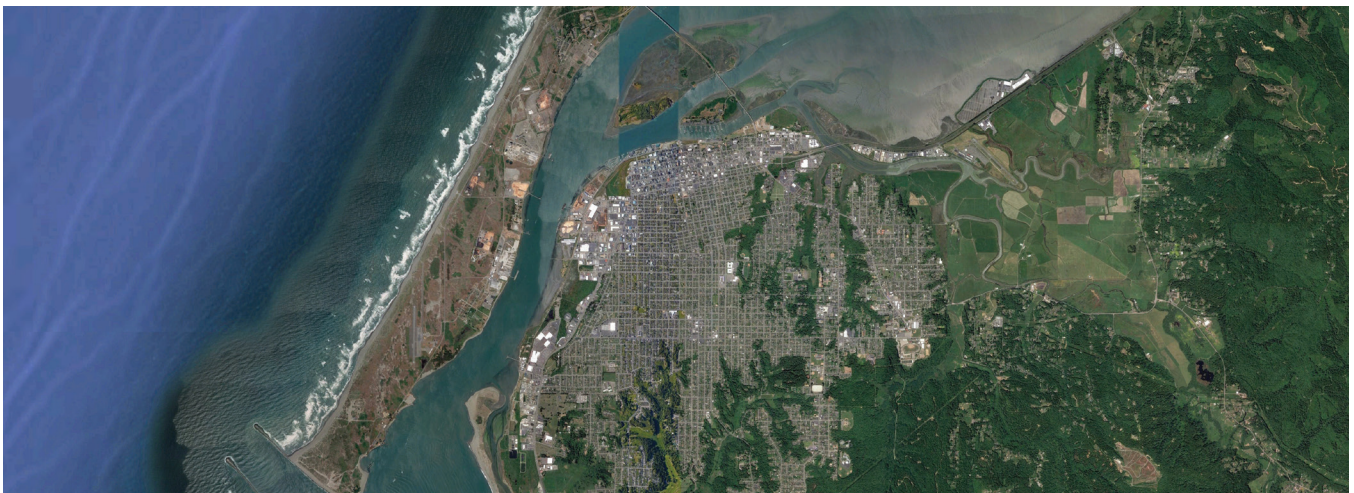
4 ENVIRONMENTAL AND REGULATORY SETTING

The most distinctive features of Eureka are Humboldt Bay and its connection to the productive coastal waters fed by the California Current. These globally significant features define Eureka as a unique place that has supported generations through hard work and the abundance of the ocean and the Bay. This section discusses the abundance and diversity of Humboldt Bay and the offshore environment as well as the regulations under which the Eureka fishing fleet operates.

Those regulations are aimed at setting sustainable harvest levels, protecting important habitat, and ultimately assuring that there is a viable commercial fishing industry in Eureka and California's future. Notably, every fishery in which Eureka fishermen engage is overseen by federal, state, or in some cases, like salmon, joint jurisdiction. Participation in each fishery carries some combination of mandates on gear type, area closures, seasonality, size and sex restrictions, quotas, trap limits, vessel monitoring, limited entry permits, catch limits and even the time of day that gear can be deployed. Commercial fishermen in Eureka are also subject to strict reporting requirements that include species, weight and location of their catch for each trip. This heightened level of management and transparency has led major fishery scientists to claim that management measures in California are among the most effective in increasing fish stock biomass. As a result of these management measures and the efforts of fishermen, in the last 18 years, the West Coast of the U.S. has seen the recovery of 12 species, 10 in California, many important species in Eureka including Petrale sole and several rockfish species.

In a 2009 article published in the peer-reviewed academic journal, *Science, Rebuilding Global Fisheries*, leading fishery population biologists Boris Worm and Ray Hillborn assessed 10 ecosystems around the world and concluded that fishery management measures in California are among the most successful in increasing biomass or fishery abundance above the long-term average.

Descriptions of the various regulatory restrictions in this chapter are by no means complete but meant to give the reader an idea of what commercial fishermen in California face and the effort they are required to expend to comply and reduce impacts.



Aerial view of Eureka, Google Earth

In addition to commercial and recreational fishing, Humboldt Bay supports a thriving mariculture industry, which is subject to an extensive range of regulations and management measures. In Humboldt Bay, oysters are grown on a combination of privately held tideland leases and public trust land that is leased to individual shellfish growers. The Harbor District is the lead agency responsible for permitting mariculture operations in all parts of Humboldt Bay. Additionally, all mariculture operations in the Bay must be approved by the California Coastal Commission, which has a strong conservation mandate. A more detailed discussion on the shellfish industry is included as an appendix to this report. Combined, this oversight and focus on conservation, marks Eureka as one of the richest and most heavily managed habitats in the world and has strong implications for long-term resiliency for fishermen, shellfish production and the entire community.

In 1971, parts of the bay and surrounding marshland were designated as a national wildlife refuge (U.S. Fish and Wildlife, 2013).

HUMBOLDT BAY HEALTH AND DIVERSITY

Humboldt Bay is among the most resilient ecosystems in the United States. It is considered one of California's most pristine estuarine environments and is the second-largest natural bay in the state. Humboldt Bay presents a wide variety of unique habitats—such as open water, shallow water, mud and sand flats, salt marshes and ponds, agricultural lands, sand beaches, islands, estuarine eelgrass beds, and woody riparian vegetation (Humboldt Bay Harbor District, 2017). These habitats are home to more than 100 species of fish and marine invertebrates, many of which are considered economically viable and support commercial and recreational fishing. Humboldt Bay also supports 316 species of birds and 40 mammals (U.S Fish and Wildlife, 2013; California Department of Fish and Wildlife, 2017).

WATER QUALITY

Humboldt Bay's water quality has been negatively impacted by surrounding agricultural land, by the industrial legacy of the bay, and by other point and non-point source pollutants. However, compared to most ambient water quality in the United States, water quality in Humboldt Bay is considered to be generally good (Humboldt Bay Management Plan, 2006). Water quality plans such as the Humboldt Bay Management Plan (2006), and the Water Quality Control Plan for the North Coast Region establish essential water quality requirements for Humboldt Bay (Basin Plan, North Coast Regional Water Quality Control Board, 2001; Humboldt Bay Management Plan, 2006). The Basin Plan includes a number of criteria to ensure that Humboldt Bay's water quality is not degraded. The sewer and storm water systems from the municipalities surrounding Humboldt Bay should continue to be monitored and improved to protect water quality for seafood industries connected to the bay. Shellfish product produced in Humboldt Bay is regularly tested for shellfish diseases and Humboldt Bay is the only estuary in California with a disease-free history, making it the only place in the state certified to grow clam and oyster seed for export. As a testament to the water quality, Humboldt Bay is the top oyster producer in the state, producing an estimated 70% of the state's oysters

THE LOCAL OCEAN ENVIRONMENT

The ocean environment off Eureka hosts some of the state's most productive fishing grounds. Key features include:

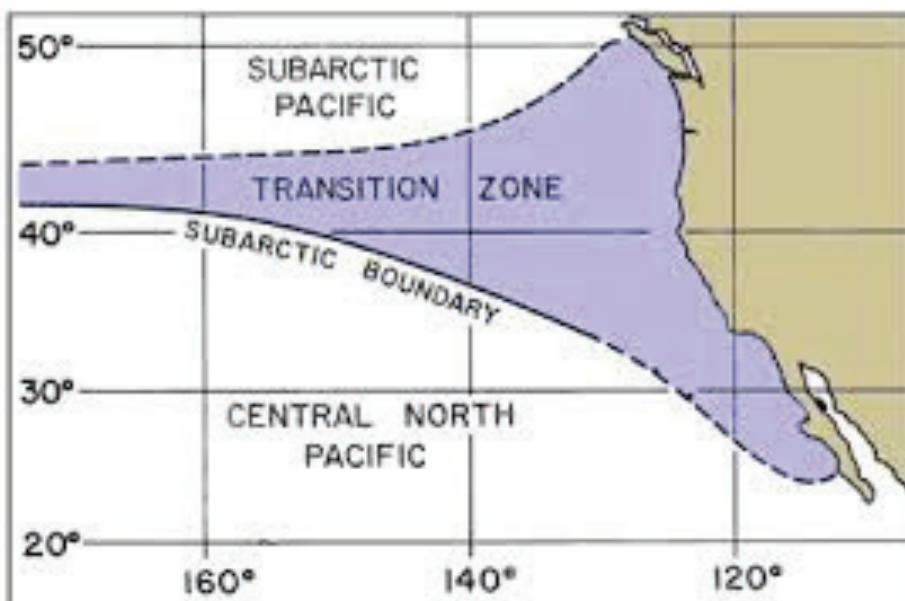
- Bays and estuaries (e.g., Humboldt Bay, the Klamath and Mad River Estuaries)
- Rivers (e.g., the Klamath, Eel, Mad)
- Submarine canyons (e.g., Eel, Delgada, Mattole, Mendocino)
- Nearshore and two primary offshore reefs (Blunts and Saint George)

Eureka is also marked by the California Current, one of the world's four major wind-driven upwelling systems, the other three systems being located along the west coasts of South America, and southern and northern Africa (GFNMS, 2014). This offshore transport of surface waters results in the upwelling of cold, nutrient-rich waters from depth into sunlit surface waters to support a food-rich environment and promote the growth of organisms at all levels of the marine web.

These features, along with strong coastal upwelling and the rich "Transition Zone" add to the productivity of Eureka's marine ecosystem.

This area, north of Cape Mendocino, also is subject to dangerous winter storms, high winds, and summer fog. While these conditions contribute to the region's high productivity, they also are an important limiting factor for fishing.

The rich marine habitat supports Chinook salmon, Lingcod, rockfish, and Dungeness crab. Habitats include rocky nearshore, deep and shallow reefs, soft, sandy bottom shelves, and deep-water canyons, including Eel River Canyon just to the north of Cape Mendocino.



"There are more fish out here than I've seen in my lifetime" - COMMFISH 12, 2017

Tagging of Pacific Predators (TOPP) From results of the analysis of more than 4,000 tags over nine years, researchers from Stanford, UC Santa Cruz, and NOAA found the North Pacific Transition Zone to be a "migration highway" for top predators like tuna and sharks as they migrate across the Pacific and arrive off the West Coast. <http://tolweb.org/onlinecontributors/app?service=external/ViewImageData&sp=26983>

ENVIRONMENTAL CONCERNS

SEA LEVEL RISE

Humboldt Bay is experiencing the fastest rate of sea level rise in California (Laird, A. 2016). Sea level rise has the potential to affect important infrastructure and assets related to the fishing industry. Planning for the future of the industry should take sea level rise projections into account. Detailed assessments and projections of sea level rise on Humboldt Bay are available to help guide future planning decisions. A collection of sea level rise reports for Humboldt Bay are available on the HSU Sea Level Rise Initiative website (gsp.humboldt.edu/Websites/SLR/index.html).

EEL GRASS

Humboldt Bay supports the most extensive eel grass resources of any estuary in the state. Eel grass is a productive seagrass that provides numerous ecosystem benefits, including important habitat for several listed fish and bird species as well as numerous other economically and culturally important species – including those targeted by recreational and commercial fisheries (HBHRCD, 2017). As a result, there are several federal and state policies in place to protect and enhance eel grass populations. While robust eel grass beds contribute to the biological diversity of the bay, they can come in conflict with mariculture operations. There are concerns that shading from mariculture operations can negatively affect eel grass habitat and eel grass remains one of the limiting factors in the further growth of the mariculture industry. More research is needed to understand the relationship between mariculture operations and eel grass productivity and to develop methods for shellfish production that minimize impacts to eel grass.

OCEAN ACIDIFICATION

As a result of increasing CO² emissions, the acidity of ocean waters throughout the globe is projected to rise. Increased acidity can affect a range of marine resources and in particular can affect shell formation in shellfish species such as oysters. Mariculture operators in Washington State have already begun to notice impacts to their seed production related to ocean acidification. Initial research suggests that Humboldt Bay may act as a buffer to seawater pH to some extent, which may give the region a comparative advantage when it comes to ocean acidification (Phillips, Jenn. 2016). The Ocean Protection Council recently funded studies to monitor pH and carbonate saturation through Humboldt Bay, which will provide important information to the mariculture and fishery interests in the Bay.



Humboldt Bay, HSU 2017

HARMFUL ALGAE BLOOMS AND OCEAN CHANGE

The increase in global carbon dioxide emissions, which is producing both warmer oceans and ocean acidification, has the potential to affect life histories, ranges, habitat, behavior, and population structure of marine resources important to the fishing community of Eureka. In recent years, the North Coast region of California has seen an uptick in the prevalence of harmful algae blooms, which can enter shellfish species such as crabs and clams and render them unsafe to eat. These harmful algae blooms are responsible for the build-up of domoic acid, a naturally occurring biotoxin, in crab species. Every year, California conducts rigorous testing to make sure crab species are safe for commercial and recreational harvesting. Several times in recent years the Dungeness crab fishery in Eureka has been closed or shortened as a result of domoic acid. Harmful algae blooms represent an important threat to both health standards and the economic sustainability of the port and should continue to be closely monitored and studied. Meanwhile, meta ocean changes have pushed some species northward such as Market squid. HFMA has led a six year effort to access Market Squid stocks through a five-year trial in an attempt at increasing fisheries diversification for Northern California ports. These efforts have met with resistance from regulatory agencies and wetfish (squid and sardines) industry organizations.



Dungeness Crab, HSU 2017

FISHERY REGULATIONS AND MANAGEMENT

Humans have exploited fish populations for food and profit for thousands of years (Sahrhage and Lundbeck, 1992), but the last 150 years have seen huge increases in geographic reach and depth range, an unprecedented fishing intensity through new technology, and a global commoditization of fishery products (Lam and Pitcher, 2012a; Watson, et al. 2012). Of the thousands of species off the coast of Eureka, all the approximately 30 to 40 targeted by the commercial fishing industry are managed by state and federal agencies and subject to a combination of regulatory measures including Fishery Management Plans which feature science-based stock assessments and evaluations, strict reporting requirements, and enforcement. This oversight is evidence of a well-protected resource and basis for a sustainable commercial harvest.

