

California's North Coast Fishing Communities Historical Perspective and Recent Trends

Project Summary



Caroline Pomeroy, Cynthia J. Thomson, Melissa M. Stevens

Published by California Sea Grant College Program
Scripps Institution of Oceanography
University of California San Diego
9500 Gilman Drive #0231
La Jolla CA 92093-0231
(858) 534-4446
www.csgc.ucsd.edu

Publication No. T-072a

This document was supported in part by the National Sea Grant College Program of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration, and produced under NOAA grant number NA10OAR4170060, project number C/P-1 through the California Sea Grant College Program. The views expressed herein do not necessarily reflect the views of any of those organizations.

Sea Grant is a unique partnership of public and private sectors, combining research, education, and outreach for public service. It is a national network of universities meeting changing environmental and economic needs of people in our coastal, ocean, and Great Lakes regions.

California's North Coast Fishing Communities Historical Perspective and Recent Trends

Project Summary

**Final Report
to the
California State Coastal Conservancy
Award 06-128**

August 2010

Caroline Pomeroy¹, Cynthia J. Thomson², Melissa M. Stevens^{1,2}

¹ California Sea Grant, University of California, Santa Cruz, Center for Ocean Health, 100 Shaffer Road, Santa Cruz, CA 95060

² NOAA, National Marine Fisheries Service, Southwest Fisheries Science Center, Fisheries Ecology Division, 110 Shaffer Road, Santa Cruz, CA 95060

ACKNOWLEDGMENTS

We gratefully acknowledge the support and input provided by North Coast fishing community members, including local fishermen, fish buyers, fishery-support business owners and staff, harbor managers and staff and many others. We thank Rebecca Rizzo and Holly Davis, UC Santa Cruz and National Marine Fisheries Service (NMFS), and Debbie Marshall, California Sea Grant Extension Program (SGEP), for assistance with graphics and other elements of this report, and Brad Stenberg, Pacific States Marine Fisheries Commission, for access to the Pacific Fisheries Information Network (PacFIN) data; and community members, Sea Grant colleagues and others for their feedback on drafts of this document. The information presented here is based on work supported by the California State Coastal Conservancy, the California SGEP, the NMFS Economics and Social Sciences Program in Silver Spring, MD and the NMFS Southwest Fisheries Science Center in Santa Cruz, CA.

Corresponding author: Carrie Pomeroy, 831-459-4173, cpomeroy@ucsd.edu.



National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery managers consider the importance of fishery resources to fishing communities, to provide for their sustained participation and to minimize adverse economic impacts on them, consistent with conservation objectives. Similarly, California's Marine Life Management Act mandates the use of socioeconomic as well as biophysical Essential Fishery Information to meet fishery management goals. Information on how individual fisheries and port communities operate is important to meeting these mandates. Yet, in-depth social science information on California fishing communities remains quite sparse.

The purpose of the Fishing Communities Project was to provide detailed historical and current social science information on four Northern California port communities – Crescent City, Trinidad, Eureka/Fields Landing, and Noyo/Fort Bragg. In addition to profiling each community, the project also provides a regional overview that encompasses the three counties – Mendocino, Humboldt, and Del Norte – in which these communities are situated. While this report is intended to help address fishery management needs, it can be used in a range of processes, from local planning and education to state and regional policy issues.

This regional overview provides county-level demographic and economic information, a discussion of fishery regulations, and customized summaries of commercial and recreational fishery data for the three North Coast counties and the tri-county region. The demographic and economic data contained in that overview illustrate the larger context within which North Coast fishing communities operate and adapt to change, and are also suggestive of how life in rural areas contrasts with the largely urban environment in which

most Californians live. Each individual port profile provides the history of that community and its fisheries, present-day fishery operations, activities and associated infrastructure, and identifies key regulatory and economic factors highlighted by study participants that interact with and affect the local fishing community.

