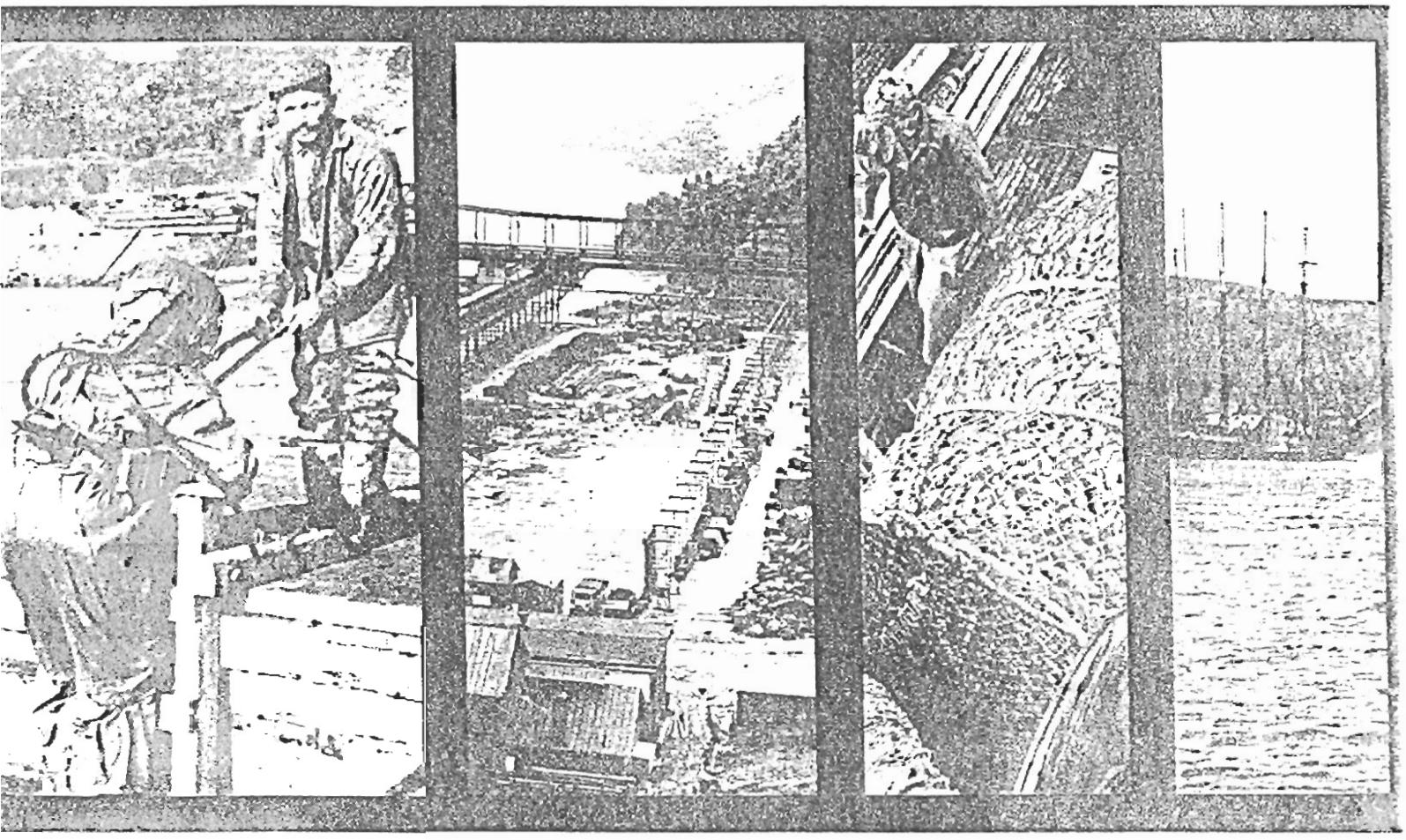
NOAA'S FISHERY RESEARCH LABORATORY AT TIBURON: HISTORY OF THE SITE AND PRESENT ACTIVITIES

by Susan Smith



NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES CENTER
3150 PARADISE DRIVE
TIBURON, CALIFORNIA 94920

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HISTORY OF THE NOAA TIBURON BASE

The varied and colorful history of the bayside land along the east shore of the Tiburon Peninsula, now occupied by the National Oceanic and Atmospheric Administration (NOAA) and San Francisco State University, can be traced back to the early 19th century. The wooded sloping tract of land and small cove it encompasses have been known to local residents over the years as the codfishery, the Coaling Station, California City, the Nautical School, the Net Depot, and the Tiburon Oceanographic Center. The deepwater cove has from time to time harbored ships carrying such varied cargo as cod from Alaska; coal; redwood logs from the North Coast; reels of steel wire cable; anti-submarine nets; marine biological specimens; and gold, manganese, and other minerals from the ocean floor. Presently, NOAA's Tiburon Laboratory, a component of the National Marine Fisheries Service (NMFS), conducts research here on coastal fisheries. Also occupying the base is San Francisco State University's Tiburon Center for Environmental Studies. The following is a chronology of events and occupants of the base since the early 19th century.

The Early Days Prior To 1817

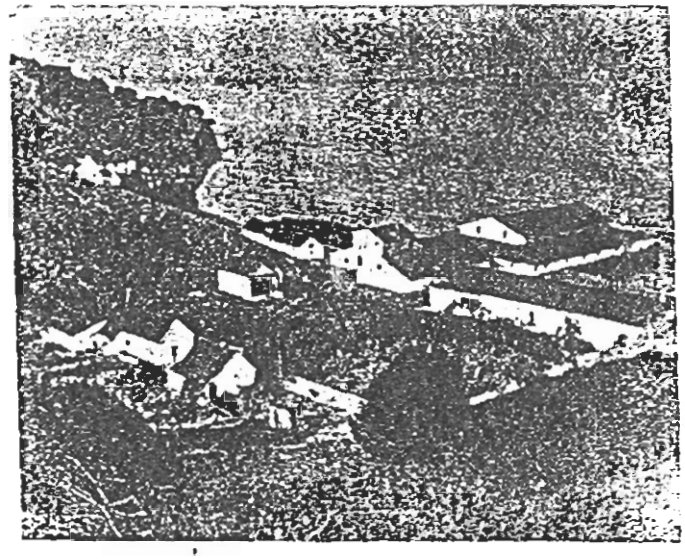
The cove was once the site of a Coast Miwok Indian village inhabited by Indians of the Coon Tribe, so named by white men because of their headgear of raccoon skins. After Mission San Raphael was established in 1817, the Indians cultivated gardens and tended livestock for the mission in exchange for food, clothing, and protection. Later, a brick kiln was operated here (some of the bricks can still be seen at low tide along the small beach adjacent to the main dock area).