Access to healthy and abundant fish stocks is the cornerstone of a viable commercial fishing industry, along with adequate shoreside infrastructure, access to markets, viable distribution and a ready, knowledgeable workforce. Since the passage of the Magnuson Stevens Act in 1976 and a rush to gain American fishing dominance in the newly established 200-mile Economic Exclusion Zone (EEZ), state and federal fishery management agencies, including the Department of Fish and Wildlife and the National Marine Fisheries Service, have led California to become one of the most highly regulated and monitored in the world.

4 Environmental and Regulatory Setting

As a result, commercial fishermen are faced daily with a maze of restrictions, requirements, and regulations imposed by both state and federal agencies. The following is meant to give an overview of regulations that commercial fishermen in Eureka face.

MANAGEMENT MEASURES OF TOP FISHERIES IN EUREKA

Measure/Species	D. Crab	Sablefish, Dover Sole, Petrale Sole, Thornyheads	Pink Shrimp	Albacore	Salmon	Whiting	Squid
Authority	State	State/Fed	State/Fed	Fed	State/Fed	Fed	State
Area Closures	✓	✓	✓	-	✓	✓	-
Seasonal Closures	✓	-	✓	-	✓	✓	✓
Gear Restrictions	✓	✓	✓	✓	✓	✓	✓
Limited Entry	✓	✓	✓	-	-	✓	✓
Reporting Requirements	✓	✓	✓	✓	✓	✓	✓
Sex and Size	✓	-	-	-	✓	-	-
Quota Based Management	-	✓	✓	-	-	✓	✓
Fishery Management Plan	Task Force	✓	-	✓	✓	✓	✓
Trap Limits	✓	-	-	-	-	-	-
Vessel Monitoring	-	✓	✓	-	-	✓	-
Catch Limits	-	✓	-	-	✓	✓	✓

State waters in the northern California region cover approximately 1,027 square miles of ocean, estuary, and offshore rocky, island waters.

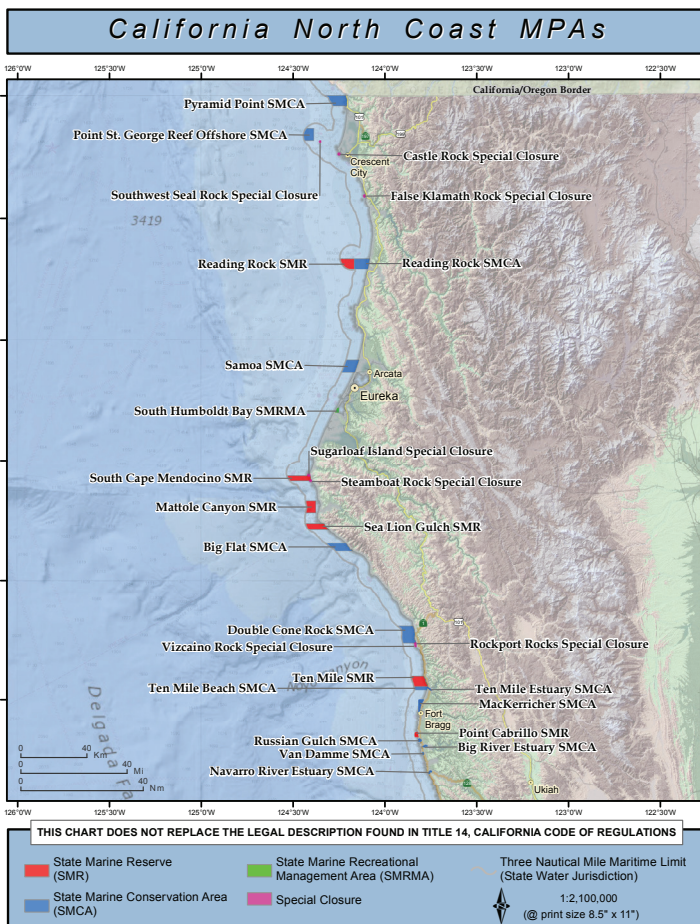
PROTECTED AREAS

Fishermen in Eureka are faced with a host of spatial closures, where fishing is limited or completely prohibited. These include Marine Protected Areas, Marine Reserves, Marine Conservation Areas, Marine Recreational Management Areas, two Rockfish Conservation Areas that span the coast, the 12-square-mile Klamath salmon closure, and river and harbor entrance closures.

The northern California Marine Protected Areas (MPAs), from the California/Oregon border to Alder Creek (near Point Arena), are the northernmost component of a statewide MPA network. Major revisions and additions to northern California MPAs went into effect in state waters on December 19, 2012.

The 20 protected areas in this region (19 MPAs and one marine recreational management area) cover approximately 137 square miles, or about 13 percent of northern California state waters. Seven special closures are also managed as part of the region’s complement of MPAs. The following table summarizes the area designations managed within the northern portion of the statewide MPA network:

Number	Type	Description
6	State Marine Reserve (SMR)	An MPA designation that prohibits damage or take of all marine resources (living, geologic, or cultural) including recreational and commercial take
13	State Marine Conservation Area (SMCA)	An MPA designation that may allow some recreational and/or commercial take of marine resources (restrictions vary)
1	State Marine Recreational Management Area (SMRMA)	An MMA designation that limits recreational and commercial take of marine resources while allowing for legal waterfowl hunting to occur; provides subtidal protection equivalent to an MPA (restrictions vary)
7	Special Closure	An area designated by the Fish and Game Commission that prohibits access or restricts boating activities in waters adjacent to sea bird rookeries or marine mammal haul-out sites (restrictions vary)



Closures dot the coast north and south of Eureka, many historically rich fishing grounds for local and regional fishermen.

California North Coast MPAs

ROCKFISH CONSERVATION AREAS

Fishermen are also faced with two Rockfish Conservation Areas (RCA) which span the length of the Coast and limit where and how commercial fishermen can operate in the areas between 30 to 150 fathoms and 30 to 100 fathoms in depth. RCAs were established in September 2002 to minimize incidental catch of overfished rockfish by eliminating fishing in areas where and times when overfished species are likely to be found with more healthy target stocks of groundfish. RCA boundaries change seasonally and may also be changed during the year. The Trawl RCA prevents fishing using any type of trawl gear within its boundaries and consists of a narrow strip overlapping the seaward side of the Non-Trawl Conservation Area. The Non-Trawl RCA prohibits commercial fishing with any gear other than trawl gear. Both closures are meant to protect species living on the continental shelf at depths from around 100 to 150 fathoms.

TEMPORAL/SEASONAL CLOSURES

Restrictions on when fishing is allowed affect commercial and recreational fishermen in Eureka.

- The commercial Dungeness crab northern California season opens December 1 and continues through July 15, although additional adaptive closures may occur at the beginning or throughout the season. Commercial fishing for Dungeness crab is closed from July 16 through November 30. In 2016, the Dungeness crab fishery was closed for nearly three months by Office of Environmental Health Hazard Assessment (OEHHA) and California Department of Fish and Wildlife (CDFW) due to elevated levels of a naturally occurring toxin, domoic acid.
- The salmon fishery is also restricted. The Klamath Management Zone (KMZ) has been closed for more than 30 years, and the traditional five-month season is no longer standard and differs from year to year.
- The Pink shrimp fishery is closed from November 1 through March 31 to protect egg-bearing females.

GEAR RESTRICTIONS

Restrictions on design and materials are imposed throughout Eureka's target fisheries.

- Dungeness crab traps must meet restrictions on mesh and entry ring size and have features such as escape doors for undersized individuals and degradable materials to prevent "ghost fishing" should the traps be lost.
- Salmon are to be caught on single point, single shank barbless hooks. No more than six lines are allowed per vessel when trolling, and barbless circle hooks are required when fishing and by any means other than trolling.
- Groundfish trawl fishery has very defined regulations on trawl mesh size limits, trawl (net) configuration requirements to reduce bycatch, and footrope size restrictions. As in the Dungeness crab fishery, traps used in used in groundfish fishery must meet restrictions on mesh and entry ring size and have features such as escape doors for undersized individuals and degradable materials to prevent "ghost fishing" should the traps be lost.

LIMITED ENTRY

Nearly all of the commercial fisheries targeted in Eureka are regulated through restricted access, which limits the number of participants through acquisition and transfer of licenses. This includes the groundfish Limited Entry (LE) Trawl and Fixed gear sectors, salmon, Dungeness crab, near shore rockfish, herring, Market squid, and Pink shrimp fisheries. The Pink shrimp are part of the IFQ Groundfish Trawl program which requires a license to participate. On the West Coast of the U.S., the number of Pink shrimp vessels in the Northern region has steadily decreased each year from 2002 through 2006. Pink shrimp permits on the West Coast of the U.S. have plateaued at between 32-34 in the Northern Trawl Region and 15-21 for the Southern Region (DFW, California Commercial Licensing reports 2007-2012). Limited Entry affords protection from excessive competitive on fish stocks, but participants report that transferable, saleable limited entry permits may present the single greatest financial barrier to entry for young fishermen. Industry participants report that nearshore rockfish permits which allow a few hundred pounds of rockfish per month have recently been sold in Eureka for over \$40,000. They further report that Dungeness crab permits range from \$100,000 to \$200,000, a spot prawn trap permit recently traded for \$1 million and squid purse seine permits are unavailable at anything less than \$1.5 million.



Crab traps, HSU 2017

Limited Entry describes a management measure where the number of participants is regulated or controlled by the requirement of a permit, the number of permits available and how those permits may or may not be transferred.

TRANSPARENCY, REPORTING REQUIREMENTS

Commercial fishermen in California are subject to strict reporting requirements on all commercial fishing activity and must be issued a fish ticket by a buyer upon landing for every fishing trip. Fish tickets capture the date, geographic code where the fish were caught, gear type, ex-vessel value or money earned at the dock, permit number, and name of vessel. Information on landings by weight, and earnings by species, at the port level, is made available to the public on the CDFW and Pacific Fisheries Information Network (PacFIN) websites (<https://www.wildlife.ca.gov/Fishing/Commercial/Landings>).



Fish are measured and weighed for compliance with regulations and provide data on population dynamics, HSU 2017

SIZE AND SEX

Setting standards of minimum size and sex is a key component of traditional fisheries management. In Eureka:

- Dungeness crab, acceptable take is limited to males exceeding 6.25 inches in width. All females must be immediately released and are left to reproduce throughout their life span. Undersized animals escape through escape ports which are required in trap design or sorted and thrown back. This assures that the male crab will have at least one year of reproduction.
- Minimum salmon size is set each season and varies by region, but generally ranges between 26 and 28 inches total length.

INDIVIDUAL TRANSFERABLE QUOTA (ITQ OR IFQ)

Individual Transferable Quota or Catch Shares, established in the West Coast groundfish fishery in 2011, is a regulatory system by which fishermen, based on past history, earn and own a percentage of the Total Allowable Catch (TAC) each season. TAC may change based on stock assessments and regulatory decisions but the percentage the fisherman holds does not. Participating fishermen must possess a Limited Entry Groundfish Trawl permit and are held 100% accountable for catch and discards by carrying a federally trained human observer on board each trip. Each offloading event in the ITQ fishery is required to be monitored by a human observer as well. Many of the top species in Eureka are regulated through ITQ: sablefish, Dover sole, Petrale sole, thornyheads and rockfish. Pink shrimp are also part of the ITQ fishery.

In 2001, the State of California, Department of Fish and Game, Marine Region released The Master Plan: A Guide for the Development of Fishery Management Plans which sets the motivation for and framework for FMPs.

FISHERY MANAGEMENT PLANS (FMP)

A key component of fisheries management in California, Fishery Management Plans (FMP) serve as a comprehensive document detailing management of the state's marine resources. Many of the key species targeted by commercial fishermen in Eureka are subject to federal and interstate FMPs, most notably those regulating salmon, groundfish, and Highly Migratory and Coastal Pelagic Species. With the exception of Pink shrimp and Dungeness crab, all of the top species and the majority of the catch harvested by the Eureka commercial fishing fleet are regulated by FMPs. The purpose of the FMP is to inform and guide species management as well as ensure ecosystem health.

Prior to adoption, FMPs are subject to prolonged research and scrutiny from federal and/or state fishery managers, scientists and industry to ensure agreement across involved agencies and robust scientific backing. The Marine Life Management Act and the Fisheries Management Master Plan set the contents and organization of all California FMPs. Closely following the structure of federal FMPs, they are meant to include the following elements:

- Description of the fishery
- Fishery science and essential fishery information
- Basic fishery conservation measures
- Habitat provisions
- Bycatch and discards
- Overfishing and rebuilding
- Procedure for review and amendment of an FMP

TRAP LIMITS

Commercial Dungeness crab fishermen in Eureka are faced with a limit on the number of traps they can deploy (in addition to seasonal closures, gear restrictions, size and sex and reporting requirements). Limits in the Dungeness crab fishery are set by The Dungeness Crab Task Force, a collaborative approach to fishery resource management that was established in 2009. Membership on the Task Force is designed to represent fishermen along the California coast, from large and small boats, recreational fishing concerns, processors, and NGOs. The Task Force has helped to establish limits on the number of crab traps individual fishermen can use, with seven tiers of crab trap limits ranging from 175 to 500 traps.



Crab Traps, HSU 2017



Offloading Crab, HSU 2017



Woodley Island Marina, HSU 2017

VESSEL MONITORING

A vessel monitoring system (VMS) consists of a NMFS type-approved VMS transmitter that automatically determines a vessel's position and transmits that position to a NMFS-approved communications service provider. The communications service provider receives the transmission and relays it to NMFS. In the Pacific Coast groundfish fishery (which includes Pink shrimp), the position data is primarily used to monitor fishing activity relative to closed areas. While reimbursement programs are available, commercial fishermen must purchase, install and maintain their VMS or be found in violation and risk fines or loss of license.