The regional and port profiles reflect, respectively, regionally and locally relevant activities and influences. In situations where a factor (e.g., fishery regulations, market influences) is common to the region and/or to multiple ports, that factor is discussed in those profiles for which it is relevant. While this introduces some redundancy among profiles in terms of the information provided, it also allows each profile to be read and used as a stand-alone document.

The information presented is based on the collection and integrated analysis of archival and field data to interpret patterns, variability and change within and across fisheries and the fishing community over time. Data sources include:

- Commercial fish landing receipt data for the period 1981–2007 reconfigured into 34 distinct species/gear combinations;
- Commercial Passenger Fishing Vessel (CPFV) logbook data for the period 1980–2007;
- An extensive review of the published and gray literature, including fishery status reports and historical fishery statistics (as available);
- Statistics from the U.S. Census Bureau and other government sources of demographic and economic data; and
- Field observation and interviews and group meetings with more than 180 fishery participants and other knowledgeable individuals.

Demographic and Economic Overview

The three North Coast counties are rural and sparsely populated, in sharp contrast to the

highly urban nature of other coastal counties in California. Relative to California as a whole, the North Coast population is generally older, more limited in terms of income and education, and less racially diverse. Unemployment rates have historically been much higher in these counties than the state, although that gap narrowed considerably by 2009 due to statewide increases in unemployment associated with the current recession. In 2007, private sector business activity in the three North Coast counties involved 6,884 establishments (employing 67,326 people) and an additional 20,935 self-employed individuals. Major sources of private sector employment include construction, manufacturing, retail trade, health care/social assistance, and accommodation/food services. Earnings in the three counties totaled \$5.7 billion in 2007: 16% in proprietor income, 61% in private earnings, and 23% in government earnings.

Fishery Infrastructure and Market Development

Since long before white settlement, the natural resources of the North Coast have been a critical source of sustenance and cultural significance to local Indian tribes. In the mid-1800s, a large influx of White settlers came to the North Coast, lured by the prospect of gold. As the gold rush slowed in the late 1800s, residents turned to other plentiful natural resources in the area – massive redwood forests and abundant fishery resources such as salmon, groundfish and crab. Timber harvesting was the primary industry for many decades, particularly after World War II with the U.S. housing boom. However, by the 1960s, an estimated 90% of the redwoods were gone. As logging declined, fisheries became an increasingly important industry in this remote region.

The establishment of North Coast fisheries could not have occurred without market

development, adequate transportation routes, and establishment of key infrastructure. Until the early 20th century, the only way to get fish from the North Coast to market was by sea, which often proved hazardous due to rough seas. In the early 1900s, the Northwestern Pacific Railroad linked North Coast communities with cities further south. The construction of Highway 101 in the late 1920s (in conjunction with mass production of automobiles) brought tourists, including sport fishermen, to the area. In the 1940s, the U.S. Government began purchasing seafood in large quantities to feed soldiers overseas during World War II. In subsequent decades, U.S. consumers fueled that demand as their seafood preferences expanded and diversified.

In addition to requiring markets and efficient transportation, fishery development also required local, fishery-specific infrastructure. The development of such infrastructure at North Coast ports occurred as follows:

Crescent City: In 1950, locals in Crescent City built Citizen's Dock to support local fishing activity. In 1964 a devastating tsunami took 11 lives and destroyed most of the town and the docks. Relief funds enabled the re-development of the harbor through the construction of a boat basin, offloading docks, and two processing plants. By the early 1970s, Crescent City Harbor was a 'state-of-the-art' fishing port, well positioned to support the expansion of commercial and recreational fisheries.

Trinidad: The Hallmark family constructed the Trinidad Pier in 1946 and a mooring basin soon after. Trinidad became an active fishing village, with smokehouses and a sizeable seasonal fleet of salmon trollers by the late 1970s. Charter fishing operations, first established in 1952, provided recreational fishing opportunities for visitors and residents alike.

