

Southwest Fisheries Science Center Tiburon Laboratory

National Marine Fisheries Service
Southwest Fisheries Science Center
Tiburon Laboratory
3150 Paradise Drive
Tiburon, CA 94920

Laboratory Objectives

The Tiburon Laboratory is a component of the National Marine Fisheries Service (NMFS), Southwest Fisheries Science Center. Its principal mission is to study groundfish life cycles, population dynamics, and fisheries.

Research at the Laboratory is divided into several investigations: Groundfish Analysis, Groundfish Communities, Groundfish Physiological Ecology, and Underutilized Resources. The Tiburon Laboratory also uses aquarium facilities at the University of California's Bodega Research Laboratory at Bodega Bay.

Personnel

- Dr. Alec D. MacCall, Director
- Dr. William H. Lenarz, Groundfish Analysis Investigation
- Dr. Edmund S. Hobson, Groundfish Communities Investigation
- Dr. Jeannette Whipple, Physiological Ecology Investigation
- Susumu Kato, Trade and Industry Services

Areas of Expertise

The Groundfish Analysis Investigation provides stock assessments of rockfish (*Sebastes* spp.) to the Pacific Fishery Management Council. This Investigation also studies the causes of variability in recruitment and abundance of rockfish stocks, and is working to develop a capability to predict fluctuations.

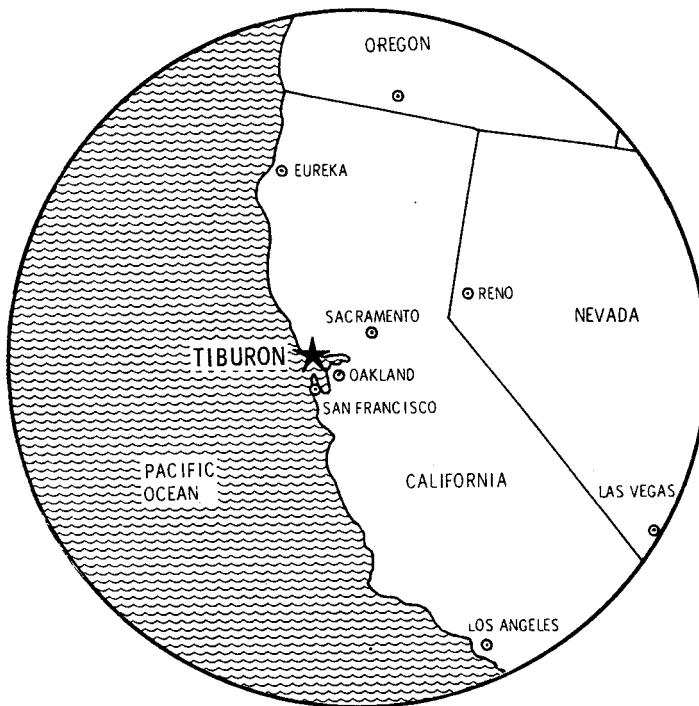
The latter functions involve annual midwater trawl surveys of juvenile rockfish abundance off central California, determination of birthdates from examination of daily rings on otoliths, and analysis of oceanographic processes and conditions.

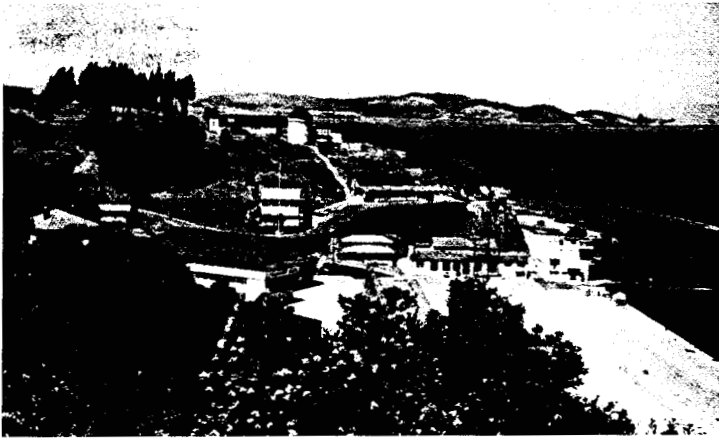
The mission of the Groundfish Communities Investigation is to study the effects of environmental change on the distribution, abundance, and recruitment of groundfish species, including regular seasonal transformations of habitat as well as changes associated with irregular environmental events such as El Niño. Emphasis is on how these changes affect interspecific relationships, particularly those between predators and prey. Information comes from nearshore underwater observations and collections with SCUBA, and also from bottom trawl and ROV operations in deep water. Personnel from this Investigation also study the life history and status of lingcod off California.

The Physiological Ecology Investigation is responsible for the assessment of the general physiological health of groundfish populations, and is developing an understanding of the relationships between physiological health and population productivity. This Investigation examines fish for caloric content, lipid content, gonadal development, and presence of disease and contaminants.

Fishery investigations that are not specifically associated with groundfish are conducted by a separate investigation under the Director's Office. This includes assessments of salmon runs from the Klamath and Sacramento rivers, studies in fisheries economics, and investigation of fisheries and resource issues surrounding dredge spoil disposal in the Gulf of the Farallons.