1834-1884: Cattle Ranch

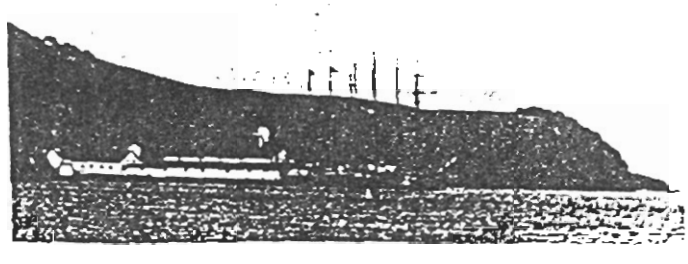
The property became part of a Mexican land grant, Rancho Corte de Madera del Presidio, which encompassed the entire Tiburon Peninsula. Most of the peninsula land was operated first as a cattle ranch, then as dairy ranches. Later, heirs of the original grantee, John Reed, sold parcels of the rancho to businesses and individuals.

1877-1904: Codfishery

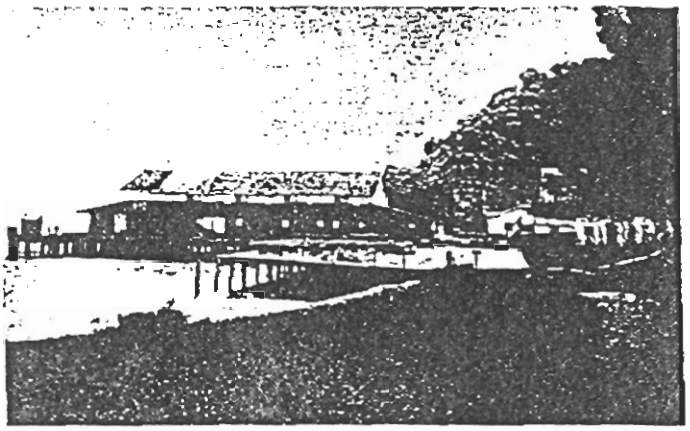
The pioneer codfish firm of Lynde and Hough bought the cove property in 1877 and established one of the largest cod-drying, curing, and packing plants on the West Coast. The company built the first wharf and a two-story warehouse to receive shipments of fish to be processed for world markets. Tons of codfish caught on the Alaskan Banks were brought here by large fishing schooners, then placed on racks in the sun for curing and drying before being packed for market.



The Lynde and Hough codfishery looking north, 1904 (courtesy Mrs. F. P. Tompkins and the Belvedere-Tiburon Landmarks Society).



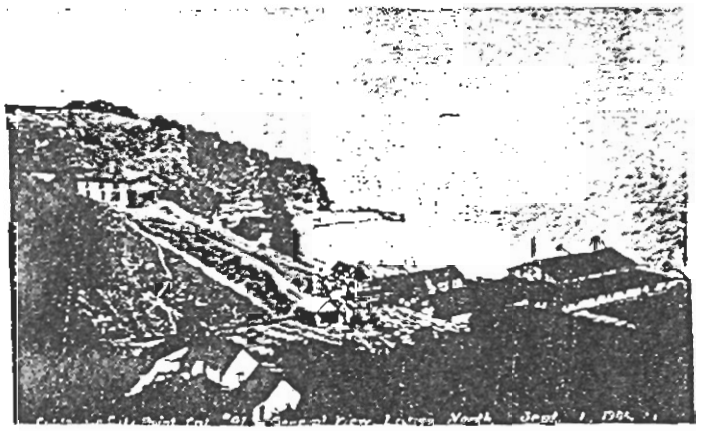
Ships unloading cod at the Lynde and Hough codfishery circa 1904 (courtesy S.F. Maritime Museum).



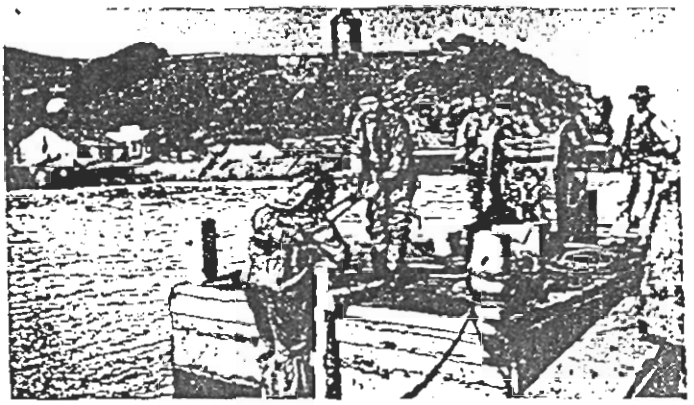
The codfishery wharf looking south March 6, 1906, before construction of the Coaling Station trestle (courtesy Navy Dept., National Archives).

1904-1931: Coaling Station

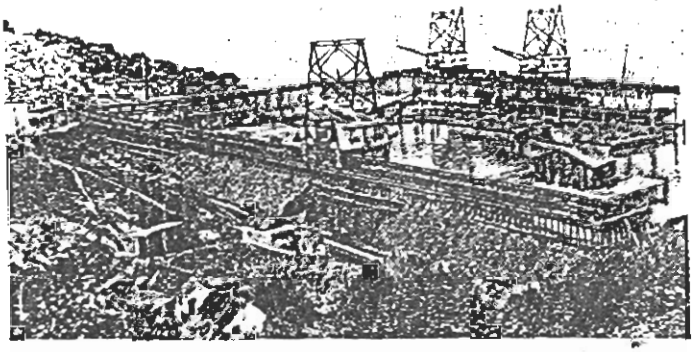
In 1904, the Federal Government bought the property from the Lynde and Hough Company for $80,000 to use as a Navy Coaling Station. Four years later, the station began operation after construction of an L-shaped wharf-trestle, coal hoisting tower, storage bunkers, cable railway, and power plant. Steaming coal was shipped here on colliers from the East Coast at an average cost of $7 a ton (the going price in 1910), and thousands of tons were stored in bunkers to await Navy ships that came here to refuel. Franklin D. Roosevelt, then Assistant Secretary of the Navy, visited the station in 1915. The station closed down circa 1930 when oil replaced coal as ship fuel.



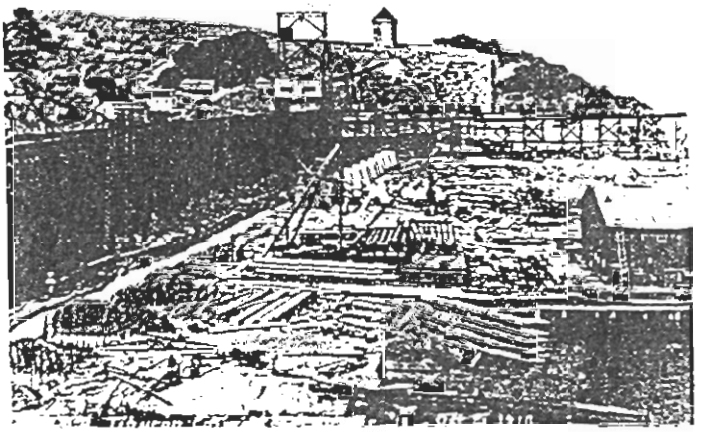
General view of the cove (looking north) during early construction of the Navy Coaling Station, Sept. 1, 1906 (courtesy Navy Dept., National Archives).