Eureka/Fields Landing: Beginning in 1914, the establishment of rail service to the San Francisco Bay area facilitated the transport to market of higher volumes of salmon, crab and groundfish (caught mostly in Humboldt Bay at that time). By 1929, trawlers were active along the North Coast and specifically in the Eureka area, where they delivered their catch for shipment to larger population centers by rail. Over the next several years, Eureka became a center of trawling activity. Many seafood companies (some of which originated in San Francisco) started businesses along the waterfront in Eureka and Fields Landing, and groundfish catches increased dramatically. The establishment of extensive processing capacity in Eureka also had repercussions elsewhere on the North Coast. For instance, Eureka Fisheries also developed receiving and processing plants at Crescent City and Fort Bragg, as well as wholesale/retail operations in the San Francisco Bay area.

Noyo/Fort Bragg: In 1950, the Noyo Harbor District was established, and in the 1960s, both the Noyo mooring basin and the privately owned Dolphin Isle Marina, located about a half mile up the Noyo River, opened, offering a range of facilities, goods and services to support growing and increasingly diverse commercial and recreational fisheries.

Since those early years, fishery infrastructure in these four North Coast communities has waxed and waned in response to changes in harvest opportunities, processing strategies, and other factors.

Crescent City: The Crescent City Harbor District and approximately 20 businesses at or near the harbor (and more in the larger region) provide considerable infrastructure, goods and services to support local fisheries. Harbor infrastructure includes 15 acres of dock, pier and boat slip facilities, two commercial fish processing facilities (one currently in

operation), several small receiving stations, an ice plant, a fuel dock, a wastewater treatment plant, an indoor vessel repair facility, retail spaces, a storage yard, launch ramps, and equipment such as a Travelift and hoists. Local fish receiving and processing capacity consists of six buyers with receiving stations at the harbor and one on-site receiver/processor, which processes some crab and groundfish on-site; however, most of the unprocessed catch is shipped out of the area. Some buyers and fishermen (through off-the-boat and other direct sales) sell small amounts of crab, groundfish and albacore seasonally.

Trinidad: The Trinidad Pier, owned and operated by the Cher-Ae Heights Indian Community of the Trinidad Rancheria since 2000, is the focal point of local fishing activity. In addition, it serves nonfishing visitors and accommodates Humboldt State University Marine Lab's saltwater intake pipe. The harbor is less developed than larger ports in the region due to its geography. Key fishing infrastructure includes the 540-foot pier, 100 seasonal and about 20 permanent moorings, a launch ramp, parking area and tackle shop. A restaurant at the base of the pier attracts visitors year round. There are no processing, ice-making or cold storage facilities onsite; most of the commercial catch is offloaded by Rancheria staff and distributed outside the community. The pier's fuel dock (which had fallen into disrepair) and fish cleaning station have been removed in recent years due to water quality issues, and the aging pier is slated for reconstruction. Trinidad Pier staff offload the catch on behalf of fish buyers located outside Trinidad. Due in part to the port's isolation and the small number of buyers, many fishermen handle their own (and perhaps others') catch, delivering it to buyers, retailers or restaurants in the region.

Eureka/Fields Landing: Local fish receiving and processing capacity consists of four buyers

with receiving stations located at various sites along the Eureka waterfront, including two on-site receiver/processors. Limited fish receiving occurs at Fields Landing, located about six miles south of Eureka. Commercial and recreational infrastructure consists of several acres of dock/pier offloading and boat slip facilities, as well as storage areas, parking, and service facilities (e.g., launch ramps, fish cleaning station, work docks) located at sites around the bay including Woodley Island Marina, along the city waterfront, and at Fields Landing. The primary berthing facilities are Woodley Island Marina, managed by the Harbor District, and the city-managed Eureka Boat Basin, with limited additional berthing at various docks along the Eureka waterfront, at Fields Landing and at King Salmon. More than 20 Eureka area businesses (and many others outside the area) provide goods and services that directly support both resident and nonresident commercial and recreational fishery operations. Between six and 12 fishermen engage in off-the-boat or other direct sales for albacore, some crab and some other finfish species.