CDFW evaluates individual samples at landing, HSU 2017

CATCH LIMITS

Several of Eureka's top commercial fisheries are subject to catch limits as set by relevant Fishery Management Plans. Most notably, groundfish are limited by weight through quotas and the Open Access Groundfish Fishery effort is limited by trip limits and bi-monthly limits. Market squid fishermen face seasonal catch limits. The salmon fishery is also subject to catch limits. For example, in 2017 CDFW regulations restricted the commercial ocean salmon season to a 3,000 fish limit between September 1 and 30 in the Horse Mountain (directly off Shelter Cove) to Point Arena zone, and individual fishermen were limited to 60 fish (each) for that period. The area from Shelter Cove to Oregon (Humbug Mountain) was completely closed to salmon fishing in 2017. Once catch amount limits are reached in a fishery all fishing effort is required to cease.

NON-FISHING SPATIAL CHALLENGES

The Bureau of Ocean Energy Management (BOEM) has recently begun considering granting leases for offshore wind generation, which overlap with the fishing grounds off Humboldt County. Fishing industry participants estimate that the potential loss of local fishing grounds to offshore windpower could range from 40 -150 square miles of ocean area. Additionally, two submarine fiber optic cable consortiums are planning cable routes across additional local fishing grounds. Fishing community participants estimate that a single, quarter-mile wide cable lane would close five square miles to bottom contact fishing gear. HFMA is conducting preliminary negotiations with potential fiber optic cable developers to identify, minimize, and mitigate for impacts to the local fishing community.

RECOVERY SUCCESSES

Since 2000, of the 474 stocks or stock complexes in 46 fishery management plans tracked by NOAA, 12 species have been declared rebuilt on the West Coast of the U.S. and 10 in California. Of those, nine are targeted by Eureka fishermen. Two recovered species, Petrale Sole and Pacific Whiting, have been among the top five earning species in Eureka for at least 2 years between 1990 and 2016. In 2017, NOAA Fisheries added three additional stocks (bocaccio—Southern Pacific Coast, darkblotched rockfish—Pacific Coast, and Pacific Ocean perch—Pacific Coast) to the rebuilt list. These successes as well as the assessment of eminent fishery scientists, are evidence that commercial fishing in Eureka is conducted in a highly sustainable manner and bodes well for future fishermen and future fish stocks.

In 2009, the world's leading fisheries population biologists, Boris Worm, Ray Hillborn and 19 of their peers, published a paper, *Rebuilding Global Fisheries*, in the journal *Science*, that stated: "regulatory efforts in California have been "one of the most spectacular rebuilding efforts among global fisheries".

44 Stocks Rebuilt as of December 31, 2017

North Pacific:

Southern tanner crab - Bering Sea - 2007 & 2012
 Blue king crab - St. Matthews Is. - 2009
 Snow crab - Bering Sea - 2011

Pacific:

Canary Rockfish - Pac Coast - 2015
 Petrale Sole - Pac Coast - 2015
 Pacific whiting - Pac Coast - 2004
 Lingcod - Pac Coast - 2005
 Chinook salmon - N. CA Coast: Klamath (fall) - 2011
 Widow rockfish - Pac Coast - 2011
 Coho salmon - WA Coast: Queets - 2011
 Coho salmon - WA Coast: W. Strait of Juan de Fuca - 2012
 Chinook salmon - CA Central Valley: Sacramento (fall) - 2013
 Bocaccio - Southern Pac Coast - 2017
 Darkblotched Rockfish - Pac Coast - 2017
 Pacific ocean perch - Pac Coast - 2017

Highly Migratory Species:

Blacktip shark - Atlantic/Gulf of Mexico - 2003¹
 Swordfish - N. Atlantic - 2009
 Albacore Tuna - N. Atlantic - 2016

New England:

Sea scallop - NW Atl Coast - 2001
 Silver hake - Gulf of Maine/N. Georges Bank - 2002
 Silver hake - S. Georges Bank/Mid-Atlantic - 2007
 Winter flounder - Georges Bank - 2003
 Haddock - Georges Bank - 2010
 Pollock - Gulf of Maine/Georges Bank - 2010
 Haddock - Gulf of Maine - 2011
 Acadian redfish - Gulf of Maine/Georges Bank - 2012
 Windowpane - S. New England/Mid-Atlantic - 2012
 Yellowtail flounder - S. New England/Mid-Atlantic - 2012
 Barndoor skate - Georges Bank/S. New England - 2016

New England & Mid-Atlantic:

Goosefish (Monkfish) - Gulf of ME/N. Georges Bank - 2008
 Goosefish (Monkfish) - S. Georges Bank/Mid-Atlantic - 2008
 Spiny dogfish - Atlantic Coast - 2010

Mid-Atlantic:

Bluefish - Atlantic Coast - 2008
 Scup - Atlantic Coast - 2009
 Black sea bass - Mid-Atlantic Coast - 2009
 Summer flounder - Mid-Atlantic Coast - 2011
 Tilefish - Mid-Atlantic Coast - 2014
 Butterfish - Gulf of ME to Cape Hatteras - 2014

South Atlantic:

Pink shrimp - S. Atl Coast - 2012
 Black sea bass - S. Atl Coast - 2013
 Yellowtail snapper - S. Atl/Gulf of Mexico - 2003

Gulf of Mexico:

Red grouper - Gulf of Mexico - 2007
 King mackerel - Gulf of Mexico - 2008
 Gag - Gulf of Mexico - 2014



NOAA
FISHERIES

1. Blacktip shark is now two separate stocks, but was previously assessed as one combined Atlantic/Gulf of Mexico stock.

44 Stocks Rebuilt as of December 31, 2017, NOAA

KEY TAKEAWAYS

- **One of The Most Productive Marine Ecosystems in The World:** Humboldt Bay and the rich marine ecosystem off the coast in Eureka potentially gives the Eureka fleet access to an abundance of species on an abundance of habitats. This puts Eureka in a stronger more sustainable position when considering changes in ocean conditions, fish stocks, regulation or market preferences.
- **Comprehensive Fishery Regulation:** Of the thousands of species off the West Coast of the U.S., the approximately 30 or 40 targeted by the Eureka commercial fleet are all overseen by some combination of regulation and reporting requirements including area closures, seasonal closures, gear restrictions, limited entry, sex and size restrictions, quotas, Fishery Management Plans, trap limits, vessel monitoring and catch limits.
- **Globally Recognized Management:** As pointed out by leading fishery population scientists, management measures in California are among the most successful in the world and in 2016, NOAA Fisheries published, U.S. Fisheries Management Clears High Bar for Sustainability Based on New Assessment, a peer-reviewed report that shows U.S. federal fisheries management system meets all Food and Agricultural Organization of the United Nations (FAO) guidelines for sustainability.
- **Rebuilding Successes Assure Sustainable Future:** Based on the comprehensive approach to fishery management, transparency, fishermen's efforts in compliance (modifying gear, traveling further distances to avoid closed areas, diversifying target species where possible) and the amazing capacity of the oceans to regenerate, the future of fishing in Eureka appears more at risk from lack of shoreside infrastructure and services, access to distribution routes, competition from inexpensive imports, consumer awareness on the value of Eureka-caught seafood, and rising costs of inputs.
- **Costs Borne by Fishermen:** it is extremely important to understand and acknowledge that the costs associated with compliance to the litany of commercial fishing regulations as summarized in this chapter are born by fishermen. Those include modifying gear, traveling greater distances to avoid geographic closures, targeting a variety of species to make up for seasonal closures, sorting fish on deck, reporting through fish tickets, carrying NMFS-approved human observers, and maintaining Vessel Monitoring Systems. As such, civic leaders, elected officials, the community, and seafood consumers are part of the sustainable seafood system. Support for the commercial fleet can be counted as actions in bringing about a more sustainable, economically vibrant commercial fishing industry and working waterfront.
- **Meta Ocean Changes:** Sea level rise, climate change, and ocean acidification represent potential future threats to the sustainability of the local fishing and mariculture industries. Industry stakeholders should remain involved in research related to these topics and seek to devise strategies to plan for and adapt to potential future changes.

5 PHYSICAL INFRASTRUCTURE AND CRITICAL SERVICES

INTRODUCTION

The working waterfront of Eureka has long been an important part of Humboldt County's economy as a revenue and employment generator and socially, as a link to Eureka's past and its very identity. Along with serving as a port for maritime transportation, Eureka has historically been home to a strong commercial fishing industry, and in fact was the second largest fishing port on the West Coast in 1968.

As in other ports, Eureka's commercial fishing industry has weathered significant challenges since the early 1980s, including shifting regulations, increased closures, competition from inexpensive imports and concomitant downsizing of the fleet. Despite this, Eureka's commercial fishing industry continues to create jobs and inject revenue into the local economy and shares the use and support of physical infrastructure that also services the Eureka's recreation, tourism and shipping industries.

While waterborne trade, including the import of petroleum and the export of forest products, dominate harbor activity, commercial, recreational, and charter fishing contribute to the demand for physical infrastructure, and services.

Along with supporting Eureka-based fishermen, commercial fishing infrastructure and services in Humboldt Bay also serve fishermen from Trinidad, Shelter Cove, and visiting vessels from all over the state, as well as Washington and Oregon. Fishermen from neighboring ports travel to Eureka as a temporary base, pursuing the movement of fish stocks, to offload and/or sell their catch, refuel, or purchase supplies and services. Moreover, Eureka-based commercial fishermen share their dependency on the available infrastructure with recreational anglers, charter captains, and oyster producers, who all rely on an accessible and vibrant working waterfront.

Eureka has an extensive waterfront and inventory of physical infrastructure. The intent of this chapter is to address the most prominent and currently used features. Given the economic, social, and environmental significance of fishing in Eureka, if in the future, any part of the waterfront or physical infrastructure should be found to potentially serve or enhance the commercial, recreational or charter fleets' needs, it should be given attention.

IMPORTANT COMPONENTS OF THE COMMERCIAL AND RECREATIONAL FISHERIES SUPPORT SECTOR

A strong commercial fishing industry relies on several key physical infrastructure features, listed in Table 1, 2, and 3 below. Eureka has important resources, such as seafood processors, fish buyers, offloaders, hoists, a fisherman’s terminal with concrete dock and hoists, scales and forklift and relatively convenient access to welders, mechanics, and bait services. While cold storage, freezer storage, and ice production exist in varying minimal capacities at Eureka’s seafood processors, they are owned and controlled by fish processors and are not, nor are they intended for individual fishermen, out of area fish processors, nor local public food security. Key fishing-reliant features lacking in Eureka include a cold and freezer storage facility and ice plant, available to diverse interests in the surrounding community. Key fishing-reliant features lacking in Eureka include a cold and freezer storage facility and ice plant that are available to diverse interests in the community.

In 2017, Hackett, Richmond, and Chen developed an inventory of the major infrastructure components found in Eureka. An updated table shows current conditions

IMPORTANT COMPONENTS OF THE MARINE FISHERIES SUPPORT SECTOR: EUREKA

Service or Product	Number	Description
Harbors/marinas	2	Eureka Public Marina, and Woodley Island Marina
Processors	2	Caito Fisheries and Pacific Choice Seafoods
Offloaders, buyers, distributors	4	Alber’s Seafood, Caito Fisheries, Carvalho Fisheries/Wild Planet, Humboldt Seafood Unloaders, Pacific Choice Seafoods
Retail Fish Markets	0	None known. In recent years all known fish markets have closed.
Gear/Marine Supplier	8	Englund Marine Supply, Bucksport Sporting Goods, Custom Crab Pots, Commercial Crab Pots Quality Crab Pots, Redwood Marine , RMI Outdoors, Mad River Outfitters (Arcata)
Fuel	2	EZ Landing (King Salmon), Englund Marine (for Renner Petroleum)
Cold Storage	0	Eureka Ice & Cold Storage burnt down in 2008
Bait	Miscellaneous	-
Gear Storage Areas	2	Eureka Fisherman's Terminal, and Woodley Island Marina

Adapted from Hackett, Richmond, and Chen (2017)

Harbor and Marinas. Marinas provide critical access to shore and safe, consistent berthing, power and fresh water for commercial and recreational vessels. Marina services contribute millions of dollars to the California economy, generate employment and millions of dollars in wages.

The Woodley Island Marina is the principal commercial fishing berthing facility in the Eureka area. Fields Landing, the Eureka Public Marina and, to a lesser extent King Salmon, also provide berthing for commercial fishermen. The general area accommodates four public boat ramps, four offloading facilities, one fuel dock, two boatyards, dry storage, a fishing pier, one ice plant, several work stations, and numerous hoists.

Woodley Island Marina is the largest marina in Eureka with several acres of upland work area, gear storage, and 237 boat slips. Eureka Fishermen report that Woodley Island Marina was designed and built in 1976 as a commercial fishing facility, the first marina built in California to relocate an entire commercial fishing fleet. The majority of Eureka's commercial fleet tie up here, making it a hub of commercial fishing activity where fishermen can share information and interface with the public. It provides permitted parking and gear storage areas, a work yard with one 1-ton hoist and one 2-ton hoist, a forklift, a sewage and holding tank pump out. The Ship Shop chandlery and Café Marina and Woodley's Bar also serve as meeting places for fishermen. The Marina also provides laundry and shower facilities. The Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) oversees and manages Woodley Island. The marina previously had full-time security guards on staff, but it has recently switched to video surveillance only. Woodley Island Marina requires regular maintenance dredging in order to ensure that berths are at adequate depth. It has been several years since the last dredging, and fishing participants report that shallow water depth has rendered many berths unusable.

Fields Landing, also managed by the Harbor District, lies two miles south of the entrance to Humboldt Bay. It is the southern-most facility in the Eureka-area and is the home of Fields Landing Boatyard which offers haulout (via mobile hoist), repair and boat washing services for vessels up to 80 feet and storage for boats up to 100 feet. Fields Landing also hosts a boat ramp that can accommodate larger vessels as well as kayaks and canoes.