Susumu Kato, a fishery biologist associated with the Southwest Region of NMFS, researches uses of underutilized species at Tiburon Laboratory. Two recent projects include the devel-





The Tiburon Laboratory is located north of San Francisco on the west side of San Francisco Bay.

opment of a local hagfish fishery to produce leather products, and application of "bonesoftening" technique to shortbelly rockfish, *Sebastes jordani*, to improve use of this species as food.

Laboratory Features

The Tiburon Laboratory is located on the largest bay-estuary system on the West Coast: San Francisco Bay. The Laboratory is only 6 miles from the

Golden Gate, providing easy access to coastal waters and the continental shelf. The San Francisco metropolitan area is close, as are a number of major universities and colleges such as the University of California campuses at Berkeley, Davis, and Santa Cruz; California State University campuses at San Francisco, Hayward, San Jose, and Sonoma; and Stanford University in Palo Alto.

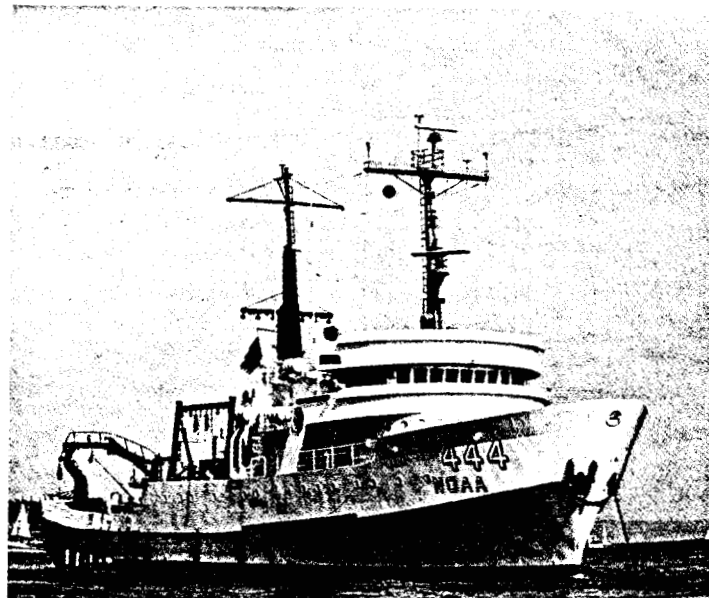
Laboratory History

In 1961 the Bureau of Sport Fisheries and Wildlife (Department of the Interior) established a Marine Sport Fish Laboratory at Tiburon. The Laboratory's small staff occupied one of the buildings on a large tract of government land. The site was formerly used as a codfish packing plant (1877-1904), as a coaling station by the U.S. Navy (1904-31), as a Maritime Academy (1931-40), and as an Anti Submarine Net Depot (1940-58.) The Sport Fish Laboratory carried out research on game fish migration and on the ecology and behavior of coastal fishes.

In 1970 the Laboratory was trans-



Tiburon Laboratory divers conduct rockfish population counts off the Sonoma and Mendocino County coastlines.



Southwest Fisheries Science Center's research vessel, *David Starr Jordan*.

ferred from the Department of the Interior to the Department of Commerce to join with a number of ocean-oriented federal agencies in the newly-established National Oceanic and Atmospheric Administration (NOAA) and became part of the National Marine Fisheries Service. Research efforts broadened to include studies on market fishes and their associated fisheries, as well as recreational fishes.

After the changeover to NOAA, the Tiburon Laboratory was initially a part of the NMFS Southwest Region based at Terminal Island, California, but in 1975 it became a component of the Southwest Fisheries Science Center, one of four regional research centers in the National Marine Fisheries Service. The Southwest Fisheries Science Center oversees research in laboratories at La Jolla, Honolulu, Monterey, and Tiburon. In 1975 the Tiburon Laboratory declared excess 35 unused acres

and associated buildings, which were officially transferred to San Francisco State University in 1977. That property currently houses the University's Romberg Tiburon Centers, including the Tiburon Center for Environmental Studies.

As a result of the passage of the Fisheries Conservation and Management Act in 1976, increased emphasis was placed on research directly applicable to fisheries management. During the 1980s, the Tiburon Laboratory developed a coordinated multidisciplinary program focusing on the rockfishes and their fisheries. This program combines the strengths of progressive quantitative stock assessment methods with an ecosystem approach on one hand and a physiological ecology approach on the other. The result is to provide an exceptionally complete understanding on which to base management decisions.

Cooperating Agencies

Groundfish and salmon fishery research conducted by the Tiburon Laboratory benefits from cooperation with the California Department of Fish and Game, San Francisco State University, the University of California at Davis, and its Bodega Marine Laboratory. The Tiburon Laboratory's habitat and ecosystem research is conducted in collaboration with the University of Southern California, the University of Hawaii, the Gulf of the Farallones Marine Sanctuary, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Environmental Protection Agency. In addition, laboratory scientists work with independent academic groups such as the Point Reyes Bird Observatory, and with public interest, fishermen's and conservation organizations such as the Tyee Club.

Alec D. MacCall