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Coastal Inlets Research Program

Humboldt Bay, California, Entrance Channel

Report 1: Data Review

Steven L. Costa and Karen A. Glatzel

September 2002

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Report 1: Data Review

by Steven L. Costa, Karen A. Glatzel

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Preface

This data review for the Humboldt Bay, California, Entrance Channel was conducted by GDC, LLC, Trinidad, CA, for the U.S. Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL), Vicksburg, MS. This report was prepared by Dr. Steven L. Costa and Dr. Karen A. Glatzel, GDC, under the general direction of Dr. Adele Militello, formerly of the Coastal Hydrodynamics Branch (CHB), CHL. Work was performed under the Inlet Modeling System (IMS) Work Unit of the Coastal Inlets Research Program (CIRP), Headquarters, U.S. Army Corps of Engineers (HQUSACE). Dr. Nicholas C. Kraus was the CIRP Program Manager, and Dr. Militello was Principal Investigator for the IMS Work Unit. Drs. Kraus and Militello performed a technical review of this report. At time of publication of this report, Ms. Mary A. Cialone, Coastal Processes Branch, CHL, was IMS Work Unit Principal Investigator. Word Processing and formatting were completed by Ms. J. Holley Messing. HQUSACE Program Monitors were Messrs. Charles B. Chesnutt and Barry W. Holliday.

Work within CHB was performed under the supervision of Dr. Zeki Demirbilek, Acting Chief, CHB. This project was performed under the administrative supervision of Mr. Thomas W. Richardson, Director, CHL.

At the time of publication of this report, Dr. James R. Houston was Director of ERDC, and COL John W. Morris III, EN, was Commander and Executive Director.

Conversion Factors Non-SI to SI Units of Measurement

Non-SI units of measurement used in this report can be converted to SI units as follows:

Multiply	By	To Obtain
cubic feet	0.02831685	cubic meters
degrees Fahrenheit	5/9	degrees Celsius or kelvins[1]
inches	0.0254	meters
knots (international)	0.5144444	meters per second
miles (U.S. statute)	1.609347	kilometers
square miles	2,589,998	square meters

[1] To obtain Celsius © temperature readings from Fahrenheit (F) readings, use the following formula: C = (5/9) (F-32). To obtain kelvin (K) readings, use: K = (5/9) (F – 32) + 273.15.

1 Introduction

The U.S. Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL), is conducting a study of the entrance to Humboldt Bay, CA, as a part of the Coastal Inlets Research Program (CIRP). The data review contained herein provides an inventory and review of available data to support the study. The data review includes historical and recent physical processes and engineering data describing Humboldt Bay and the adjacent littoral cell. The focus is on data and data sources related to physical oceanography (tides, wind, waves, currents, hydrographic structure, bathymetry), coastal processes, tidal inlet and beach dynamics, sand supply and budgets, structural modifications controlling the inlet entrance configuration, and dredging of the navigation channel.

Purpose

The purpose of the data review is to locate, identify, and catalog as large a portion of the available data as practicable in support of the inlet study of Humboldt Bay. The intent is to identify a database that will provide substantial information and knowledge needed to facilitate a successful and complete study of the inlet. Historic data and data sources are needed for the evaluation of the evolution of the inlet and anthropogenic influences during the past 150 years. Recent physical processes data and data sources are also needed for framing and simulating the existing physical dynamic attributes of the inlet. Only after both the past evolution and the existing properties of the inlet are understood can possible approaches to improvements be thoroughly investigated and identified.

The specific objectives of the data review are to:

a. Develop a bibliography of historical and recent physical processes and engineering studies.

b. Compile an inventory of available historical and recent data collections including aerial photos, maps and charts, physical processes and engineering studies, and databases and data compilations.

c. Compile a chronology of studies and engineering projects as they relate to the operation of the entrance and its dynamics and evolution.

d. Prepare a report documenting the contents, extent and locations of the various data sources, identifying data sources of particular interest to the inlet study, and provide selected information directly to CIRP investigators.

Background

Humboldt Bay is the only major harbor between San Francisco, CA, and Portland, OR, and remains the only safe harbor of refuge for more than 200 miles[1] either north or south along the coast. However, safe navigation through the entrance is compromised by an offshore bar and intense wave climate. Twin jetties stabilize the entrance, and channel depths are maintained by frequent dredging. During winter storms this entrance is particularly dangerous. Wave shoaling and strong currents in the entrance channel can be hazardous for inexperienced vessel operators even in good weather.

Improvements to the interior harbor channels were begun in 1881, and the first serious attempts at stabilizing the entrance were started in 1889. The high energy and dynamic behavior of the entrance resulted in many attempts to construct jetties, and substantial maintenance requirements of both the structures and the entrance channels have been required over the years. The system of interior channels also requires maintenance dredging, but predominantly at those reaches that are influenced by the entrance conditions.

Humboldt Bay consists of three distinct basins, as shown in Figure 1. Entrance Bay is directly east of the entrance channel and experiences waves that propagate through the entrance. Entrance Bay has been and remains a dynamic feature with active or recent erosion, channel filling, and spit building. Much of the shoreline of Entrance Bay has been armored. South Bay is located directly south of Entrance Bay and connected more by a constriction between the two features than a defined channel. North Bay (also referred to as Arcata Bay) is connected to Entrance Bay by a long relatively narrow maintained channel, the North Bay Channel. The North Bay Channel bifurcates into two maintained smaller channels, the Samoa Channel to the west and the Eureka Channel outer reach and inner reach to the east. Humboldt Bay has a small watershed, and the lack of significant riverine input minimizes the sediment load to the interior portions of the bay, except in a few localized depositional areas. For example, at the mouth of Freshwater Creek, localized deposition occurs but much of the sediment load is carried into the Eureka Channel and North Bay Channel.