Crab Traps, HSU 2017



Fields Landing Boatyard, Courtesy of HBHRCD

“The infrastructure that we do have is working well” - FCSP Interview Respondent, 2017

5 Physical Infrastructure and Critical Services

The City of Eureka oversees and manages the Eureka Public Marina which provides 150 slips that can accommodate vessels from 20-70 feet in length. The Eureka public marina has been recently maintenance dredged and can accommodate vessels up to 10 feet of draft. The Marina is host to both commercial and recreational vessels and includes a population of live-aboard tenants. There is a boat launch ramp on the site as well as bathrooms, showers, and laundry facilities.

King Salmon, provides minimal berthing for a handful of commercial fishermen, it is the marina closest to the entrance of Humboldt Bay and houses one part-time seafood offloading facility. Fishing community participants report that lack of dredging in King Salmon channel have constrained even small vessel access. A small number of crab fishermen offload at King Salmon.

Redwood Marine Terminal 1, located in Samoa and managed by the Harbor District, provides some dock space for commercial fishermen, fenced and either covered or open gear storage, a hoist, an aquaponics research facility, and a hagfish processing/shipping operation. Fishermen consider this facility temporary. It is 20 minutes by boat from Woodley Island Marina, making it inconvenient for regular usage. The docks are reported to be in poor condition, which is exacerbated by southerly winds in the winter that expose Redwood Marine Terminal to significant wave energy and little protection. The dock and storage facility at Redwood Marine Terminal is currently slated for repair and upgrading with a 2-ton crane.

Redwood Marine Terminal (RMT) 2 encompasses the property of the Samoa Pulp Mill site. The Harbor District purchased the property from Freshwater Tissue in 2013 and facilitated an EPA clean-up of the site. The location includes one berth, storage space, 130,000 square feet of warehouse space, and 70,000 square feet of shop and office space. Currently Taylor Mariculture is using the location for shellfish seed operations. Taylor Mariculture uses indoor warehouse space for seed-setting activities and has Floating Upweller Systems (FLUPSY) near the property's dock to facilitate seed growth. Several other tenants have moved into the RMT II office and warehouse spaces. Just a few miles south of RMT II on the Samoa peninsula, the Hog Island Oyster Company has established a shellfish hatchery and seed setting facility on the Humboldt Bay waterfront. They also operate a FLUPSY connected to the dock at that site.



U.S. Green Building Council logo

Eureka Fishermen's Terminal located at the foot of "C" Street was completed in 2011 after 18 years of effort by Humboldt Fishermen's Marketing Association (HFMA) and the City of Eureka. After initially attempting to purchase the deteriorated dock and upland acreage through the establishment of a nonprofit land trust, HFMA teamed up with the City of Eureka to seek funding from the Economic Development Administration (EDA), California Coastal Conservancy, federal stimulus grants, and Eureka Redevelopment funds. The \$8 million project includes three-quarters of an acre of gear storage and work areas, truck loading bays, a concrete dock with five hoists, and serves multiple seafood companies. Wild Planet and Alber Seafoods offloads catch from the commercial fishing fleet and Coast Seafood leases storage space to support its oyster operations. The building was originally designed to

accommodate oyster processing, flash freezing, and a fresh fish market ancillary to the fish unloading a processing. Currently, a restaurant occupies the space intended for the fish market. Significantly, Eureka Fishermen’s Terminal is the first waterfront facility designed and built to US Green Building Council standards and was awarded a Leadership in Efficient Energy and Design (LEED) Gold Certification.

Processors Pacific Choice Seafoods is the largest processor in the area and in Northern California. It is the only processor of Pink shrimp in the area and the primary processor of crab. Pacific Choice is located in the EDA Plant, a City of Eureka owned facility, which also houses an office space, and a marine retail store. The EDA facility is considered one of the most modern fish plants in California.

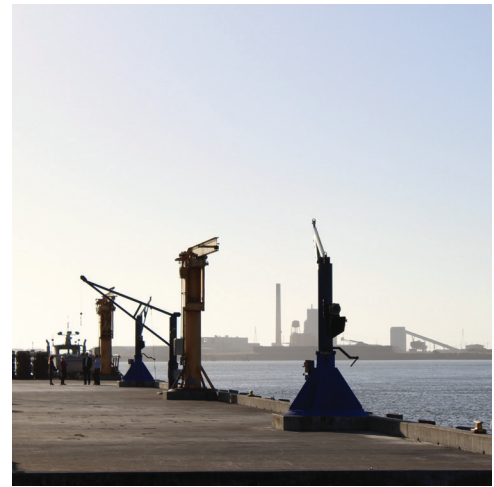
Caito Fisheries is an offloader and distributor and processor. Per their website, they process 5 million pounds of Dungeness crab, rockfish, and salmon each year, at five locations including Eureka, Fort Bragg, and San Francisco.

The Redwood Terminal 1 Hagfish Operations was approved in 2015 to transfer, hold, and pack Pacific hagfish and employ 2 to 5 employees per shift. In 2017, Eureka accounted for 30% of the state’s total Pacific hagfish landings, generating over \$650,000 in earnings at the dock.

Offloaders, Buyers, and Distributors. The primary offloading facilities in the Eureka area are located at the Eureka Fishermen’s Terminal Building, the Commercial Street Dock, the foot of "I" street, Redwood Marine Terminal 1 on the Samoa Peninsula, and Fields Landing. A handful of crab and tuna fishermen offload at King Salmon (Pomeroy, et al. 2010).

Caito Fisheries has had a strong presence in Northern California with receiving stations in Fort Bragg, San Francisco, Crescent City, Half Moon Bay, and Eureka. Caito has a processing plant in Fort Bragg, where it receives crab and groundfish trucked in from Eureka and other sites. According to Pomeroy, et al. (2010), Caito Fisheries, along with Pacific Choice and Carvalho Fisheries, accounted for more than 90% of the ex-vessel value of catch landed at Eureka and Fields Landing in 2005 and 2006.

Carvalho Fisheries/Wild Planet is located in the Fishermen’s Terminal and offloads catch, primarily albacore and crab.



Hoists, HSU 2017



Caito Fisheries, HSU 2017



Englund Marine Supply, HSU 2017



Pacific Choice Seafoods Co., HSU 2017

Gear/Marine Supplier. Eureka is a hub for gear supply for surrounding communities. Eureka has a strong presence of gear suppliers and is home to one marine supply store, Englund Marine, several crab fishing supply stores like Custom Crab Pots, and two large sporting goods shops.

Fuel. Vessel fuel is available at the city owned fuel dock operated by Englund Marine at the foot of Commercial Street. For very large fuel deliveries, Renner Petroleum is licensed to transfer fuel from tanker trucks to large volume vessels at this location.

Cold Storage. The closing of Eureka Ice and Cold Storage in 2008 and subsequent fires have left Eureka’s commercial fishermen without a facility. The City of Eureka funded a Regional Cold Storage Facility Technical Study, completed in 2015 (Greenway Partners and Lisa Wise Consulting, Inc., 2015). The study identified a need for a facility with up to 800 tons of product storage space and the ability to freeze 30 tons of product per day as well as 5,000 and 10,000 square feet of processing areas and multiple loading docks. The Humboldt County’s 2012 Comprehensive Economic Development Strategy (CEDs) (Prosperity 2012) also indicated that the current amount of cold storage serving Humboldt Bay is inadequate. The need for additional cold storage capacity was identified by Prosperity 2012 as a “Prioritized Infrastructure Public Works Project” that was crucial to the growth and competitiveness of the region’s Specialty Food, Flower and Beverage Industries (the Specialty Foods Industry Cluster).

Ice. Ice is essential for storing seafood while at sea, particularly for vessels without refrigeration as well as in the offloading and shipping process. Along with the cold storage that had been used by commercial fishermen since 1949, the primary, public ice facility in Eureka, which was part of Eureka Ice and Cold Facility, was closed in 2008. A new, smaller flake ice plant was put into operation in 2010 through funding by the City of Eureka, and Headwaters Fund grant, and Pacific Choice. This plant is in the Pacific Choice plant and managed by Pacific Choice on behalf of the City. Ice produced by this machine is available for purchase by any fishing boat but preference is given those vessels offloading and working with Pacific Choice and Pacific Choice’s own needs in processing and shipping. In the Demand Assessment that was part of the 2015 City of Eureka Regional Cold Storage Facility Technical Study, it was found that:

“Responses from the commercial fishing industry in personal interviews, group discussions, site visits and through the written survey indicate the current cold storage and flake ice capacity is insufficient and during busy times of the year, completely inadequate.” The study goes on to estimate a current demand for 40 tons per day for flake ice (and 60 tons stored) and 10 tons per day (150 tons stored) for block ice.

Bait. Local fish buyers, businesses outside of Eureka, and fishermen themselves supply frozen bait to the fleet. Primary users of frozen bait are the Dungeness crab fleet, fixed gear rockfish, Pacific hagfish, and blackcod fisheries. Significantly, Humboldt Bay is the most northern traditional fishing area for the capture and transfer of anchovies and sardines (live bait) serving the entire West Coast pole-and-line albacore fishery. At present, one local vessel provides live bait and assists fishermen visiting Humboldt Bay to catch their own bait. The loss of Eureka cold storage has hindered live and frozen bait sales because visiting albacore boats can only unload very limited amounts of fish and boats travel to Oregon or Southern Washington to unload frozen product and replenish live bait supplies.

Gear Storage. Gear storage options are limited along the waterfront. The Harbor District has limited space available for gear storage on Woodley Island. The City of Eureka has formal space for rent near the Fishermen’s Terminal Building as well as informal gear storage space in a parking lot adjacent to the Commercial Dock (this space has been identified as an area that should be formalized as a storage area so that the City can charge appropriate fees for it). Gear storage is an ongoing need at the port, the first known formal request for additional storage was submitted by the HFMA in 1959.

VESSEL SERVICES IN EUREKA

Service or Product	Number	Description
Boatyard	2	Fields Landing and Samoa
Vessel maintenance/repair and/or sales	7	Cloudburst, Gone Welding, David Peterson (wood boats), Arcata Marine, Redwood Marine, Eel Valley Motorsport, Zerlang & Zerlang Marine
Welding	2	Gone Welding, Eureka Oxygen (supplies)
Marine steel fabrication	-	--
Marine electronics sales/service	3	Industrial Electric (Arcata), Englund, Emerald
Refrigeration specialist	1	Town and Country



Woodley Island Marina, HSU 2017

Boatyards. Eureka presently is home to two boatyards located in Fields Landing and Samoa. The boatyard is owned and operated by the Harbor District that provides outdoor storage for vessels up to 100 feet in length and an indoor work space for repair of vessels up to 80 feet in length. One 150-ton capacity mobile boat lifting hoist is available for haul out, and several onsite stores provide repair and maintenance services. The boatyard features a zero-discharge boat washing recovery system which is compliant with environmental standards. In Samoa, which is the largest haul out facility between San Francisco and Crescent City and has been in business for over 100 years. It has capacity to haul vessels and barges to 350 tons and 150 feet on a marine railway; a full zero-discharge boat washing system with a full reclaim system reusing the water/compliant with environmental standards; a full welding shop doing repairs from skiffs to ocean going ships that need repairs while in port; complete metal fabrication; tow boat services; and a full service or do it yourself yard with complete tool room and specialists on site, among other services: <http://www.zerlangandzerlangmarine.com/>.

Vessel maintenance/repair, welding, and fabrication. A number of businesses in and around Eureka cater to repairing vessels, including engine repair. One major maintenance and repair shop can be found in Eureka, but several smaller shops can be found in the vicinity that serve Eureka. Two main welding shops and at least three metal fabrication shops provide fishermen services, when welding is needed for boat repairs, small or large.

Marine electrical and electronics service. At least five businesses cater to vessel electrical repair and/or maintaining and repairing vessel electronics. Recreational and commercial fishermen rely on access to purchase, upgrade and repair of electrical and electronics systems. The closest marine technician is located in San Francisco.

More than 20 Eureka area businesses (and many others outside the area) provide goods and services that directly support resident and nonresident recreational fishing operations.

TOURISM AND RECREATIONAL FISHING SERVICES

Service or Product	Number	Description
Airport	5	1 commercial airport and 4 smaller public airports
Tackle shops/outfitters	several	
Charter fishing service	several	Celtic Charters, E and D Charters, Full Throttle, Green Water Fishing Adventures, Kik'n BackNorthwind Charters Sport Fishing, Humboldt Sport Fishing, Redwood Coast Fishing, Reel Steel Sport Fishing and others
RV park/campground	several	-
Restaurants/hotel/motel	several	-

Airport. Eureka has one commercial airport, the California Redwood Coast – Humboldt County Airport, also known as the Arcata-Eureka Airport. The airport is situated in McKinleyville, eight miles north of Arcata and 15 miles north of Eureka. The California Coastal Commission oversees the airport with its 745 acres of land and two runways. The airport serves the passenger airline of Skywest, a regional airline contracted with United Airline, largely transporting passengers to and from San Francisco and Los Angeles, California. It also serves as a base for the U.S. Coast Guard.

Four smaller, one-runway, general aviation public airports also serve the Eureka area. Murray Field, owned and operated by Humboldt County, lies three miles east of Eureka and serves smaller, crafts as well as FedEx Express flights. Rohnerville Airport, also operated by the county, lies three miles southeast of Fortuna. Humboldt County also owns and operates Kneeland Airport, a public airport located 10 miles southeast of Eureka. Because this airport has an elevation of 2,700 feet, it is used by generation aviation crafts seeking to land when heavy fog compromises landing strips at other airports. Kneeland also has a California Department of Forestry Helitack Stations. Samoa Field Airport, also known as Eureka Municipal Airport, is owned and operated by Eureka City located two miles west of Eureka on the peninsula of Humboldt Bay.

RV Park/Campground. Eureka is home to several coastline R.V. parks, some catering to recreational fishermen by providing launches. The Eureka area also host dozens of campgrounds, along the coast and inland. A brief internet search showed at least eight RV parks, some with marinas.

Charter Fishing Service. Eureka has strong charter fishing services business offering different trip lengths and party sizes. A recent internet search of “Best Fishing Charters in Eureka” reveals over a dozen Eureka-based operations, including Reel Steel, Full Throttle, Kikn’ Back, Redwood Coast, Humboldt Sportfishing, Green Water Fishing Adventures, E and D, Joli Time, North Coast Sportfishing and others.