Noyo/Fort Bragg: The Noyo Harbor District, Dolphin Isle Marina and approximately 25 businesses at or near the harbor (and more in the larger region) provide considerable infrastructure, goods and services to support local fishing activities. Harbor infrastructure consists of a 240-slip boat basin with service facilities, a work hoist (fish offloading is prohibited), two launch ramps, a fuel dock, parking and storage areas. Dolphin Isle Marina provides 150 slips, RV spaces, a fuel dock, a café and store, and a fish-cleaning station. Although their number and scope has diminished in recent years, local support businesses provide goods and services from fuel and ice to refrigeration, vessel repair and maintenance, which address many but not all fishery needs. Local fish receiving and processing capacity consists of six buyers

with receiving stations at the harbor, including three on-site receiver/processors and a live-fish buyer. Several fishermen market some of their (and perhaps others') catch directly to retailers and to consumers (e.g., through off-the-boat sales). Because there is no public hoist for offloading fish, some resident buyers also receive fish on behalf of these fishermen as well as other fish buyers.

Commercial Fisheries

Major commercial fisheries on the North Coast include Dungeness crab pot, (non-whiting) groundfish trawl, salmon troll, sablefish hook-and-line/pot, albacore troll, rockfish/lingcod hook-and-line/pot, urchin dive, whiting trawl, and shrimp trawl. Fishing activity has generally declined over the past 27 years (1981–2007). Landings and ex-vessel value peaked at 103.7 million pounds and \$80.4 million, respectively, in 1988. Since 1998, landings and value have been consistently below 45 million pounds and \$50 million, respectively. The number of boats declined precipitously from a peak of 2,550 in 1981 to 500 or fewer boats since 2005. The number of buyers ranged from 73 to 125, with no apparent trend.

From 2003 through 2007, an annual average of 512 boats and 108 buyers participated in North Coast commercial fisheries; landings totaled 37.6 million pounds with an ex-vessel value of \$39.4 million. The top three fisheries in terms of landings were crab pot (which accounted for 37% of all landings), groundfish trawl (24%), and shrimp trawl (21%). The top three in terms of ex-vessel value were crab pot (64%), groundfish trawl (13%), and salmon troll (10%). The top fisheries in terms of vessel participation were crab pot (50%), salmon troll (45%), and rockfish and sablefish hook-and-line (15% and 14% respectively), while the top three in terms of buyers were crab pot (54%), salmon troll (44%) and rockfish hook-and-line/pot (31%). In recent years, the crab fishery

has been the mainstay of the North Coast commercial fishery. In 2003, 2004 and 2006, crab landings ranged from 8.4 to 11.9 million pounds, levels exceeded only once since 1947 (in 1982, when 54.4 million pounds were landed).

Average annual landings, ex-vessel value and vessel participation in North Coast fisheries were 35%, 14% and 52% lower in *recent years* (2003–2007) relative to the *long term* (1981–2007). The direction and size of changes in these variables vary widely across fisheries, with individual variables sometimes changing in opposite directions for a given fishery. For instance, crab pot landings and value increased by 74% and 59% respectively, while participation declined by 31%. Sablefish landings decreased by 3%, while value and participation increased by 25% and 43% respectively. Other fisheries (e.g., groundfish trawl, albacore troll, rockfish/lingcod hook-and-line/pot, urchin dive, shrimp trawl) have shown declines in all three variables. Reasons for these changes vary by fishery, and depend on factors such as resource status and availability, regulations, and market conditions.

The salmon and groundfish fisheries, in particular, have undergone profound changes over the past few decades.