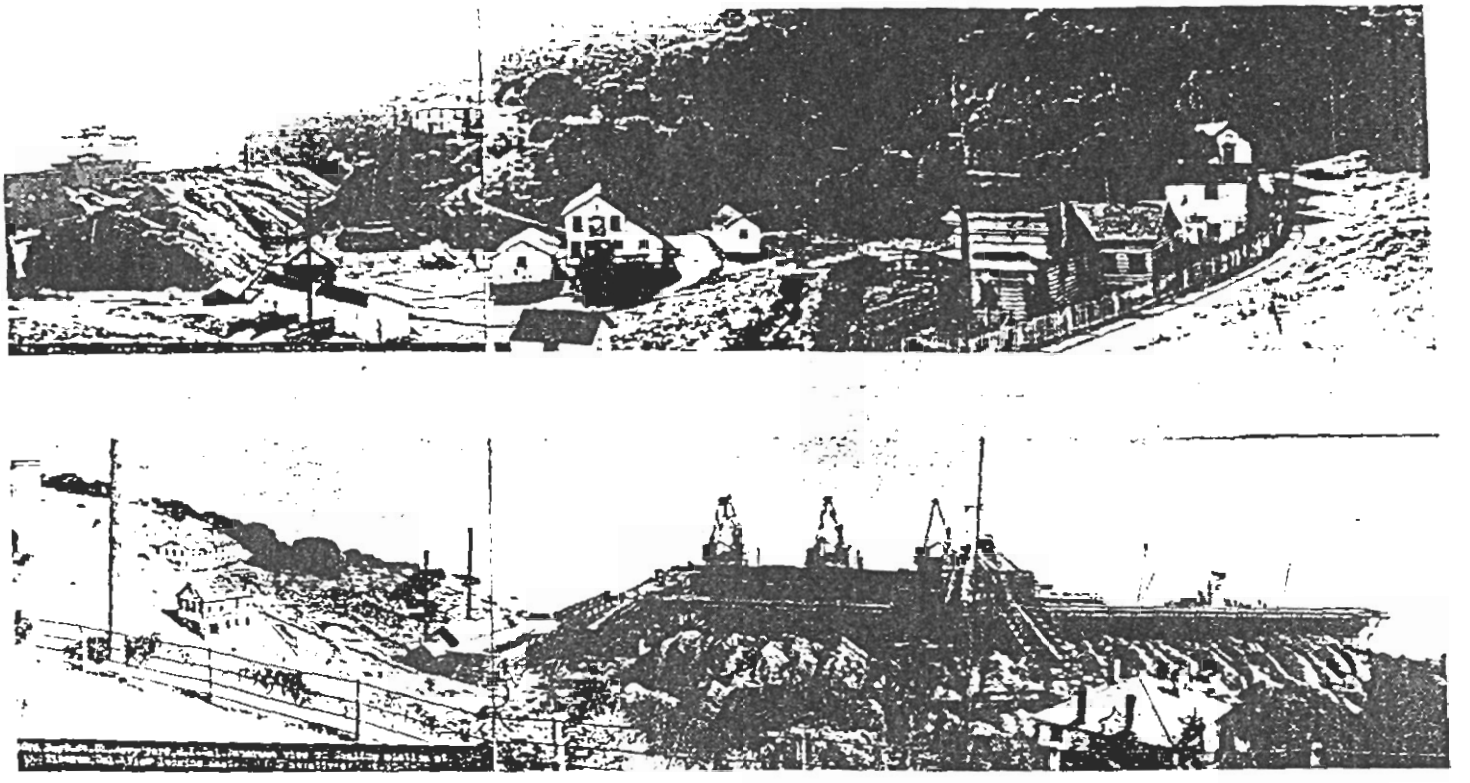
During early Coaling Station construction of L-shaped main pier (before trestle superstructure installed), hard-hat diver lumbers into water while air crew looks on (photo c. 1907). Water tank in the background still stands today (courtesy Belvedere-Tiburon Landmarks Society).



The Coaling Station in 1909, looking northeast (courtesy Belvedere-Tiburon Landmarks Society).



Coaling Station under construction (October 2, 1910). Remains of part of the codfishery wharf can be seen on the right (courtesy Belvedere-Tiburon Landmarks Society).



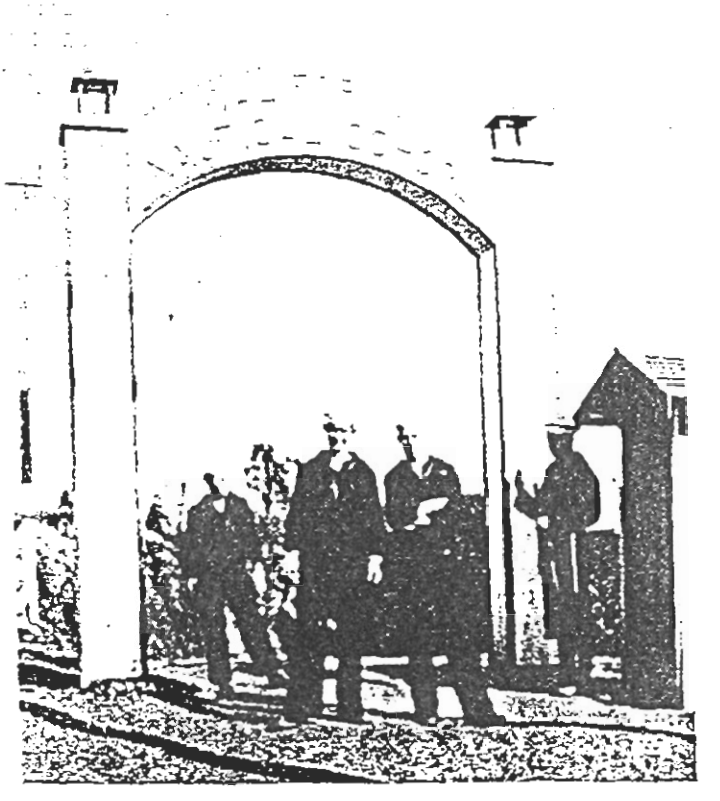
Top panoramic views of the Navy Coaling Station, October 30, 1919. Top view looking south; bottom view looking east from Paradise Drive. (Courtesy Navy Dept., National Archives).

Also, during the 1920's the north dock area was the site of a lumber-receiving operation. Logs were brought in by coastal lumber schooners and stockpiled for reshipment east on larger ships.

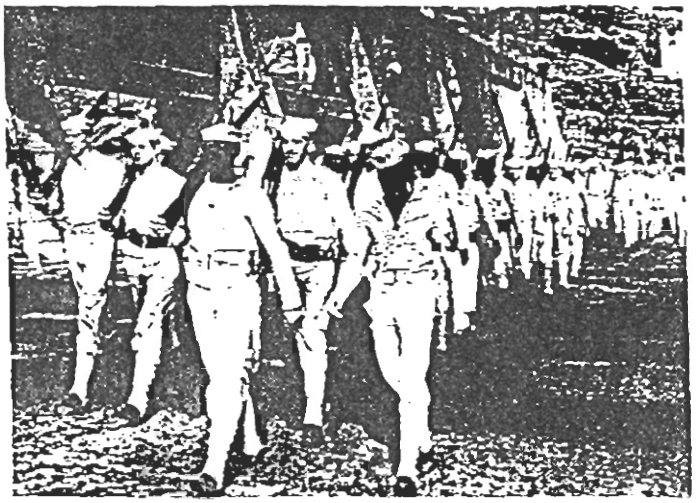
1931-1940: Nautical School

In 1931, the base was loaned to the State of California, which established here its first nautical training school. This school (later the California Maritime Academy) trained men as Merchant Marine officers, graduating its first class in 1933. With the outbreak of World War II, the U.S. Government reappropriated the site for use by the Navy, and the Maritime Academy relocated south of Vallejo.