Restaurants/Motels/Hotels. Eureka has numerous restaurants, motels and hotels, offering a range of prices.

Tackle Shops and Outfitters. Nearly a dozen shops and outfitters cater to fishermen in providing tackle and gear, while other general-goods stores in the area sell light tackle.



Cafe Marina, LWC 2017



Dredging, HSU 2017



Dredge spoils being towed out to sea, HSU 2017

DREDGING

Humboldt Bay has historically required dredging to enter and navigate its otherwise shallow waters. Dredging in the main harbor entrance as well as the marinas and docks is necessary to allow for navigation of both recreational and commercial fishing vessels. Yet it is also important for fuel barges, large ships, the U.S. Coast Guard, and other vessels that access Humboldt Bay or that homeport in Eureka Harbor and navigate the ocean.

Dredging in Humboldt Bay is split by the federal and non-federal channels. The federal channels include the entrance bar and the main shipping channels which are dredged by the Army Corps of Engineers. The material dredged from the federal channels is largely comprised of sand. The dredging of non-federal channels, which includes the marinas and docks along the working waterfront, is managed by local government agencies. These areas are typically dredged on a six- to seven-year interval and the materials dredged consist mainly of fine sediments.

The entrance to Humboldt Harbor is known as the Bar, and because of the precarious currents and conditions, the Harbor District requires licensed pilots to bring vessels beyond a certain size into or out of the harbor. Over time, the entrance begins to shoal, creating dangerous conditions for fishing vessels and fuel barges, especially in winter. Up to 14 feet of sand can be deposited from a one-time storm event. The Army Corps of Engineers dredges the main harbor entrance and the navigation channels each year, removing what is largely sand. Up to three million cubic yards of sand is dredged annually. The Humboldt Bay and Harbor, Recreation and Conservation District, and the California Association of Port Authorities together lobby Congress regularly to secure the required funding for dredging, as the state maintains no budget. In 1999, \$15 million was allocated to deepen the Harbor entrance to 48 feet and the shipping channels to 38 feet, depositing the sand three miles offshore at the Humboldt Open Ocean Disposal Site (HOODS). Since this time, dredging efforts have increased 300% to maintain those depths. In 2016, \$7.5 million was allocated to dredge the federal channels of the bay. In 2018, after reaching dangerously shallow levels, the federal channels were again dredged. Dredging of both the federal and non-federal channels remains a top priority for fishermen.

The non-federal “off-channel” areas of Humboldt Bay should be dredged every 6-7 years, removing the fine sediments that collect in the marinas and along the waterfront. In previous decades the dredge spoils were deposited on the beach to be washed away by ocean tides and currents. Public perception and regulatory constraints have removed this method as an option for dredge spoil disposal. Dredging of the Eureka Public Marina in 2017 and 2018, by Eureka resulted in dredge spoils being towed in a large dump scow to the HOODS approximately three-miles offshore to be dumped into the open water. Fishermen report that Woodley Island Marina has not been dredged since 2007, making it a priority concern for the West Coast fishing fleet.

MARICULTURE

The Humboldt Bay mariculture industry includes the cultivation of clams, oysters, and bivalve seeds. Humboldt Harbor is home to six oyster growers: Aqua-Rodeo Farms; Coast Seafoods; Hog Island Oyster Company; Humboldt Bay Oyster Co.; North Bay Shellfish; and Taylor Mariculture. The Harbor has long been one of California’s leading shellfish locations. The area’s mariculture contributes significantly to the state’s oyster industry and is considered a more sustainable industry by the Monterey Bay Aquarium Seafood Watch due to its low impact on the ecosystem and other habitats.

Eureka’s oyster industry historically relied on bottom-culture techniques until shifts in environmental regulations led to the use of off-bottom long lines and rack-and-bag method (plastic mesh bags hung from rebar racks). Oyster seed is also grown with the use of Floating Upwell System (FLUPSY) rafts in shallow water away from main channels. Seed is grown for both domestic use and export.

A recent HSU survey of shellfish mariculture businesses in the bay indicated that the operators owned or leased 15 land-based structures, totaling 77,300 square feet. The businesses own and operate 18 vessels, 13 floating upweller systems (FLUPSYs), and a variety of other upwelling and sorting equipment. The businesses collectively have 5,054 square feet of cold storage space, but some operators expressed a desire for more cold storage space, cumulatively desiring an additional 2,200 square feet.

Oyster growers in Eureka rely very heavily on excellent water quality and many of same physical infrastructure and services as the commercial and recreational fleet. Those includes docks and hoists, ice and cold storage, well dredged harbor, launch facilities, marinas, vessel maintenance (diesel, outboard, electronics, electrical, etc.), haulout and boatyards, supplies (buoys, nets, etc.).

The Food and Agriculture Organization of the United Nations (FAO) in a 2018 report (<http://www.fao.org/aquaculture/en/>) called aquaculture, likely the fastest growing food-producing sector and now accounts for 50 percent of the world’s seafood that is used for food. It also employs nearly 23 million people.



Oyster FLUPSYs, HSU 2017

KEY TAKEAWAYS

- **Heavy Reliance on Physical Infrastructure and Services:** Like other fishing communities, Eureka's commercial, recreational and CPFV fleet is heavily reliant on physical infrastructure and services, starting access to the ocean and docks and piers through local and federal maintenance dredging of the channels, docks, and marinas. They also need offloading facilities, slips and piers, cold storage, ice, nearby processors and buyers, supplies and services to maintain their vessels and gear. The fishing industry footprint extends for three city blocks on the Eureka inner reach waterfront. Without access to these physical resources and services the fleet is at a greater risk for depressed performance (diminished jobs and earnings and benefits to the community), declines in participation and its very existence.
- **Highly Adaptable:** Fishermen in Eureka have adapted very successfully to two decades of declining physical infrastructure and critical services brought on by increased regulation, competition from inexpensive imports and shifts in consumer food and recreational preferences. Part of the adaptation includes Eureka fishermen's hard work, persistence and landing less fish but with higher value (price per pound) as well as constantly seeking opportunities in the shifting marketplace and retail sales to consumers.
- **Many Key Needs Still Served:** Several critical services and key infrastructure resources are in place in Eureka (Fisherman's Terminal, seafood processing, boatyard, marinas, seafood buyers, marine supply, welders, electronics and diesel technicians) and represent the local fishing industry's ability to develop and maintain important partnerships amongst fishermen, with key service providers, the City, County and civic leaders, academia, and the HBHRCD.
- **Consistency in Needs Across Industries:** Commercial, Recreational, CPFV and mariculture all contribute to jobs, earnings and a draw to tourism in Eureka as well as to perpetuate the community's identity of a working port and a fishing community. They all rely on much of the same physical infrastructure, well dredged harbor entrance, launch ramps, channels and areas around docks and piers, cold/freezer storage, ice, and access to critical services and supplies.
- **Critical Needs:** Key needs that waterfront stakeholders indicated were essential for the industry's survival but that were at risk of not being met include: consistent dredging, ice and cold storage, and regular maintenance of the port's existing infrastructure. Fishermen identified the loss of critical infrastructure and services as "existential threats" to their industry. Continued investment in these areas is critical for the long-term survival of the port.

6 RECOMMENDATIONS

The recommendations in the Eureka Fishing Community Sustainability Plan are the culmination of two years of collaborative efforts that drew from personal interviews, workshops and public meetings, as well as an in-depth analysis of the history, economic performance, market conditions, social capacity, and environmental and regulatory setting in which the Eureka fishing industry operates. The collaboration represents a robust and diverse participation, starting with the fishing community (commercial, charter, and recreational fishermen, fishing families, mariculture, and related industries), civic leaders, elected officials, academia, and the general public. The FCSP and final recommendations are truly a community effort and represent the perspective and the hopes of not only fishermen and seafood-related businesses but the entire community of Eureka.

The recommendations are the essence of the FCSP and are aimed at assuring that fishing remains a vibrant and strong part of Eureka long into the future. The recommendations are ultimately intended to give fishermen and the community greater control of outcomes so they can continue to generate economic, social, and environmental returns.

Economic – generate employment opportunities in Eureka, wages for workers, support for fishing related services, and revenues from slip fees and taxes which drive investment in waterfront infrastructure

Physical Infrastructure – maintain and improve shoreside infrastructure that supports continued accessibility for the commercial and recreational fleets

Social – assure that fishing remains a prominent activity on the Eureka waterfront, and fishermen, fishing families and participants in related industries continue to play an important role in Eureka’s future and identity

Environmental and Regulatory – grow awareness of the rich and productive Bay and ocean ecosystem in and near Eureka and the fishing industry’s efforts to comply with some of the heaviest fishery regulation in the world which has led to the successful rebuilding and maintaining fish stocks and habitats.

The recommendations represent the highest priority issues facing the Eureka fishing industry and engender hopes for the future for fishermen and the entire community.



Working with the Eureka Advisory Committee to identify priorities, LWC 2017

Initial steps among the County, City and commercial fishing industry should include a review of existing planning and economic development strategy documents and updating or amending them to accommodate needs cited in the following recommendations.

Ultimately, the recommendations are aimed at implementation, at getting things done that empower the fishing community and empower the entire community of Eureka. As such, the recommendations include groups that might be best suited to take responsibility, leverage existing reports and studies that identify and support key actions, identify additional research where there is lack of data and in some instances identify potential funding sources and collaborative partners. A more extensive list of potential funding sources is included in the following chapter.

The approach to this project that included more than 100 hours of personal interviews, workshops, public meetings, and extensive research on the economic, social, and environmental/regulatory conditions as well as physical infrastructure on the Eureka waterfront, strong collaboration with NOAA's Saltonstall Kennedy Program (project's funding source) and partners such as Humboldt State University are evidence that the Eureka fishing community has widespread support and is clearly capable of:

- Identifying needs;
- Developing key partnerships;
- Attaining funding; and
- Planning for the future.

Recommendations are not ranked by priority, however items noted with an asterisk, such as dredging, are considered by the community to be existential or crucial to the viability of fishing in Eureka. The recommendations are separated into four categories: Physical Infrastructure & Critical Services; Economics and Markets, Social; and Environmental And Regulatory. In terms of prioritization, the community has decided to take an opportunistic approach, acknowledging that all of the recommendations and their outcomes as important. As such, if funding, key partnerships, or a champion emerges to implement any issue, the community should support it.

Infrastructure & Critical Services		
Issue	Discussion	Recommendation
1	Protect Marine-Dependent Uses*	<p>Key Concepts: As the economic landscape of Eureka has changed from primarily fishing and timber, an increasing number of properties along the waterfront have been converted to non-waterfront uses. Fishermen report a sense of displacement and lack of support from the community due to decreased facilities and support businesses located along the waterfront.</p> <p>Promote the establishment and continuation of protective waterfront zoning and coastal land use policies to prioritize fishing fleet and working waterfront use of the Eureka waterfront. This entails close collaboration on land use planning and community development projects such as General Plan Amendments, Specific Plans, Zoning Code Updates, Economic Revitalization Strategies, and updates of Local Coastal Program (LCPs). The City of Eureka, Humboldt County, and the Harbor District all play a role in planning and development in the bay. Information on relevant policy frameworks to support this activity (including the California Coastal Act which prioritizes the protection of land for coastal dependent industry and for the support of commercial fishing) as well as how to get involved in policy processes can be found in Section 7 of the FCSP.</p>
2	Cold Storage & Ice Facility	<p>Key Concepts: Throughout the process, the community indicated that cold storage and ice facility is a primary need which mirrored findings in Humboldt County's EDA-funded 2012 Comprehensive Economic Development Strategy "Prosperity 2012", the 2015 City of Eureka Economic Development and Strategic Plan (see section 7), and the City/EDA-funded Regional Cold Storage Technical Study (September 2015) that the current amount of cold storage serving Humboldt Bay is inadequate and that additional cold storage capacity is a prioritized infrastructure/public works project that is crucial to the competitiveness of the County's specialty foods, flower, and beverage industries.</p> <p>Continue process started by Prosperity 2012 and the Regional Cold Storage Facility Technical Study. The study, conducted in 2015 with support from the City of Eureka, determined the level of demand for a cold storage and ice facility, suggested facility design best suited to accommodate the community's needs, evaluated potential locations for the facility, and discussed alternative ownership and management structures to consider. As outlined in the Study, the next steps include: identify potential collaborative partners and funding sources; prepare a more detailed design and economic analysis; apply for economic development grant funding; and select a development site and build the facility.</p> <p>Potential Funding Source: USDA (Local and Regional Food Systems Grant Program), State Coastal Conservancy, National Fish and Wildlife Foundation.</p>

Infrastructure & Critical Services			
Issue	Discussion	Recommendation	
3	Dredging*	<p>Key Concepts: A well-dredged harbor is critical for safe, reliable access for commercial fishermen, recreational fishermen, boaters, Coast Guard, and harbor services. Dredging was consistently identified as a primary concern by fishermen and other stakeholders. Any dredging in the harbor entails working closely with the Harbor District. Permitting and dumping of dredge spoils is one of the most complicated and costly activities in any port. In recent years, dredging has not occurred until conditions reach an emergency state. A long-term plan is needed to ensure consistent dredging of the Bay.</p>	<p>The City of Eureka and the Harbor District need to work with regulatory agencies and relevant stakeholders to develop a long-term plan for dredging in the federal and non-federal channels of Humboldt Bay. The plan should include a mechanism for dredging and sediment disposal that can be permitted, funded, and accepted by stakeholders. Fishing community members can encourage the development of a dredging/sediment task force or advisory committee that meets regularly and is charged with developing this long-term plan. Consider convening facilitated meetings with regulatory agency representatives, waterfront stakeholders, and local government entities to collaboratively develop a dredging plan and process. These efforts could build off the Harbor District's newly formed Sediment Advisory Committee.</p>
4	Mariculture Pre-Permitting & Permit Streamlining*	<p>Key Concepts: Cumbersome and lengthy permitting process restricts growth and development of the mariculture industry and makes it more difficult for small businesses to enter the industry or expand. In an HSU study, mariculture industry participants report that increased grow-out grounds through a pre-permitting process could contribute to increased production, jobs, and revenue for the industry and local economy.</p>	<p>Representatives from Humboldt Bay's mariculture businesses should remain active in statewide regulatory proceedings and engage with the Harbor District as a policy partner to continue developing a pre-permitting process. The pre-permitting process has been approved for sub-tidal areas but not yet for intertidal areas that support grow-out grounds for mature oysters. Mariculture operators should continue to lobby the Harbor District to pursue approval for the intertidal areas.</p> <p>Mariculture industry participants should work as partners on eel grass research and seek to develop techniques that limit impacts to eel grass – a major impediment to the expansion of the industry.</p>