- The commercial salmon fishery in the California KMZ (roughly encompassing Humboldt and Del Norte counties) has been sharply curtailed since the mid-1980s, and in the Fort Bragg management area (roughly encompassing Mendocino county) since the early 1990s. Both areas (particularly the KMZ) have been subject to dramatically reduced seasons, including complete closures in some years, that are much shorter than the seasons allowed elsewhere in California or the greater West Coast area. In 2008 and 2009, the commercial salmon fishery was closed

statewide; this unprecedented action was due to concerns regarding Sacramento River fall Chinook.

- The groundfish fishery (most notably groundfish trawlers and rockfish hook-and-line/pot vessels) also has been subject to increasingly restrictive regulations, particularly since the late 1990s, when eight groundfish stocks were declared overfished. Unprecedented harvest limits, as well as a complex array of other regulations, have been implemented to rebuild overfished stocks. These restrictions, together with the 2003 federal groundfish trawl buyback and the state's implementation of restricted access in the Nearshore Fishery, have significantly reduced participation in the commercial groundfish fishery.

Crescent City: Of the estimated 100 vessels based at the port, 85–90 are crabber/trollers, 12 are nearshore operations, and five are groundfish/shrimp trawlers. Most fishermen participate in multiple fisheries; more than 75% participate in the crab fishery. Of the 157 boats that landed at Crescent City in 2007, an estimated 37 (about 24%) were nonresident vessels from Oregon and Washington as well as other California ports.

Relative to the *long term* (1981–2007), average annual total fishing activity has decreased in *recent years* (2003–2007) in terms of landings (-44%), ex-vessel value (-4%), boats (-57%), trips (-48%) and buyers (-15%).

Trinidad: Approximately 17 commercial fishing operations, each employing a skipper and a crew of two (in most cases), are based at Trinidad Harbor.

Relative to the *long term* (1981–2007), average annual fishing activity has increased in *recent years* (2003–2007) in terms of landings (+58%), ex-vessel value (+42%) and buyers

(+36%), and decreased in terms of boats (-62%) and trips (-32%).

Eureka/Fields Landing: About 100–120 commercial fishing vessels are homeported at Eureka. The resident fleet includes eight to ten trawlers, 15–20 salmon trollers, five to ten smaller groundfish vessels (sablefish and nearshore species), and about 80 crabbers (including some crabber/trollers).

Relative to the *long term* (1981–2007), average annual fishing activity in the Eureka area (Eureka and Fields Landing combined) has declined in *recent years* (2003–2007) in terms of landings (-14%), ex-vessel value (-13%), boats (-50%), buyers (-2%) and trips (-45%).

Noyo/Fort Bragg: Approximately 60–80 commercial fishing vessels are homeported at Noyo Harbor, including seven trawlers, 30–40 salmon trollers, 15–20 multi-fishery vessels, and about 10–15 urchin dive boats. Although some fishermen in these groups are specialized, most participate in multiple fisheries.

Noyo also is a port of call (and refuge) for nonresident fishing vessels, especially salmon trollers.

Relative to the *long term* (1981–2007), average annual total fishing activity has decreased in *recent years* (2003–2007) in terms of landings (-52%), ex-vessel value (-31%), boats (-44%) and trips (-54%), while buyers have increased (+15%).

Recreational Fisheries

Recreational fisheries on the North Coast include salmon, groundfish, albacore, halibut, abalone, and crab. According to the CRFS (which provides district-level estimates of recreational effort and harvest), an annual average of 216,000 angler trips were taken on the North Coast between 2005 and 2007 – 143,000 in the ‘Redwood District’ (roughly

encompassing Humboldt and Del Norte counties) and 73,000 in the ‘Wine District’ (roughly encompassing Mendocino County). About 26% of these trips were made from manmade structures, 29% from beach/bank, 9% from CPFVs, and 36% from private/rental boats.

Salmon and groundfish, which traditionally have been the major target species for CPFV and private boat anglers, have become much less available for harvest in recent decades. Community members view groundfish as a second choice to, but not a substitute for, salmon. Some North Coast anglers also participate in the winter crab fishery.