During construction of the Golden Gate Bridge in the 1930's, John A. Roebling's Sons Company used the north warehouse to reel cables for the bridge. The steel wire was wound and reeled, then barged to the Gate. Today masses of tangled wire are still visible partially submerged off the north dock.

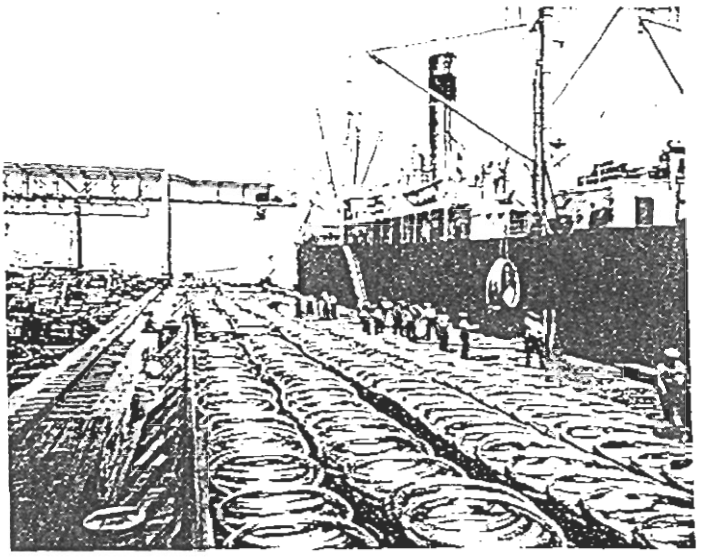


Nautical School cadets at the Main Gate on Paradise Drive, 1932 (courtesy California Maritime Academy).



Nautical School cadets marching next to the coaling station trestle, c. 1934 (courtesy California Maritime Academy).

sent bulkhead along the shore of Paradise Park is made up of the large concrete submarine net weights from the Net Depot days.



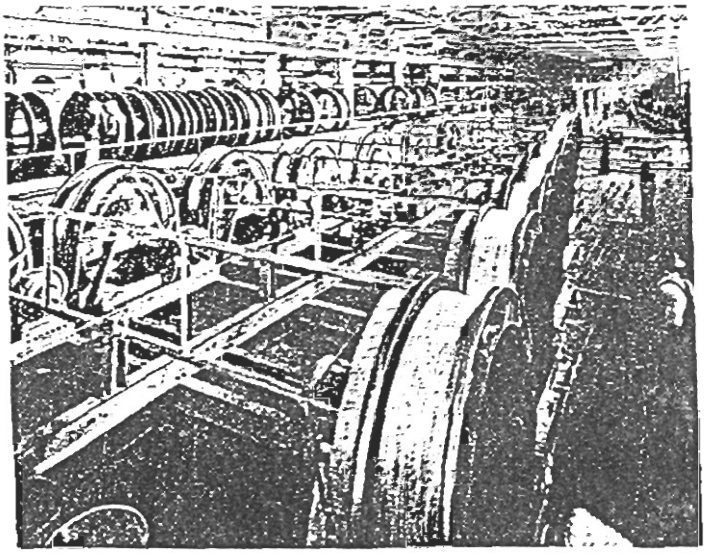
Roebling Co. operation showing unloading of wire alongside the north dock. The wire was wound into cables and reeled, then shipped to the construction site (c. 1935).

1940-1958: The Net Depot

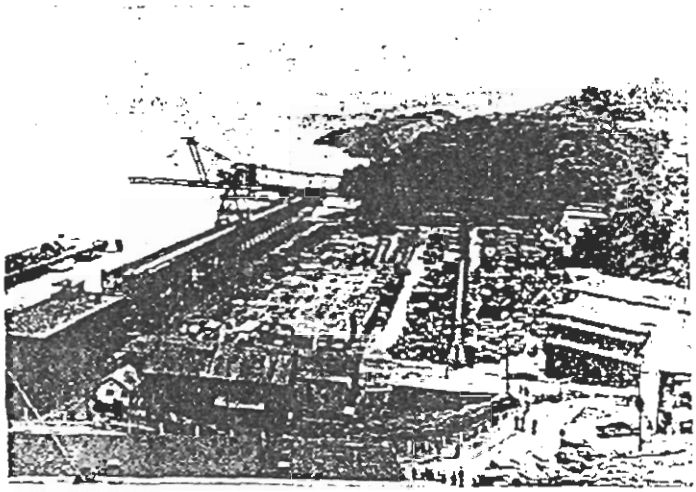
With World War II threatening the United States, the Navy reclaimed the base (along with the 6-acre Roebling property) to use as a storage and distribution center for anti-submarine and anti-torpedo nets. The nets were sent from here to Navy bases all along the West Coast and across the Pacific. Here, too, men were trained in the assembly, use and on-site installation of these nets. The biggest job faced by Depot personnel during this time was the laying of a anti-submarine net 7 miles long and 6,000 tons in weight across the entrance to San Francisco Bay.

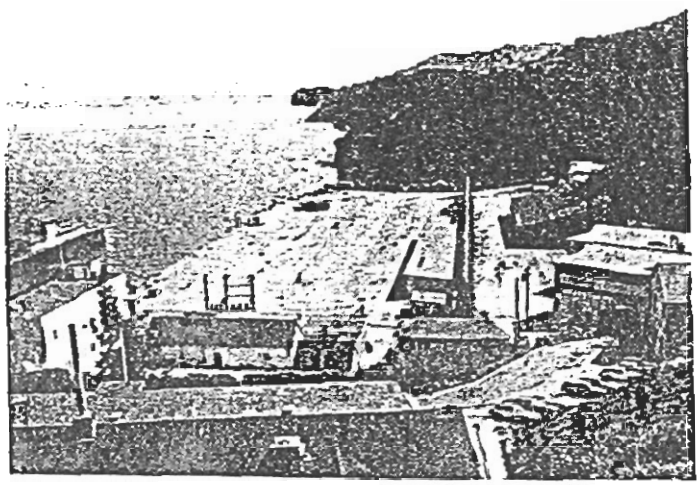
U.S. Naval Command later presented the Net Depot with a citation for completing the Golden Gate net and installing it before December 7, 1941. The citation stated that the net contributed significantly to the defense of the West Coast during the war.