Infrastructure & Critical Services		
Issue	Discussion	Recommendation
5	Gear Storage and Security	<p>Key Concepts: Secure, sufficient space for gear storage and repair which is essential to the fishing and mariculture industries. Waterfront stakeholders report that there is not sufficient space for gear storage and that some of the current storage areas do not have the appropriate level of security. Challenges with gear theft have been reported. Smaller-sized mariculture businesses have expressed a desire for the designation of some sort of special-use property related to mariculture operations.</p> <p>Commercial fishermen and mariculture businesses should work closely with the Harbor District and the City of Eureka to assure 1) there is no loss of current storage and gear repair opportunities and that 2) if additional spaces come available, they should be considered for use by local fishermen and mariculture operators. Areas where lighting and security (fencing, locked gates/entrances) are in place or can be provided should be prioritized. Additionally, fishermen should work with the Harbor District to improve the security of existing gear storage areas.</p> <p>Consider the development of a mariculture special-use property where small-scale mariculture operators could store gear and engage in land-based activities related to their businesses.</p>
6	Dock and Marina Maintenance*	<p>Key Concepts: Modern, well-maintained marinas, docks, and a safe place to launch boats are critical to a functioning, sustainable port and port industries. Individuals connected to the Wiyot Tribe indicated that the construction of a permanent dock on Tuluwat (sometimes referred to as Indian Island) to facilitate transport to and from the island is a priority.</p> <p>Conduct an Infrastructure Master Plan. The City, Harbor District, and fishing community should work together to identify the specific over-the-water infrastructure that holds the highest priorities and develop a strategy for maintenance and expansion, particularly more slips. The effort should include identifying funding sources and collaborative partnerships to implement strategies from the Infrastructure Master Plan. As much physical infrastructure is shared, commercial recreational and charter fishing operators, mariculture businesses, Wiyot Tribe representatives, as well as pleasure boaters and marine eco-tourism should work together (written comments and public meetings) to assure no loss of existing infrastructure and renovation and expansion of priority needs.</p> <p>Potential Funding Sources: Community Development Block Grant (CDBG) Planning Grant, U.S. Economic Development Administration, Division of Boating and Waterways.</p>

Economic		
Issue	Discussion	Recommendation
1	<p>Markets Analysis & Development</p> <p>Key Concepts: More options for fishermen to sell their fish translates to greater earnings, more employment opportunities and increased resiliency. Currently there is one large and one medium-scale buyer/processor in the community. Additional options could benefit the fishermen by increasing options on where they can sell their catch particularly considering shifting markets, landing levels and target species.</p> <p>A local fish market and direct-to-consumer sales could provide fishermen with additional options for selling their catch, increase income for local fishermen and generate a closer connection with local seafood consumers.</p>	<p>Consider developing a marketing study that evaluates the current market conditions related to Eureka seafood products and develops recommendations for improvement.</p>
		<p>Continue to explore options to diversify market opportunities through a fish market, local grocers, open-air market, Community Supported Fishery, and/or participation in sustainable seafood labeling programs that could increase the value of locally-harvested resources.</p>
		<p>The commercial fishing community, mariculture industry, the City, and the Harbor District should support, where possible, a sustained and diverse promotional campaign to broadcast and promote the contributions of the fishing industry via presentations at public meetings (City Council, Chamber of Commerce, etc.). The commercial fishing, City and Harbor District should also work with local news sources (print, digital, radio and community television) to promote key findings in the FCSP; such as those that highlight the robust economic, social and environmental accomplishments of commercial fishermen and commercial fishing industry stakeholders.</p>
		<p>The commercial fishing industry should work with the Harbor District to improve informational/educational signage, develop a working waterfront app, create marketing and labeling materials the promote the value of Eureka-caught seafood, and consider the installation of an informational/educational kiosk. Waterfront-related websites could be improved to include better information about charter fishing opportunities and the contact information and availability of vessels selling seafood product at the docks.</p>
		<p>Potential Funding Sources: USDA (Local and Regional Food Systems Grant Program), State Coastal Conservancy, Ocean Protection Council (Sustainable fisheries grants), National Fish and Wildlife Foundation, NOAA Saltonstall-Kennedy Grant Program, California Natural Resources Agency (http://resources.ca.gov/docs/bonds_and_grants/Agency_Grants_and_Loans_January_2018.pdf), Land and Water Conservation Fund, etc. Explore synergies with other industries: agriculture, cannabis, local makers (honey, flowers, bakery, and associations like Humboldt Made).</p>

Economic		
Issue	Discussion	Recommendation
2	Access to Commercial Fish Resources	<p>Key Concepts: Access to fish resources is an ongoing struggle for Eureka fishermen, throughout Humboldt County and California. While Eureka fishermen operate under management measures that are among the most successful in increasing biomass or fishery abundance above the long-term average, aggressive and often overlapping regulation has made it increasingly difficult, particularly for small operations and remote ports (like Eureka) to compete in markets that are dominated by inexpensive imports. Additionally, fishermen from Eureka tend to be overly reliant on one fishery: Dungeness crab, and need to develop avenues for diversification of their fishing portfolios.</p> <p>Fishermen in the region may consider more active involvement in fishery management processes, such that access, allocation, and management decisions are more favorable to Eureka's unique interests and needs. Many fishermen reported that increases in the size of Open Access quotas for a variety of fisheries would help fishermen from Eureka to diversify and could help new or upcoming fishermen to get a start in the industry as Open Access quotes do not require the purchase of new or expensive permits. Detailed information about the state and federal regulatory frameworks relevant to marine resource management, including supportive policy language can be found in Section 7 of the FCSP. Fishermen may consider pooling efforts and resources to facilitate greater presence in fishing regulatory arenas including nominating local representatives to serve on advisory subpanels and committees. The community could also consider pursuing the formation of a Humboldt County Community Quota Fund (CQF) that aggregates efforts in Eureka, Trinidad, and Shelter Cove; perhaps by developing an exploratory business plan for the CQF model in Humboldt.</p> <p>Examples: Morro Bay Community Quota Fund (https://www.morrobaycommunityquotafund.org/) Monterey Bay Fisheries Trust (https://montereybayfisheriestrust.org/)</p> <p>Potential Funding Sources: California Fishery Fund and Northern California Community Loan Fund http://www.californiafisheriesfund.org/</p>

Social		
Issue	Discussion	Recommendation
1	Representation, Leadership & Political Engagement	<p>Key Concepts: Many Eureka commercial fishermen are represented by the Humboldt Bay Fishermen’s Marketing Association, which seeks to secure fair pricing, and is active and effective in matters directly affecting the industry, such as regulatory and market issues, and land uses around the bay. However, the Humboldt Marketing Association does not include recreational fishing or mariculture interests and there may be room for either expanding the membership of the Marketing Association or developing a broader group or coalition that can engage in fisheries and waterfront politics. There have been reports of areas of tension among waterfront users and between waterfront stakeholders and local government entities. Some report that a sense of community and connection among fishermen has declined. Conversations with fishermen revealed that political engagement on the part of the fishing community is primarily conducted by a handful of hardworking individuals. Interests of the fishing community may be better served if a larger group of individuals became educated and involved in policy processes.</p> <p>Either form a new fishing organization or coalition that brings together a variety of fishing (and working waterfront interests) or work to broaden the membership of the existing Humboldt Fishermen’s Marketing Association. The group could include representation from recreational, charter, all sectors of commercial fishing, and possibly supportive mariculture participants and members of the public as well. This entity could increase ties between different sectors of the seafood industry and increase their influence in local and regional policy discussions; perhaps catalyzing a local movement in support of the working waterfront. An entity that encompasses representation from a broad set of fishing interests in the port could negotiate with oncoming policies or development actions such as marine renewable energy or fiber optic cable installation in a way that benefits the interests of the whole community.</p> <p>Examples/case studies:</p> <ul style="list-style-type: none"> Central Coast Women for Fisheries (http:// www.womenforfish.org/) Morro Bay Commercial Fisherman’s Organization (https://www.mbcfo.com/) Central Coast Joint Cable/Fisheries Liaison Committee (http://www.cencalcablefishery.com/) <p>Potential Support and Funding Sources: Dues, grants. Consider partnerships with local small business, non-profit assistance, and potential funding sources:</p> <ul style="list-style-type: none"> Humboldt Area Foundation North Coast Small Business Development Center Redwood Region Economic Development Loans Western Foundation Center Community Fisheries Network (http://www.communityfisheriesnetwork.org/fishermen/) <p>Encourage fishing community members, especially younger members, to seek out training on fisheries policy processes and to become more involved in policy discussions relevant to the fishing industry and working waterfront.</p> <p>Examples/Case Studies:</p> <ul style="list-style-type: none"> Marine Resource Education Program West Coast “a policy training program created by fishermen, for fishermen”(https://www.gmri.org/fisheries-convening/mrep-west) Environmental Defense Fund Virtual Fisheries Academy

Social		
Issue	Discussion	Recommendation
		<p>Develop more mechanisms for members of the fishing industry, mariculture industry, local government, local agencies, and academia to interact with one another and to interact with the public in a positive and less formal manner.</p> <p>Possible activities include:</p> <p>Fishing community development of or increased involvement in events, fundraisers, and/or festivals linked to Humboldt Bay seafood such as: the Eureka Crab Festival, Arcata Oysterfest, Trinidad Fish Festival, Ocean Night at the Arcata Theater Lounge, and HSU guest lectures and symposia.</p> <p>Designation of a regular time and location where members of the fishing community can gather informally and share information.</p>
2	Recruit and Retain New Fishermen*	<p>Key Concepts: A study by Humboldt State University shows that the average age of a commercial fishermen in Eureka is increasing. This was a consistent concern of the community. Recruitment of younger participants in the Eureka fishing fleet is undermined by the perception that other professions bring greater economic reward and less risk.</p> <p>Consider education and vocational training, “fishermen in the classroom” programs that promote commercial fishing at the high school and junior college level. Develop a formal or informal mentoring program where new entrants into the local fishing industry can get guidance from seasoned professionals. Continue to strengthen the relationship among the County, City, Harbor District, mariculture, and commercial fishing industry and continue to secure, renovate, and expand physical infrastructure (including cold storage and ice facility), access to fish stocks, and better marketing and promotion, as they are priorities for a more profitable, more cohesive industry which is more likely to attract new participants. Fishermen also reported that lack of access to low-interest loans can be a large barrier to entrance into commercial fishing careers in California. Fishermen could advocate for California to develop a commercial fishing loan program similar to Alaska.</p> <p>Examples/Case Studies:</p> <p>Commercial Fishing Apprenticeship Program (California Sea Grant)</p> <p>University of Rhode Island Commercial Fishing Apprenticeship Program (http://www.cfc.org/apprenticeship.html)</p> <p>Alaska Commercial Fishing Loan Program (https://www.commerce.alaska.gov/web/ded/FIN/LoanPrograms/CommercialFishingLoanProgram.aspx)</p> <p>Possible Funding Sources:</p> <p>NOAA Sea Grant Program (Young Fisherman’s Development Act of 2017)</p>

Environmental		
Issue	Discussion	Recommendation
1	Habitat Restoration and Protection	<p>Key Concepts: Salmon is one of the most important species in Eureka and Northern California. Degradation of habitat, particularly in natal waterways, has led to cataclysmic declines in salmon populations</p> <p>Support efforts and legislation aimed at protection and rehabilitation of salmon habitat in the entire watershed not just the coast. Support local and regional restoration efforts and legislation that addresses water diversion, pollution runoff, impacts to streambeds and riparian habitat in the entire watershed and strengthen partnerships with appropriate conservation organizations.</p> <p>Example/Case Study: Salmon Restoration Federation (https://www.calsalmon.org/)</p>
2	Water Quality Protection	<p>Key Concepts: Humboldt Bay is renowned for its water quality. Health of the Bay is crucial for continued success of the commercial fishing fleet, mariculture industry, recreational fishing, and leisure and tourism activities.</p> <p>The fishing and mariculture community should continue to work with the Harbor District, the City of Eureka, Humboldt County, City of Arcata, the Wiyot Tribe, regulators, and environmental groups as key partners in conservation and legislation that promotes better water quality. Efforts could focus especially on non-point sources of pollution and on maintaining and improving the sewer and stormwater infrastructure surrounding the Bay.</p>
	Collaborative Research Related to Marine Resources and Changing Ocean Conditions	<p>Key Concepts: There are several emerging concerns in the marine environment that may greatly affect the livelihoods of waterfront stakeholders including: sea level rise, ocean warming, ocean acidification, increased harmful algae blooms, and protection of eel grass beds. Waterfront stakeholders could be drivers of and key partners in research related to marine resources and in devising adaptation strategies.</p> <p>Engage/continue to engage the Humboldt State University Marine and Coastal Sciences Institute, which develops research related to the marine and coastal environment in the region. Waterfront stakeholders could be research collaborators and/or offer letters of support for research project related to important marine resources.</p> <p>Consider developing a Sea Level Rise Vulnerability Assessment and Adaption Plan linked to working waterfront infrastructure and assets.</p> <p>Potential Funding Sources: California Sea Grant, California Ocean Protection Council, California Coastal Conservancy, National Science Foundation, NOAA Saltonstall-Kennedy Grant Program</p>

*Critical Needs: Representatives of the fishing community agreed that all of the above recommendations are important for the development of a sustainable, thriving fishing and seafood community in the Eureka area. However, they also wanted to point out that several of the recommendations represent critical needs that, if not met, could signal challenges for the basic function and survival of the industry. They include:

Dredging was the most commonly-sited concern among stakeholders in our interviews and represents a critical need. If dredging does not occur on a regular basis, Eureka boats will be stranded at the port and unable to fish. It is crucial to develop a long-term solution to the dredging challenge.