Recreational salmon regulations for the North Coast differentiate between California’s KMZ (Humboldt and Del Norte counties, including Crescent City, Trinidad and Eureka/Fields Landing) and Fort Bragg, with regulations generally much more stringent in the KMZ. Regulatory changes for salmon and groundfish are as follows:

- Salmon fishing opportunities have been constrained by concerns regarding Klamath River fall Chinook and (more recently) Sacramento River fall Chinook. The decline in recreational salmon opportunities experienced since the early 1990s has been largely concentrated in California’s KMZ. The KMZ season was reduced from about nine months in the early 1980s to four to six months in the mid-1980s to zero to four months since the early 1990s, with associated decreases in fishing effort. The Fort Bragg management area was generally much less constrained than the KMZ fishery and experienced a general increase in effort during the period 1992–2007; some of this increase may be due to diversion of previous KMZ effort to Fort Bragg. In 2008, however, major concerns regarding the status of Sacramento River

fall Chinook resulted in a dramatic and unprecedented shortening of recreational seasons statewide. The recreational season in California's KMZ was zero days in 2008 and ten days in 2009. The Fort Bragg recreational season was 45 days in 2008 (significantly reduced from its normal eight to nine months) and zero days in 2009. While such severe restrictions were not new for the KMZ, they were unprecedented for the Fort Bragg area.

- The recreational groundfish fishery has been subject to more stringent management since the late 1990s to address rebuilding requirements for overfished rockfishes. Management actions have included reductions in rockfish and lingcod bag limits, rockfish sublimits, reductions in season length from 12 months to three to four months, and depth-based closures.

Information on port-specific recreational activity is provided here, based on California Department of Fish and Game (CDFG) CPFV logbook data and fieldwork conducted for this project. The logbook data are used to compare charter boat effort in *recent years* (2003–2007) with effort over the *long term* (1980–2007), while fieldwork is the basis for information regarding current charter and private boat activity, as available. The logbook data should be interpreted with caution, as compliance with the logbook requirement may be uneven across years and ports.

Crescent City: CPFV logbook data cannot be reported for 2003–2007, due to the small number of operators involved. Results of fieldwork indicate that one to two CPFVs currently operate at the port.

Eureka/Fields Landing: CPFV logbook data cannot be reported for 2003–2007, due to the small number of operators involved. Based on fieldwork results, three resident charter boats

currently operate in Eureka proper, and several others move between Trinidad and Eureka.

Trinidad: According to CPFV logbooks, annual charter activity in Trinidad from 2003 through 2007 averaged five boats, 354 boat trips, and 1,914 angler trips. The average number of boats, boat trips and angler trips in recent years are 73%, 100% and 90% higher (respectively) relative to the long-term average. Trinidad currently has six charter operations – five 'six-packs' (smaller (25- to 38-foot) vessels that carry a maximum of six fishing passengers, and one 44-footer that carries up to 12 passengers. Four of these operations also participate in the winter commercial crab fishery. In addition, most also offer scenic viewing (including whale-watching) trips. Private boat activity has declined in Trinidad, as indicated by reduced use of seasonal moorings (from about 400 to 90) and reduced launch ramp use (from 45 to 60 launches per day to 10 to 30 in recent years).

Noyo/Fort Bragg: According to CPFV logbooks, annual charter activity in Fort Bragg from 2003 through 2007 averaged eight boats, 653 boat trips, and 12,514 angler trips. The number of boats is unchanged relative to the long-term average, while boat trips are 54% higher and angler trips are 44% higher. Noyo currently has five active charter operations, which carry between 6 and 40 passengers.

CDFG's Ocean Salmon Project provides area-specific information on recreational salmon effort (including the Crescent City, Eureka and Fort Bragg areas). While estimates for the Crescent City area pertain only to the port of Crescent City, the Eureka and Fort Bragg area estimates include multiple ports. The Eureka area estimates include Eureka/Fields Landing and Trinidad.