Although the Depot was reactivated during the Korean War, it finally closed down in 1958 and part of the property was returned to the public. This newly-acquired public land became two new county parks--Tiburon Uplands and Paradise Beach Park. The pre-

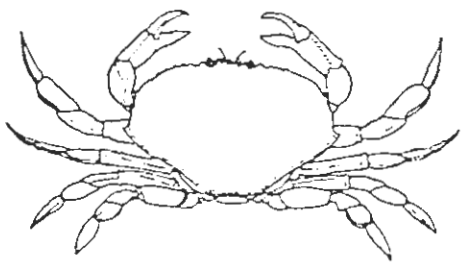


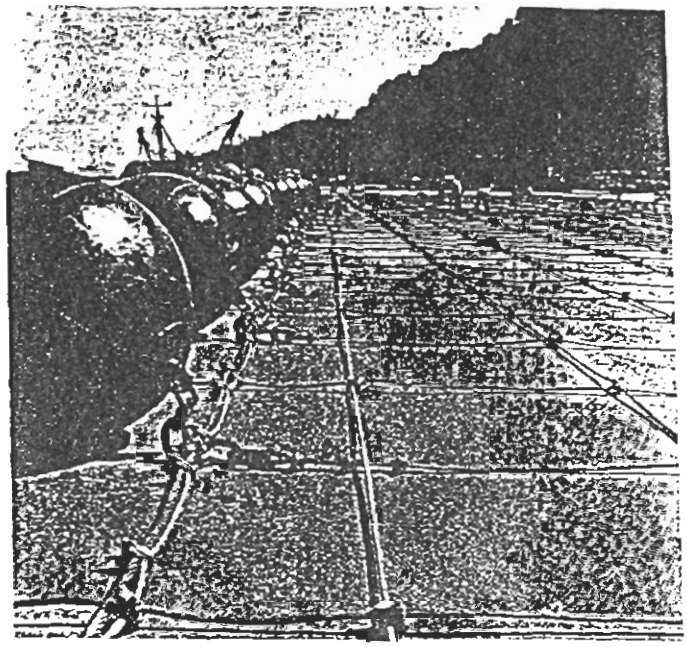
Roebling Co. reeling shed, where cables for the Golden Gate Bridge were wound and reeled (c. 1935).





In the early Net Depot days (Top), the old coaling station railway-gantries were still used from time to time to shift around the heavy anti-submarine nets. Later, the gantries were removed and by 1981 only the concrete trestle remained (Bottom). Buildings in the foreground are now occupied by NOAA's Tiburon Laboratory, a component of the National Marine Fisheries Service's Southwest Fisheries Center.



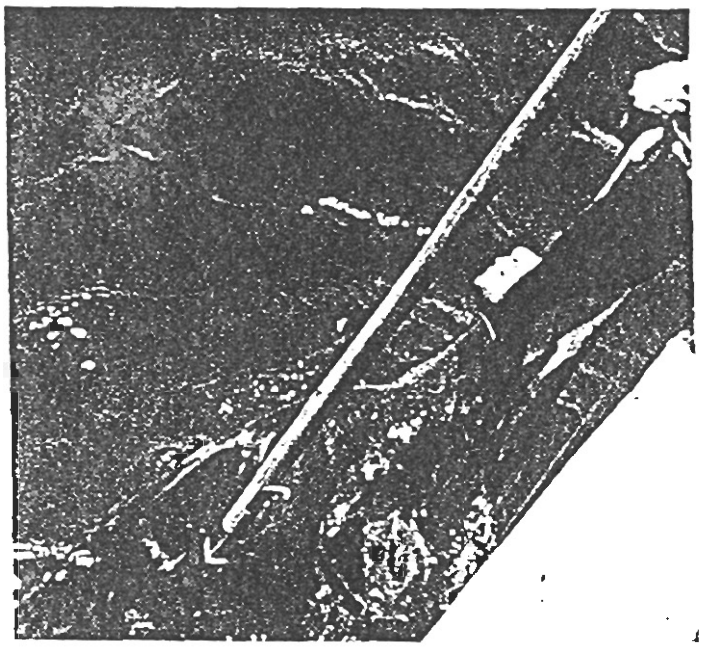


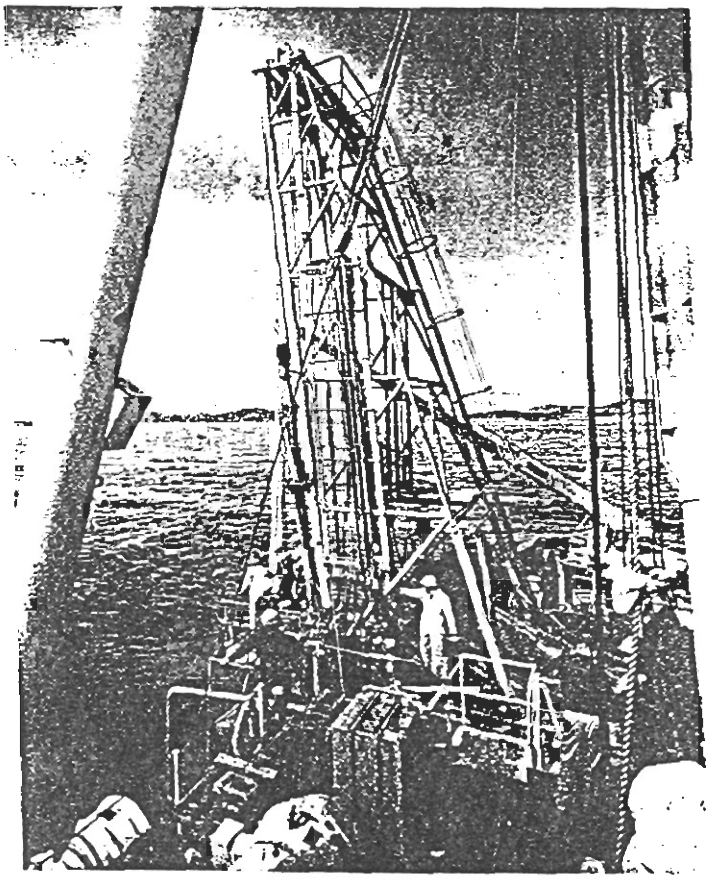
Men working on submarine nets at dockside during the Net Depot days (1940-1958, photo date not known).

1961-1970
Tiburon Marine Laboratory and Marine Minerals Center

The Department of the Interior, U.S. Bureau of Sport Fisheries and Wildlife (BSFW), established the Tiburon Marine Laboratory on base in 1961. This laboratory was the predecessor of the present Southwest Fisheries Center - Tiburon Laboratory (NOAA). Scientists at the Laboratory conducted research on migratory marine game fishes, and made periodic aerial sea-surface temperature surveys in cooperation with the U.S. Coast Guard. Biologists working for the Bureau's Fish Pesticide Research Facility (Columbia, MO) were also stationed here and conducted research on the effects of pesticides on local fishes. At intervals from the late 1950's to 1967, the U.S. Naval Electronics Facility was located on the base.

Marine Minerals Technology Center [MMTC] (Department of Interior, Bureau of Mines) joined the Tiburon Marine Laboratory on base in 1963. Using the research vessels, Virginia City and Grass Valley, oceanographers and geologists from MMTC tested and sampled minerals from the ocean floor. Exploratory cruises were made as far up the coast as Alaska.