Dock and Marina Maintenance as well as the maintenance of other key pieces of waterfront infrastructure are essential for the industry: without functioning docks, hoists, and other equipment, fishermen will not be able to unload their catch or store their vessels.

Protecting Marine-Dependent Uses. Fishermen also point out they have observed extreme encroachment on waterfront-dependent uses in other California ports such as San Diego and San Francisco and they do not want the same trends repeated here. Maintaining protection for waterfront dependent uses requires vigilance but is essential for the long-term protection of the fishing industry.

Recruiting and Retaining New Fishermen. Fishing community consistently prioritized that if new fishermen do not enter into the industry and take over the helm for those nearing retirement, there is a real threat to the future of the industry.

Mariculture Pre-Permitting & Permit Streamlining Mariculture industry participants communicated that their biggest priorities and limiting factors is having sufficient space for mature grow-out of oysters. Approval of a pre-permitting project for expanded grow-out grounds could allow small-scale, community-based mariculture operations develop and grow in the region.

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7 POLICY FRAMEWORKS RELEVANT TO FISHING COMMUNITY SUSTAINABILITY EFFORTS

There are many national, state, and local policies and plans that are relevant to fishing community sustainability in Eureka; and to implementing the above recommendations specifically. Representatives of fishing communities may want to draw from some of the below policy frameworks, including text from the policies themselves, in efforts to implement the recommendations and pursue the long-term sustainability of the port. This section also provides information about the key policy processes that affect waterfront and fishing activities in Eureka along with information about how fishing community members can become engaged in these various political processes.

FEDERAL POLICY:

The Magnuson-Stevens Fishery Management and Conservation Act is the federal law that guides that management of federal fisheries. The Act was first passed in 1979 and has since undergone several amendments; most notably in 1996 and 2006. The Act establishes the regional fishery management council as the management framework for fisheries. Additionally, it outlines set of 10 key National Standard Guidelines under which federal fisheries are to be managed. A list of the standards can be found here: <https://www.fisheries.noaa.gov/national/laws-and-policies/national-standard-guidelines>

All of the standards have some relevance to fishing communities, but a few may be particularly relevant when it comes to advocating for the needs of fishing communities like Eureka. These policies will be most relevant and effective when advocating for needs related to federal fisheries with the Pacific Fishery Management Council (PFMC) or to representatives from NOAA Fisheries.

Information about the PFMC including the date, location, and agendas for upcoming meetings can be found here: <https://www.pcouncil.org/>. There are a number of ways that fishermen can be involved in the PFMC process – attending and providing comments at meetings or by being appointed to various advisory bodies or even the commission itself as all include representation from industry.

NATIONAL STANDARD 4 – ALLOCATIONS

Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (a) fair and equitable to all such fishermen; (b) reasonably calculated to promote conservation; and (c) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privilege.

NATIONAL STANDARD 8 – COMMUNITIES

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirement of paragraph (2) [i.e., National Standard 2], in order to (a) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities.

STATE POLICY:

Most state fisheries are managed by the California Fish & Game Commission; although the California State Legislature is responsible for management of some fisheries including Dungeness crab. The state legislature has established a state Dungeness Crab Task Force that has representation from commercial, recreational, and CPFV fishermen. An overview of the fishery management structure in California can be found here: http://www.opc.ca.gov/webmaster/_media_library/2018/06/CDFWPresentation_D_Crab_Fishing_regs_101_6-5-2018.pdf

The California Fish & Game Commission meets several times each year (about six) and the locations move throughout the state. Fishermen can be involved by attending meetings or being appointed to various advisory bodies. Their website has information about their process as well as the date, location, and agenda for upcoming and past meetings: <https://fgc.ca.gov/>

CALIFORNIA MARINE LIFE MANAGEMENT ACT:

The state law that guides that management of the state's marine fisheries is the Marine Life Management Act, passed in 1999. The Act, among other things, directs the state to develop Fishery Management Plans for individual fisheries, a Master Plan that guides management overall, and an annual status of the fisheries report. The Act establishes a set of goals, several of which (especially the last one) may be relevant to fishing communities.

- **Conserves Entire Systems:** It is not simply exploited populations of marine life that are to be conserved, but the species and habitats that make up the ecosystem of which they are a part.
- **Non-Consumptive Values:** Marine life need not be consumed to provide important benefits to people, including aesthetic and recreational enjoyment as well as scientific study and education.
- **Sustainability:** Fisheries and other uses of marine living resources are to be sustainable so that long-term health is not sacrificed for short-term benefits.
- **Habitat Conservation:** The habitat of marine wildlife is to be maintained, restored or enhanced, and any damage from fishing practices is to be minimized.
- **Restoration:** Depressed fisheries are to be rebuilt within a specified time.
- **Bycatch:** The bycatch of marine living resources in fisheries is to be limited to acceptable types and amounts.
- **Fishing Communities:** Fisheries management should recognize the long-term interests of people dependent on fishing, and adverse impacts of management measures on fishing communities are to be minimized.

CALIFORNIA COASTAL ACT:

The California Coastal Commission is a body that plans and regulates the use of the water and land in the California coast, was established by voter initiative in 1972 and then made permanent by the legislature in 1976 with the passage of the California Coastal Act. According to the Coastal Act, all development within the coastal zone must be reviewed for compliance with specific policies or goals. The Coastal Commission is responsible for decisions about development in certain parts of the coast and in other parts, they delegate the decision-making authority to city or county jurisdictions, each of which must develop Local Coastal Programs that must be approved by the Coastal Commission. The Commission meets several times each year up and down the state. At least once a year they come to the North Coast region. Detailed information about the Coastal Commission including the dates, locations, and agendas for meetings can be found here: <https://www.coastal.ca.gov/>. Fishing community members can participate by attending meetings and submitting comments on relevant projects or decisions. The Coastal Act can be relevant to fishing community sustainability in several ways. The Act guides development decision in the Coastal Zone where most of the infrastructure and services relevant to fishing are located. Additionally, the Coastal Act establishes a specific zoning category: Coastal Dependent Industrial or CDI. According to the Act, development and use of land with that designation must be reserved for uses that are dependent on being on the coast – including fisheries and mariculture activities. This zoning is a way to protect certain lands on the coasts and waterfronts from encroachment by other uses. The Coastal Act outlines seven policies that should guide decision-making on the coast. The entire text of the Coastal Act can be found here: <https://www.coastal.ca.gov/coastact.pdf>; some language from the Act that could be relevant to fishing community sustainability includes:

Article 3: Recreation

Section 30224 Recreational boating use; encouragement; facilities. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Article 4: Marine Environment

Section 30230 Marine resources; maintenance. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30233 Diking, filling or dredging; continued movement of sediment and nutrients.

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
- (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

Section 30234 Commercial fishing and recreational boating facilities. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Section 30234.5 Economic, commercial, and recreational importance of fishing. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Article 6: Development

Section 30255 Priority of coastal-dependent developments. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

LOCAL GOVERNMENT:

Local government entities have control over development and planning in their jurisdictions; as a result decisions they make can have an effect of fishing and waterfront interests. For example, local government can decide to invest and in prioritize development of working waterfront uses, or they can decide to support the encroachment of other uses into waterfront areas. A few types of local documents are particularly relevant when engaging in local government politics. The first is the City of County's general plan which sets the community's vision for development and planning into the future. The Municipal Code includes City/County passed laws and ordinances including policies about management of Harbor facilities and zoning restrictions. The second type of document is the communities Local Coastal Program (LCP) which is typically embedded within or connected to the General Plan. According to the Coastal Act, cities and counties must adopt LCPs that guide development in the portion of their city/county limits that are within the coastal zone which includes most lands relevant to waterfront activities. The Coastal Commission reviews proposed LCPs to ensure that they are compliant with measures in the Coastal Act. The process of LCP review by the Coastal Commission is a key point for fishing community involvement as the LCPs set the blue print for development in the coastal zone of a given city or county for many years to come. Finally, Cities and Counties may have Strategic Plans or Economic Development Plans that are designed to help prioritize city planning and resources. These documents can be useful in helping to support the implementation of FCSP recommendations. Additionally, fishing community representatives can bring the FCSP document and recommendations to local government venues to highlight the priority of key waterfront issues and advocate for the implementation of recommendations.

CITY OF EUREKA:

The City of Eureka oversees planning and development within the City limits, including portions of the waterfront relevant to fishing community activity. The Eureka City Council meets on the 1st and 3rd Tuesdays of every month at 6:00pm for an open session. The meeting calendar and agendas can be found here: https://www.ci.eureka.ca.gov/cals/full_calendar.asp. Links to many relevant city documents including the General Plan, the LCP (or Coastal General Plan + Coastal Zoning Code), and the Municipal Code can be found here: https://www.ci.eureka.ca.gov/depts/development_services/development_services_library/default.asp

City of Eureka Economic Development Strategic Plan:

<http://www.ci.eureka.ca.gov/civicax/filebank/blobdload.aspx?BlobID=12672>

This plan, adopted in 2015, contains several action items relevant to fishing community sustainability planning and priority community recommendations.

There is also concern that non-coastal uses might supplant historically dominant Coastal Dependent Industrial (CDI) uses, therefore precluding the future use of land within the Coastal Zone for CDI activities. As a result, the City should consider strategies that promote the retention of CDI uses that leverage the Port as a strategic asset, while also accommodating growth among non-CDI uses, which reflect the repositioning of the local economy, following contractions in the more historically dominant industries. (Page 7)

Action 10c: Secure facilities and zoning for the commercial fishing fleet at Woodley Island.

Continue to secure long term zoning for the commercial fishing fleet at Woodley Island by adopting the 2014 Commercial Fishing Industry Text Amendment to the City of Eureka's local Coastal Plan. For any industry, uncertainty about future conditions is a primary factor in disinvestment. The Humboldt Bay Commercial Fishing Fleet is uncertain about its ability to continue to operate out of Humboldt Bay, and are particularly concerned about the future availability of the facilities at Woodley Island for commercial fishing and related activities. The Fisherman's Marketing Association recommends that the City of Eureka secure the commercial fishing fleet's home base at Woodley Island by adopting the proposed Local Coastal Plan amendment and by enacting protective zoning that can ensure the future availability of Woodley Island facilities for commercial fishing and other closely related activities. (Page 34)

Action 11a: Provide by-right zoning for commercial fishing/fish processing, aquaculture, marine shipping activities, and related support businesses and facilities. Conduct a review of existing zoning categories (water front commercial, water dependent industrial) and their locations and acreage, coupled with interviews of waterfront property owners, tenants, and users, to identify modifications to existing zoning that would be necessary to facilitate commercial fishing, aquaculture, and marine shipping activities. This should include the identification of long-term needs for harbor infrastructure that so that appropriate zoning provisions can be put in place to facilitate infrastructure development. (Page 35)

Action 11b: Establish a modern cold storage facility within the City limits. The loss of Eureka Ice and Cold Storage in 2008 significantly reduced the competitiveness of commercial fishing, agriculture/ food processing, and related industries in the Humboldt Bay area and greatly increased the cost of doing business. The construction of a replacement facility would allow for considerable cost savings for local business, which must currently transport their fresh produce to alternative facilities outside of Humboldt County. The establishment of a replacement ice and cold storage facility would also facilitate the retention and expansion of area fishing and aquaculture businesses, as well as other agricultural and food processing businesses that would benefit from access to a cold storage facility. The City of Eureka should utilize grant funds received from the Economic Development Administration to evaluate potential demand for such a facility and to identify appropriate sites. It should then work with the Fisherman's Marketing Association and other stakeholders to identify funding sources for site acquisition and construction. To the degree possible, the City may wish to consider methods for improving the potential financial feasibility of any proposed facility, which may require some degree of subsidy. One possible approach could include the identification of publically owned land that could be purchased or leased at below market cost. (Page 35)

HUMBOLDT COUNTY:

Humboldt County oversees development surrounding Humboldt Bay on lands that are not incorporated (i.e. not in the City of Eureka or Arcata). As such their activities are relevant to many parts of the Humboldt Bay waterfront and fishing community. The Humboldt County Board of Supervisors meets on Tuesdays at 9:00 am at the Courthouse; agendas can be found online. The County General Plan and Local Coastal Plans can be found here: <https://humboldt.gov/205/General-Plan>

Humboldt Bay Harbor, Recreation and Conservation District (Harbor District). The Harbor District was created in 1973 to address the Bay's unique needs. They have jurisdiction over many tide and submerged lands including all of Humboldt Bay. They oversee the development of the harbors and ports within their jurisdiction and seek to protect natural resources and recreation opportunities. According to their website, they are responsible for dredging, commercial fishing facilities retention and improvement, transportation and maritime facility improvement, pilotage, oil spill coordination, erosion control and shoreline protection, port marketing, mariculture and aquaculture, and development permits. As such, their activities are relevant to the proposed recommendations in this plan; particularly those related to protecting marine-dependent uses, dredging, mariculture, gear storage, and dock and marina maintenance. The District is governed by five elected commissioners. They meet on the 4th Thursday of every month at 7:00pm. Meeting agendas and notices can be found here: <http://humboldtbay.org/meeting-documents-2019>

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8 POTENTIAL FUNDING SOURCES

To meet the sense of urgency and address the community's desire to make positive change for fishing in Eureka, the following funding sources are provided in addition to those in the Recommendations section. The list is not intended to be a final statement but to help the community start a dialogue about financial support of some of the highest priority needs.

NORTHERN CALIFORNIA COMMUNITY LOAN FUND (FORMERLY CALIFORNIA FISHERIES FUND)

Established in 2008, the California Fisheries Fund (CFF) has lent nearly \$4.8 million in small loans to fishermen, processors, distributors, ports, communities and non-profits for a variety of projects, including the establishment of quota banks and quota share purchases, installation and expansion of dockside infrastructure, gear and gear testing projects, vessels purchases, value added programs and marketing. The CFF is transferring their operation to the Northern California Community Loan Fund, a mission-driven organization that will continue to focus on lending to commercial fishermen and fishing communities in their efforts to increase stability and value.