Crescent City: The number of salmon angler trips in Crescent City averaged 2,300 from 2003 through 2007, 86% lower than the

average of 16,422 angler trips for the period 1981–2007. CPFV trips accounted for 1%–2% of salmon effort over the long term and in recent years.

Eureka area (including Eureka, Fields Landing and Trinidad): The number of salmon angler trips averaged 16,820 per year from 2003 through 2007, 18% lower than the average of 20,574 angler trips for the period 1981–2007. CPFV trips accounted for 7%–8% of salmon effort both over the long term and in recent years.

Fort Bragg area (including Noyo and other, smaller nearby ports): The number of salmon angler trips increased by 26% from an annual average of 18,578 from 1981 through 2007 to 23,320 from 2003 through 2007. CPFV trips accounted for 25% of salmon effort over the long term, relative to 34% in recent years.

Current Situation and Outlook

North Coast commercial and recreational fisheries have changed markedly over the past three decades. Expansion through the 1970s and early 1980s was followed by contraction as regulatory, economic and other factors played out during the 1990s and into the 2000s. Reduced fishing opportunities have increased economic stress and uncertainty for fishery participants, support businesses and the larger community.

Study participants identified a number of issues and challenges facing their communities. Some of these issues were common across ports:

- Dramatic reductions in major North Coast fisheries – most notably groundfish and salmon – are of great concern to community members. Many study participants expressed concern about the vulnerability of local infrastructure to further declines, noting that the viability of local fisheries and the fishing community

depends on a certain level and diversity of activity. Without access to these and other fundamental services, continuing to fish may become untenable.

- The commercial sector’s primary dependence on a single fishery (crab) and the recreational sector’s limited fishing opportunities make both sectors potentially vulnerable to changing resource, regulatory and market conditions.
- Commercial fishery participants and support businesses cited rising operating costs, especially those for gear, vessel maintenance, insurance and fuel, as among the biggest challenges they are facing. At the same time, many commercial fishermen commented on stagnant or declining prices in several fisheries. Increasing costs and less favorable economic conditions also have affected fishery-support businesses, both directly and indirectly. The reduction in fishing opportunities and activity has resulted in the loss of fish houses (vertically integrated buyers capable of processing fish from multiple operations) in several ports and reduced demand for goods and services that these businesses provide.
- Study participants are concerned about recent and pending events in the larger policy arena including the North Coast Marine Life Protection Act process, begun in late 2009, the individual quota program for the federal groundfish trawl fishery, to be implemented in 2011, and potential offshore energy development. All of these have the potential to fundamentally change local fisheries and the communities.

Interviews with study participants also yielded information on issues and events specific to each community, which present challenges but also provide reasons for their continued resilience to change.

Crescent City: The decline in fishing activity at Crescent City over the last 30 years has reduced shoreside activity, leading businesses to close, reduce services and/or inventory, or diversify their operations. With limited alternative sources of revenue, harbor infrastructure has deteriorated. Insufficient provision for basic maintenance and repair of docks and related infrastructure has led to their disrepair and vulnerability to events such as the 2006 tsunami. These and other costs, particularly for dredging and dredge material disposal, and maintaining and operating the wastewater treatment plant, have become significant.

Local processing of seafood is limited, due in part to the high cost of using the harbor's wastewater treatment plant, which is required for fish processing. This factor contributed to the closure of two local processing facilities in the past decade, and has continued to be an issue for current and prospective processors. The reduction in landings in key fisheries coupled with increasing transportation costs have led to regional consolidation of processing facilities. Finally, Crescent City's small local population, many of whom fish recreationally for their own catch, creates limited demand for local processing and seafood retail.

The Crescent City community has a well-established history of adapting to change that may enable it to meet these challenges. Community members have a history of working together to support the harbor and its fisheries. Recently, funds were secured to begin much-needed dredging of the harbor's main navigation channel, and additional funds to support reconstruction of the inner basin and other improvements are pending. These efforts together with the port's location near rich fishing grounds, its safe and easy access, and the availability of key services, create the potential for Crescent City to regain its resilience and vitality as a fishing port.