The U.S. Fish and Wildlife Service and U.S. Bureau of Mines occupied buildings on base during the 1960s---the former conducting research on migratory marine gamefish (Top) and the latter on exploratory ocean mining (Bottom).

1970-1980
The First NOAA Decade

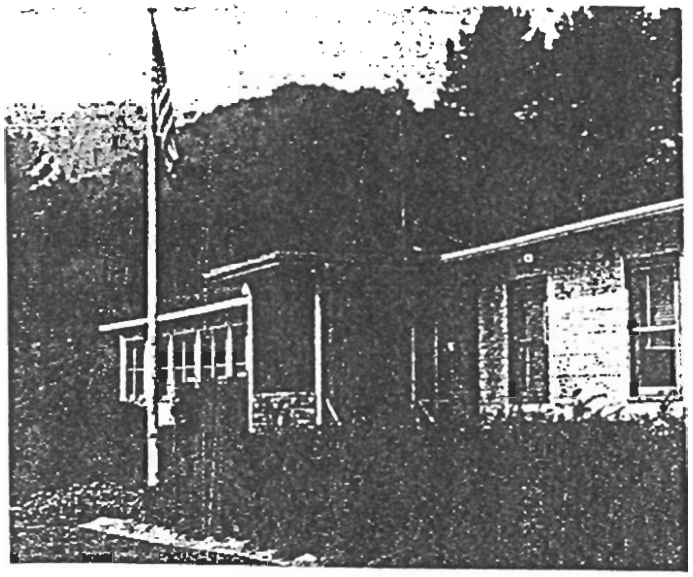
On October 4, 1970, both the Marine Minerals Technology Center and the Tiburon Marine Laboratory were transferred from the Department of Interior into the Department of Commerce, to join together with a number of other marine-oriented Federal agencies under the newly-established National Oceanic and Atmospheric Administration (NOAA). Although the Marine Minerals Technology Center closed 3 years later, the Tiburon Laboratory continued its work under NOAA's National Marine Fisheries Service (NMFS), broadening its research efforts to include studies on commercial fishes and their associated fisheries. A highly sophisticated seawater system was installed in one of the Laboratory's buildings in 1972. Completion of the system, which provided large volumes of clean salt water to laboratory aquaria at a constant but adjustable temperature and salinity, enabled biologists at the Laboratory to begin controlled laboratory experiments on the chronic effects of pollutants on the physiology of fishes.

In 1975, the Laboratory became part of NMFS' Southwest Fisheries Center (SWFC)--a regional complex of four U.S. Government marine laboratories operating out of California and Hawaii, and headquartered at La Jolla, California. The Laboratory's main offices were moved into new quarters on the Tiburon Base; other buildings nearby were renovated and occupied, and the unused 35-acre portion of the base declared excess property. In succeeding years, computer terminal facilities were installed, the staff expanded, and the Laboratory's research library was reorganized and improved. After the passage of the Fisheries Conservation and Management Act in 1976, increased emphasis was placed on research that could be applied to fisheries management.

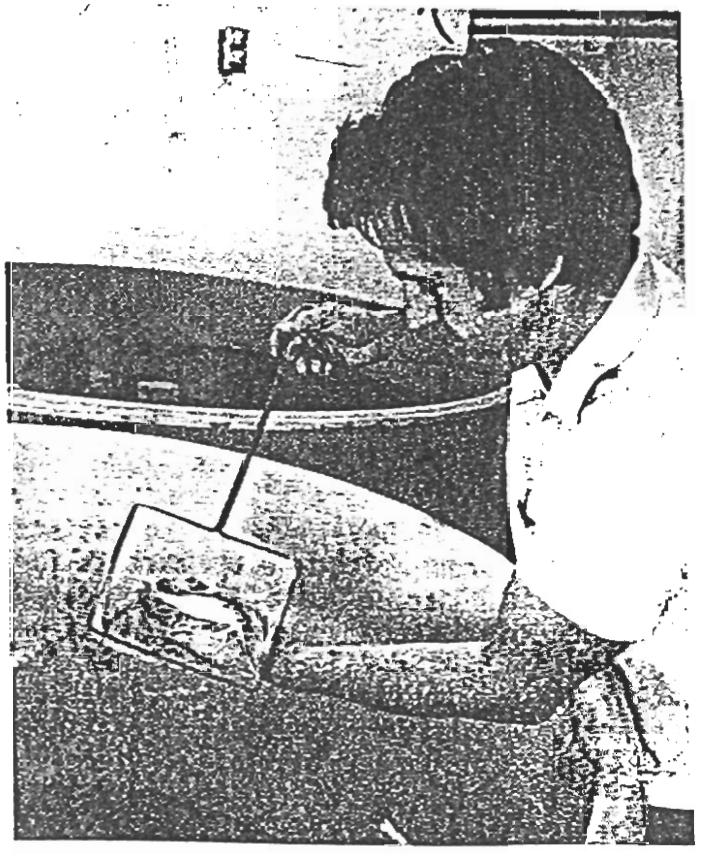
In May 1977, the parcel of surplus land adjoining the Tiburon Laboratory was officially transferred to San Francisco State University, which established its Tiburon Center for Environmental Studies here in 1978.

1981: Recent Activities

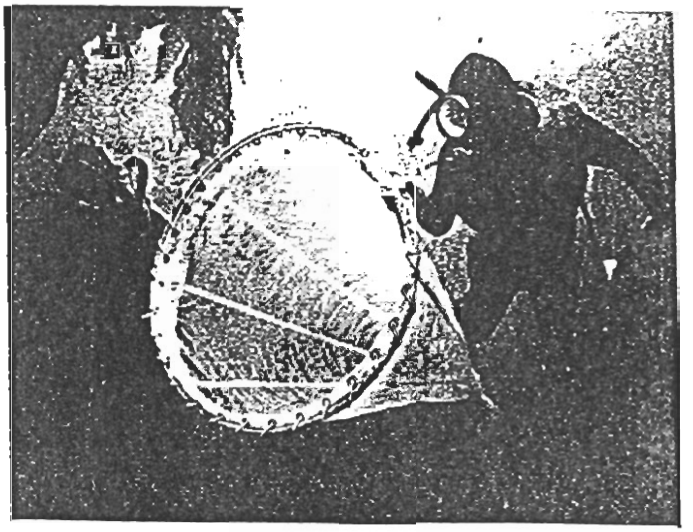
Tiburon Laboratory (NMFS): Research efforts at the Tiburon Laboratory are presently organized under three programs or investigations: Physiological Ecology, Coastal Fish Communities, and Fisheries Development Investigations. The Physiological Ecology group conducts laboratory

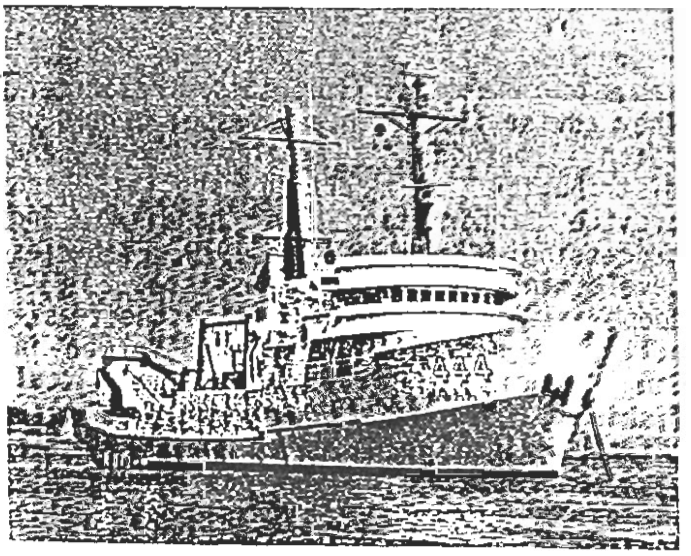


Administration headquarters for NOAA's SWFC-Tiburon Laboratory.