<https://www.nccf.org/>

CALIFORNIA COASTAL CONSERVANCY

The Coastal Conservancy's offers various funding opportunity aimed at restoration, protection and public access projects along the California coast. They recently funded a Community Sustainability Plan in Fort Bragg.

<http://scc.ca.gov/category/grants/>

CALIFORNIA SEA GRANT

California Sea Grant programs are structured around healthy marine ecosystems, sustainable resource use, coastal community development, new technology, and education, training and public information. Strategic goals include working with stakeholders to resolve conflicts over resource-use, creating social and economic incentives to encourage the preservation and sustainable use of marine resources, and promoting vibrant coastal economies. Sea Grant has funded research, internships, aquaculture, storm/sea level change adaptation programs and projects on fisheries habitat, marine reserves, and the groundfish trawl fishery.

www.csgc.ucsd.edu/FUNDING/IndxFunding.html

COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG)

Operated by the California Department of Housing and Community Development, the purpose of the CDBG program is to create or retain jobs for low-income workers. This program provides funding for economic development projects, public infrastructure improvements, as well as housing and community related projects and activities.

<http://www.hcd.ca.gov/grants-funding/active-funding/cdbg.shtml>

COMMUNITY FOOD PROJECTS COMPETITIVE GRANTS PROGRAM

The U.S. Department of Agriculture's (USDA) Community Food Projects (CFP) Competitive Grants Program is a major funding source for community-based food and agriculture projects nationwide. The CFP program is administered by the Cooperative State Research Extension and Education Services (CSREES) of the USDA and receives \$5 million per year in mandatory funding. Community Food Projects should be designed to:

- Meet the food needs of low-income people,
- Increase the self-reliance of communities in providing for their own food needs, and
- Promote comprehensive responses to local food, farm, and nutrition issues.

Projects may also be funded if they meet specific state, local, or neighborhood food and agriculture needs for:

- Infrastructure improvement and development,
- Planning for long-term solutions, or
- The creation of innovative marketing activities that mutually benefit agricultural producers and low-income consumers.

Private nonprofit organizations are eligible to receive funding directly, but collaborations with multiple stakeholders or with public and private for-profit entities are recommended.

<https://nifa.usda.gov/funding-opportunity/community-food-projects-cfp-competitive-grants-program>

MOORE FOUNDATION

While the Moore Foundation typically works with conservation NGOs, they are dedicated to advancing environmental conservation and cutting-edge scientific research. The Marine Conservation Initiative focuses on area-based management and fisheries management reform. The program is slated to run through 2024 and focuses on the West Coast of the U.S. along with British Columbia and the North American Arctic. High priority targets for this Initiative are: managing the range of human uses and establishing frameworks for the enduring health of marine ecosystems. This includes science synthesis, data integration and modernization, economic incentives for sustainable activities, technological solutions for transparency and accountability, community-based monitoring of ecosystem health, stakeholder engagement and constituency building, leadership and capacity development, sustainable financing mechanisms and strategic communications. The Foundation has made significant contributions to the California Fisheries Fund, Cape Cod Commercial Hook Fisherman's Association, The Nature Conservancy and the Environmental Defense Fund with programs aimed at commercial fishery reform.

www.moore.org

NATIONAL FISH AND WILDLIFE FOUNDATION

The National Fish and Wildlife Federation's Fisheries Innovation Fund (FIF) was launched in 2010 and provides funding for improving capacity in fishing communities, including promoting participation in community-supported fishing associations; reducing bycatch; and improving fishery-related data collection and quantity for use in science, management and business purposes. The Fisheries Innovation Fund releases two requests for proposals (RFPs) each year to work towards sustainable fisheries in the United States: Fisheries Innovation Fund RFP and an Electronic Monitoring and Reporting Grant Program RFP. The FIF Request for Proposals (RFP) is typically due in May and cited the following objectives:

- Promote full utilization of Annual Catch Limits and minimize bycatch of overfished species and/or endangered, threatened, and candidate species;
- Develop and implement market, research, training, or strategic planning measures to build capacity and improve sustainability of U.S. fishing businesses and communities;
- Support improvements to recreational fisheries conservation and management;
- Support implementation of marine aquaculture.

<http://www.nfwf.org/fisheriesfund/Pages/home.aspx>

NEW RESOURCES BANK (NRB)

New Resources Bank, strengthened by their merger with publicly-trade Amalgamated Bank in May 2018, is a mission-driven lender that specializes in funding businesses and organizations that contribute to environmental and social sustainability. NRB has worked with Ilwaco Fish Company and Wild Planet to facilitate their growth and capacity.

<https://www.newresourcebank.com/>

NOAA FISHERIES FINANCE PROGRAM

The NOAA Fisheries Finance Program is a direct government loan program funded by Congress to provide long-term loans to aquaculture, mariculture, and commercial fisheries industries. There is no minimum or maximum loan amount, but it cannot exceed 80 percent of the eligible project's cost. The loan interest rate is fixed at two percent over the U.S. Treasury's cost of funds with loan maturities up to 25 years and no early pay-off penalties. A one-time filing/commitment fee equal to half of one percent of the proposed loan amount is required at the time the application is filed.

www.nmfs.noaa.gov/mb/financial_services/ffp.htm

THE NATURE CONSERVANCY AND THE ENVIRONMENTAL DEFENSE FUND

These conservation NGOs have worked with California fishermen on sustainable fishing issues in the state and should be considered potential partners, particularly on projects associated with the Limited Entry Trawl ITQ fishery.

www.edf.org/oceans/catch-shares

www.nature.org/ourinitiatives/regions/northamerica/unitedstates/california/howwework/central-coast-groundfish-project.xml

RESOURCES LEGACY FOUNDATION

The Resources Legacy Fund, through their Oceans Program has 3 areas of focus:

Sustainable Fisheries Fund – Promotes fishery and stakeholder participation internationally in the Marine Stewardship Council certification process primarily by providing targeted grants to improve fishing practices and support participation in the certification process.

California Fisheries Improvement Strategy – Works to enable important California state managed fisheries to meet global standards for sustainability and good management by 2024.

California Coastal Program – Seeks to support and strengthen the governance, protection, and conservation of California's coastal zone and state waters.

<http://resourceslegacyfund.org/>

SALTONSTALL-KENNEDY GRANT

The Saltonstall-Kennedy (S-K) Grant Program is a competitive program administered by the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). Through grants and cooperative agreements, the program provides funding assistance for research and development projects that benefit the U.S. fishing industry. Program priorities vary from year to year and projects that primarily involve business start-up or infrastructure development are not eligible.

<https://www.fisheries.noaa.gov/national/funding-and-financial-services/saltonstall-kennedy-grant-program-application-process-and-deadlines>

SEA PACT

Sea Pact is a coalition of seafood industry leaders who strive to advance environmentally sustainable fisheries and aquaculture practices and provide the building blocks of a long term and sustainable seafood industry by financially contributing to improve the fishing and fish farming systems from which they procure. With periodic grants (Letters of Interest due in August), Sea Pact aims to select a project in line with their goals, including fishery and aquaculture improvement projects, habitat restoration efforts, scientific research and other related work. Areas of focus include:

- Social Responsibility
- Aquaculture
- Fisheries Management
- Traceability
- Special species of interest: Squid

<http://www.seapact.org/projects.html>

U.S. SMALL BUSINESS ADMINISTRATION (SBA)

The U.S. Small Business Administration (SBA) offers a variety of loan programs for very specific purposes, including:

- The 7(a) Loan Program includes financial help for businesses with special requirements. For example, funds are available for loans to businesses that handle exports to foreign countries, and for other very specific purposes. Qualifying businesses may use proceeds to purchase land or buildings, and/or to cover new construction as well as expansion or conversion of existing facilities.

<https://www.sba.gov/blogs/sbas-7a-loan-program-explained>

8 Potential Funding Sources

- The 504 Loan Program provides approved small businesses with long-term, fixed-rate financing used to acquire fixed assets for expansion or modernization. 504 Loans are typically structured with SBA providing 40% of the total project costs, a participating lender covering up to 50% of the total project costs, and the borrower contributing 10% of the project costs. Under certain circumstances, a borrower may be required to contribute up to 20% of the total project costs. To be eligible for a 504 Loan, businesses must be operated for profit and fall within the size standards set by the SBA. Under the 504 Program, a business qualifies if it has a tangible net worth not more than \$15 million, and an average net income of \$5 million or less after federal income taxes for the preceding two years prior to application.

<https://www.sba.gov/offices/headquarters/ofa/resources/4049>

CALIFORNIA MARITIME INFRASTRUCTURE BANK AND AUTHORITY

The California Maritime Infrastructure Bank and Authority services financing for ports and harbors and provides lease financing for infrastructure used by ports and port tenants. The Bank and Authority is not a commercial bank, and only member authorities may participate in financing programs. The California Maritime Infrastructure Bank and Authority can provide access to capital markets, act as a clearing house for multiple funding tools (grant, loans, etc.) and has the authority to form Joint Power agreements. As such, Eureka would likely need to participate in a broader regional or county infrastructure project and identify breakwater, launch and processing facility improvements.

<http://www.californiamaritimeinfrastructureauthority.org>

ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)

The EDA is part of the U.S. Department of Commerce. EDA investment programs that may be appropriate for Eureka include Planning and Local Technical Assistance where the EDA assists eligible recipients in developing economic development plans and studies designed to build capacity and guide the economic prosperity and resiliency of an area or region. The Planning program helps support organizations, including District Organizations, Indian Tribes, and other eligible recipients, with Short Term and State Planning investments designed to guide the eventual creation and retention of high-quality jobs, particularly for the unemployed and underemployed in the Nation's most economically distressed regions. The Local Technical Assistance program strengthens the capacity of local or state organizations, institutions of higher education, and other eligible recipients to undertake and promote effective economic development programs through projects such as feasibility studies and impact analyses.

<https://www.eda.gov/funding-opportunities/>

INFRASTRUCTURE STATE REVOLVING FUNDS (ISRF) AND I-BANK LOANS

ISRF provides low cost financing from the California Infrastructure and Economic Development Bank (IBANK) to public agencies for infrastructure projects with loan terms of up to 30 years to be repaid with local tax revenues. Loan amounts range from \$250,000 to \$10 million per year, with a maximum of \$20 million per jurisdiction. Eligible projects which could have relevance in Eureka include:

- Goods movement-related infrastructure
- Port facilities, public transit
- Sewage collection and treatment
- Solid waste collection and disposal
- Industrial, utility and commercial

<http://www.ibank.ca.gov/infrastructure-state-revolving-fund-isrf-program/>

COMMUNITY LENDING

Under the federal Community Reinvestment Act (1977), depository institutions are required to help meet the credits needs of the community in which they operate. Many banks have community-lending programs. For example, Wells Fargo has a Community Lending division that provides interim construction financing for community development commercial real estate projects. Wells Fargo offers construction loans, permanent loans, bond financing, and letters of credit to developers and public agencies.

GENERAL OBLIGATION BONDS

General Obligation Bonds may be sold by a public entity that has the authority to impose ad valorem taxes. Ad valorem taxes are based on an assessed value of real property and must be approved by a two-thirds majority vote of the people. Primary use of this tax is to acquire and improve public property.

COMMUNITY FACILITIES DISTRICT (CFD)

A CFD or Mello-Roos District is an area where a special property tax on real estate, in addition to the normal property tax, is imposed on those real property owners within a Community Facilities District. These districts seek public financing through the sale of bonds for the purpose of financing public improvements and services. The property tax paid is used to make the payments of principal and interest on the bonds. The services and improvements that CFDs can finance include streets, sewer systems and other basic infrastructure, police protection, fire protection, ambulance services, schools, parks, libraries, museums and other cultural facilities. By law, the CFD is also entitled to recover expenses needed to form the CFD and administer the annual special taxes and bonded debt.

INFRASTRUCTURE FINANCING DISTRICT (IFD)

The Infrastructure Financing District Act of 1990 authorizes Cities and Counties to create IFDs, voluntarily divert tax revenues to the IFD for up to 30 years, and issue bonds to finance regional scale public improvement projects in previously undeveloped areas. Other general provisions of the act include:

- Financed projects must provide benefits to an area larger than the IFD
- Financed projects must have a useful life of 15 years or longer
- Property in an IFD does not have to be blighted
- IFDs cannot overlap existing Redevelopment Project Areas

IFDs can Finance the Purchase, Construction, Expansion, Rehabilitation, Seismic Retrofit or Improvement of streets and highways, ramps and bridges, transit facilities, parking facilities, water and sewer projects, solid waste facilities, flood control, child care facilities, parks, recreational facilities and libraries, and residential dwellings. IFDs cannot finance operations such as on-going maintenance, services and repairs, or operating costs.

WATER RESOURCES REFORM AND DEVELOPMENT ACT AND THE HARBOR MAINTENANCE TRUST FUND

With the recent passing of the Water Resources Reform and Development Act (WRRDA) (H.R. 3080), \$8.2 billion has been authorized for port, dam, and flood protection and environmental projects throughout the country, largely to be administered by the Army Corps of Engineers. Within this bill are provisions for the expanded use of the Harbor Maintenance Trust Fund, intended for the operation and maintenance of harbors and ports. The Trust Fund can be used for maintenance dredging, dredged material disposal areas, jetties, and breakwaters.

PRIVATE INDUSTRY

Private concerns that work directly with or share infrastructure and resources with the fishing community may provide funding through collaborative partnerships in pursuit of grants and direct investment. Potential partnerships may include development of California Nonprofit Mutual Benefit Corporations with industries developing fiber optic or wind power related infrastructure that could displace fishermen. One successful example of this type of partnership is the Central California Joint Cable/Fisheries Liaison Committee, which was formed to mitigate impacts of the fiber optic cables on the fishing community.

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