Trinidad: In 1974, the State designated the Trinidad Kelp Beds an Area of Special Biological Significance (ASBS); in 2002, it was classified as a state Critical Coastal Area (CCA). Since acquiring the pier and associated infrastructure in 2000, Trinidad Rancheria has taken several actions to meet the site's particularly high water quality standards while addressing the needs of the fishing community, which depends on safe, functional infrastructure. The Trinidad Harbor fishing community continues to adjust to changes in fishing opportunities, as well as requirements stemming from the area's designation as an ASBS/CCA. The Rancheria is actively pursuing funding to replace the pier; however, securing full funding for the \$8-million project has been difficult, given these factors and the current economic climate.

Nonetheless, the Trinidad Harbor fishing community is well positioned to address these challenges. As a natural harbor with modest infrastructure (pier, launch ramp and moorings only), there are no navigation channels or slips to be maintained. The Rancheria has more operational flexibility than most publicly managed facilities, and has successfully collaborated with the City of Trinidad and others to obtain partial funding for the much-needed reconstruction of the pier. The fishing community is a small but substantially integrated group, and most individuals recognize that their respective needs are interdependent. These features lend the Trinidad Harbor fishing community a degree of resilience that may enable it to effectively address the challenges and opportunities that lie ahead.

Eureka/Fields Landing: Aging infrastructure, the closure of support businesses such as Eureka Fisheries in 2000 and Eureka Ice and Cold Storage in 2008, and increasingly expensive real estate prices and permitting requirements for maintaining and developing Eureka's working waterfront, have complicated efforts by fishermen and others to maintain viable operations.

Receiving and processing capacity has contracted geographically and become consolidated. Where multiple providers of goods and services (e.g., marine supply, fuel dock, vessel maintenance and repair) once were needed to meet local demand, only one or two of each type remain, serving communities elsewhere along the North Coast as well as Eureka. While this consolidation suggests increased efficiency, the limited number of goods and service providers makes the local fishing community vulnerable to further regulatory, economic and environmental change.

The development of the Fishermen's Terminal along a stretch of city waterfront formerly occupied by fish houses addresses some basic infrastructure needs for local commercial fisheries. Conceived in the early 1980s by local fishermen and the city, the project faced spiraling costs and other challenges. However, in 2006 the first phase of the project was completed (providing dock space and hoists), and in late 2009 the city received federal stimulus funds to help with completion of the project. The Fishermen's Terminal will provide a fish offloading area, seafood market and café, as well as receiving and processing space for two businesses.

The Eureka fishing community is strengthened by the political will of its citizens and leaders, and existing and future infrastructure assets such as two well-maintained harbors, a boatyard and

fuel station, and the developing Fishermen's Terminal. These features lend the Eureka fishing community a degree of resilience that may enable it to effectively address the challenges and opportunities ahead.

Noyo/Fort Bragg: As fishing activity has declined over the last 30 years, so has the Noyo Harbor District's revenue base, making it difficult to maintain and improve infrastructure, while costs, particularly for dredging and dredge material disposal, have become significant both for the harbor district, and Dolphin Isle Marina. Use of other infrastructure, including receiving stations, fuel docks and the ice plant, which are privately owned, has declined as well, leading to reductions in the number and types of support businesses. With only a core group of support businesses remaining, fishery participants are concerned about the potential for further loss of infrastructure, and its implications for the viability of local fisheries and the fishing community. The need for dredging is acute for fishermen and others who depend on Noyo for provisions, services and refuge from often dangerous ocean conditions along this isolated stretch of the North Coast.

While these issues pose serious challenges to the viability of the Noyo fishing community, they have also motivated individuals, families and businesses to identify opportunities for sustaining their livelihoods and heritage.