NOAA scientists with the Tiburon Laboratory's Physiology group are studying how chronic exposure to certain pollutants may affect the ability of fishes to feed, reproduce, and maintain immunity to disease and parasite infestation. Researcher is shown above transferring a young striped bass to a test tank.



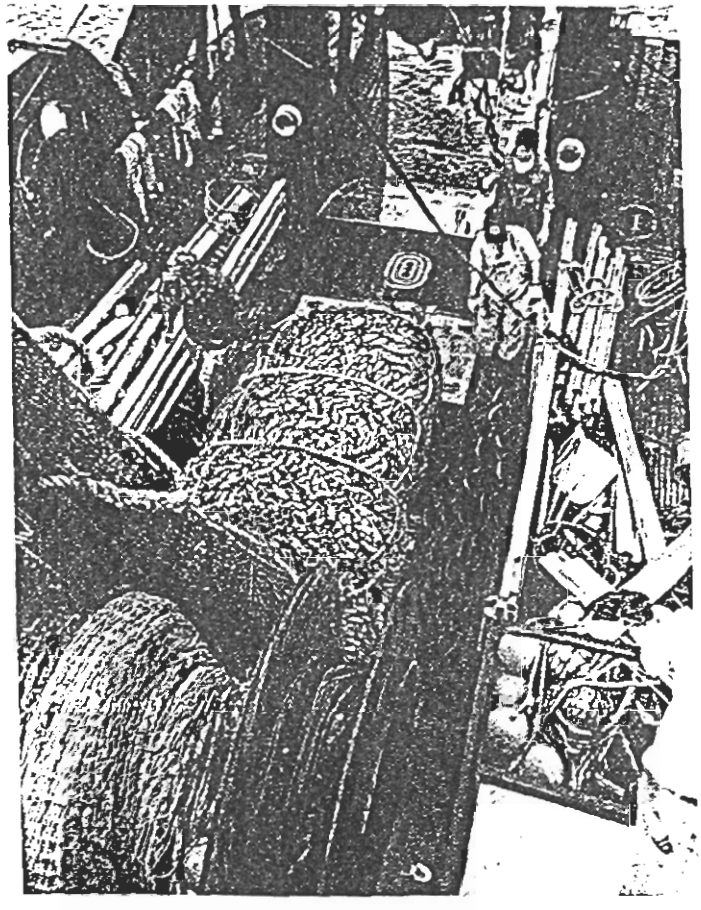


NOAA divers collect the potential prey of certain inshore fish species as part of a study of biological interactions among members of fish communities. Offshore fish communities are sampled from NOAA research vessels, like the David Starr Jordan, pictured above.

research on pollution physiology and ecology (with current emphasis on striped bass), fish bioenergetics, physiology of early life stages of fishes, and chronic effects of petroleum components on fish physiology and reproduction. Scientists working with Coastal Fish Communities study the ecological relationships, population dynamics, and life histories of important fish species. Their work, which centers on rockfishes (Sebastes spp.), is based on direct observations and collections made in the natural environment using SCUBA equipment, and also on specimens collected from research vessels and from the catches of commercial and recreational fishermen. In order to understand and define major changes in the behavior and distribution patterns of these fishes, collections are made both day and night during all seasons. Information is gathered on the abundance, age, growth, and feeding of the fishes under study, as well as on the availability and selection of their prey. Much of this work is in direct support of the Groundfish Management Plan of the Pacific Fishery Management Council.

Fisheries Development scientists are studying foreign and domestic market demands relating to underutilized fishery resources, and assisting in the development of fisheries for these resources. They advise fishermen and vessel owners on catch methods, availability, and distribution of certain species, and provide information on handling and processing. From 1974 to 1979, Fisheries Development biologists assisted in a cooperative study investigating the feasibility of stocking pen-reared salmon in San Francisco Bay to improve local fishing. Over 200,000 young coho and chinook salmon were reared in salt water pens and released into the Bay during this period. The project is now being continued by a local sportsmen's organization (San Francisco Tyee Club).

Also stationed at the Tiburon Laboratory are biologists from the National Marine Fisheries Service's Environmental Assessment Branch (EAb) for northern California. EAB scientists review and comment on proposals for both governmental and privately-sponsored water and land development projects that may adversely affect marine, estuarine, and anadromous fish. They also provide technical advice and assistance to permit applicants and regulatory agencies involved in these projects. The Branch is under NMFS' Southwest Regional Office, which is located at Terminal Island, California.



NOAA's Fishery Development scientists based at Tiburon help develop markets for underutilized marine species and advise fishermen on catch methods and fish distribution. Shown above is a large catch of shortbelly rockfish (Sebastes jordani), a large, presently unfished resource in offshore waters of California.

Personnel from Scripps Institution of Oceanography are also located at the Laboratory, under contract with NOAA's National Climate Program and the Navy Department to supply and service sea temperature-recording devices for use on large ships plying the Pacific shipping lanes. These data are being gathered in order to obtain needed information on the thermal structure of the Pacific Ocean.

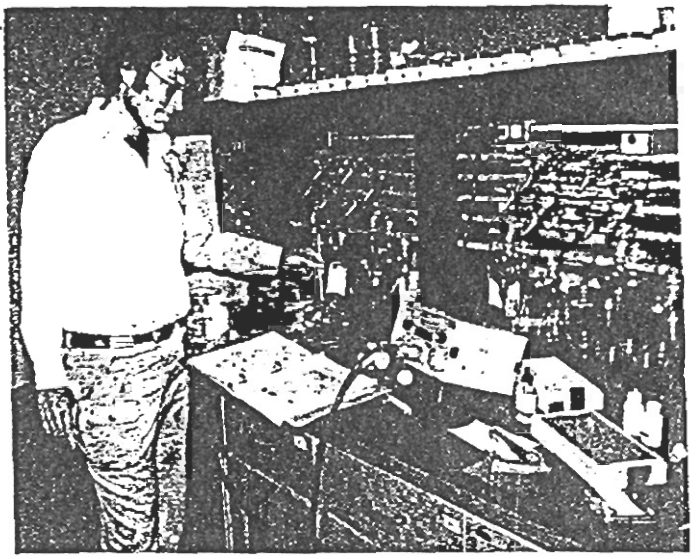
San Francisco State University (TCES):

The Tiburon Center for Environmental Studies (TCES) was founded in 1978 to serve as a base for a multi-disciplinary approach to the solution of San Francisco Bay Area environmental problems by monitoring, modeling, and analyzing the physical, economic, social, and cultural variables involved. To realize these goals, the Center staff is active in San Francisco Bay ecosystem research, presents courses about the Bay environment, and is presently developing a data base and information referral center on San Francisco Bay and adjacent areas to make the information readily available to scientists, educators, planners, and the general public.

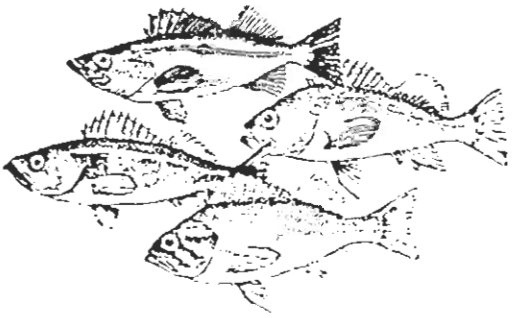
Ongoing investigations at TCES reflect a diversity of scientific disciplines. These include studies of terrestrial snail distributions in the western United States; metabolic rates of benthic organisms; restoration of fresh and saltwater marsh areas; the influence of toxic substances in San Francisco Bay striped bass; archaeological investigations of the Bay Area; plankton dynamics; and the classification, structure, evolution and distribution of sharks and rays.

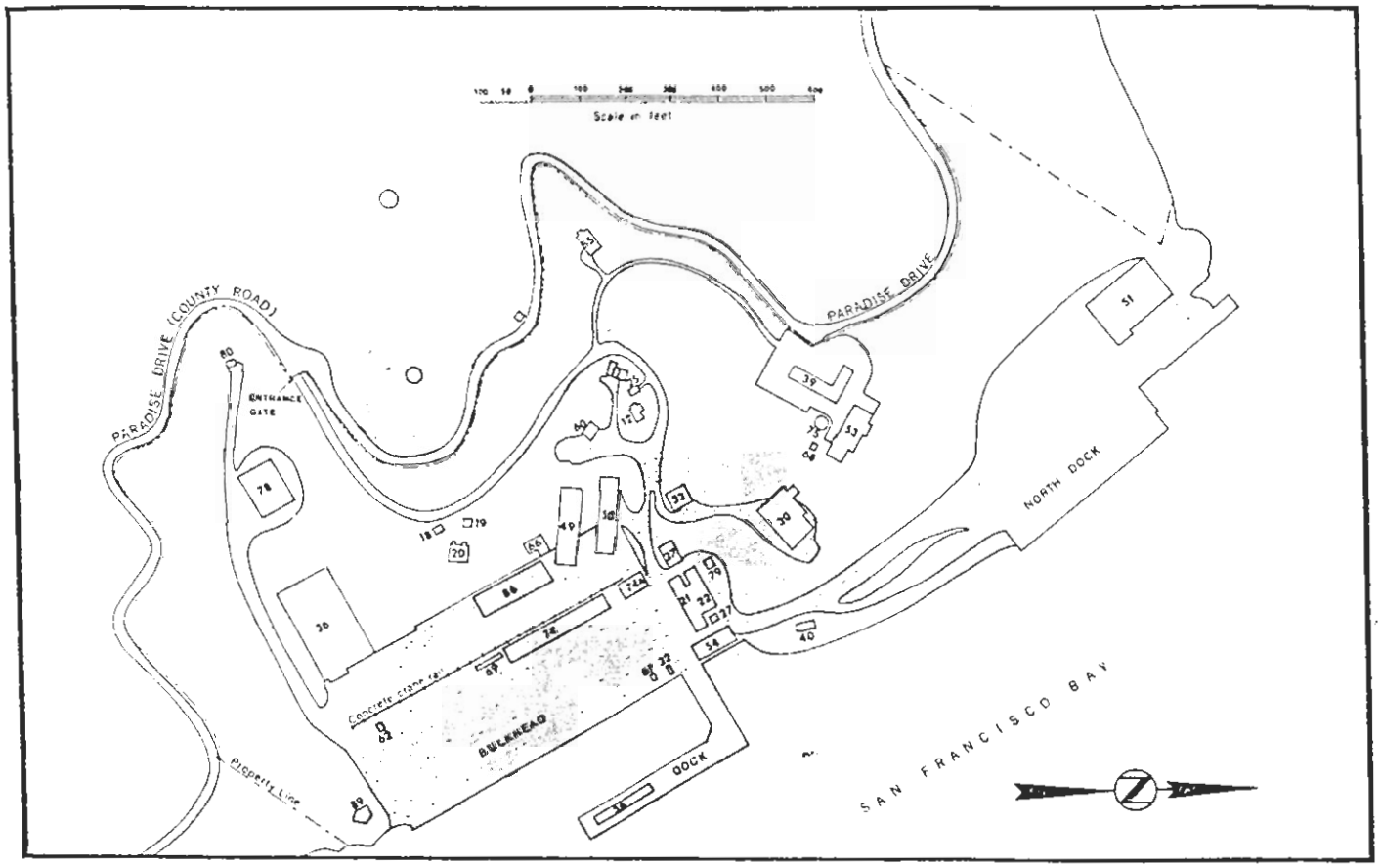
The educational component of the Center provides courses for the general public as well as for university students. The public-oriented courses include Ocean Life and San Francisco Bay Ecology while advanced students can participate in Plankton Ecology, Field and Laboratory Methods in Archaeology, Seminar on San Francisco Bay, Ecology of Estuaries and Lagoons, and Art from Urban and Natural Environments. The courses are offered both at TCES and on the campus of San Francisco State University. An ongoing part of TCES' educational program includes active participation in a jointly-sponsored seminar series between TCES and the National Marine Fisheries Service's Tiburon Laboratory.

(Acknowledgements to Louise Teather, Tiburon Landmarks Society, and Paula Smith (TCES) for providing information and critical review, and to Delores Fussy, Colleen Coultas, and Linda Bradley for typing the manuscript.)



San Francisco State University scientists at the Tiburon Center for Environmental Studies are engaged in a variety of research pursuits, which include laboratory studies of the dynamics and metabolism of plankton and seabed organisms and studies of shark distribution and classification.





Plan of NOAA's Tiburon facility. Shaded areas indicate NOAA's portion of the property--unshaded areas are buildings and property under the jurisdiction of San Francisco State University. Most of the existing buildings were constructed during the Navy Net Depot days. Structures remaining from the Coaling Station period are the concrete monorail, the water tower (75) and buildings 12, 19, 20, 22, 25, 30 (part) and 33. Building 51 was built in 1933 on the north dock by Roebling and Sons to use as a bridge cable winding and reeling shed. Approximately one-half of the original building was destroyed in a slide ca. 1949. Building 78, a Butler-type structure, was dismantled in 1976 and shipped to Roseville, N.M. for use as a schoolhouse.