Approach

The approach to the data review was to focus on the data sources within Humboldt County. This approach recognizes that most, if not all, of the historic information available from the U.S. Army Engineer District, San Francisco, is duplicated in the database collection of the Natural Resources Division, Humboldt County Department of Public Works (DPW) and the San Francisco District's Eureka Field Office. Experience has also indicated that most of the historic literature concerning Humboldt Bay from various universities

[1] A table for converting non-SI units to SI units of measurement is given on page vii.

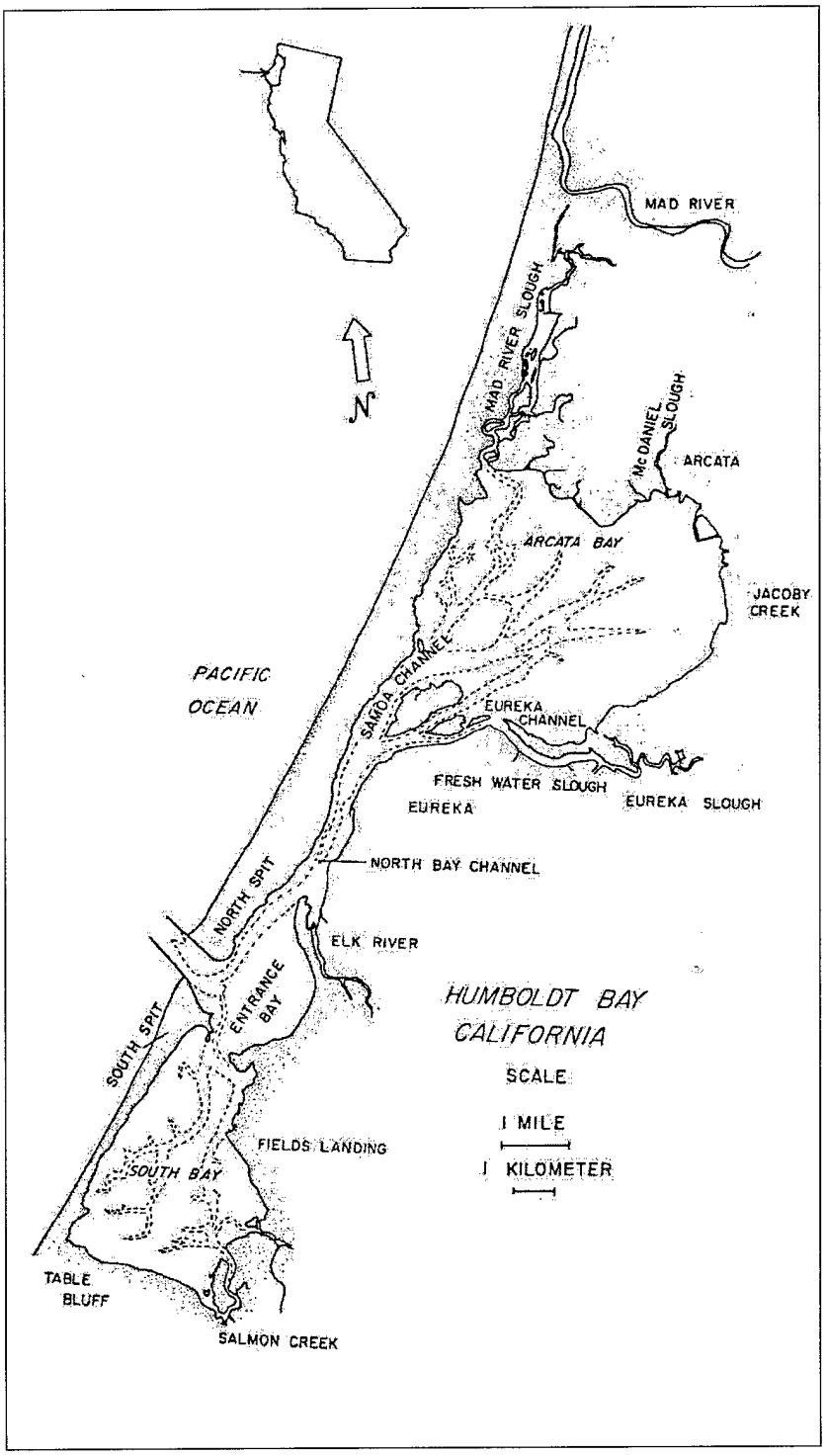

Figure 1. Humboldt Bay location map

and agencies is well represented in the collections at Humboldt State University (HSU) and the DPW. In addition, the investigators preparing this data review accessed a substantial amount of information on Humboldt Bay already assembled in project files from their studies spanning the last 25 years.

For this review, contacts were initiated with Federal, state, and local government agencies, academic investigators and repositories, environmental groups, and other appropriate nongovernmental organizations. Specific information for those contacts of primary interest is listed in Appendix G. The primary contacts and sources of data discussed or complied in this report are as follows:

a. DPW, Natural Resources Division.

b. Humboldt Bay Harbor Recreation and Conservation District (HBHRCD).

c. U.S. Army Corps of Engineers (USACE) Field, District, and Division offices.

d. U.S. Fish and Wildlife Service (USFWS).

e. HSU.

f. University of California (Berkeley, San Diego).

g. California Department Fish and Game (CDFG).

h. National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS).

Scope and Limitations

Chapter 2 of the data review presents an overview of the study area and and general description of the physical behavior of the Humboldt Bay entrance and adjacent littoral cells. This overview is intended to provide background and a framework for the review of the data compilations, which is the main objective of this report. References provided in the descriptions, as well as the complete bibliography, can be consulted for additional details.

Chapter 3 of the report presents a set of chronologies, again provided as a framework within which to consider and interpret the data compilations. The history of European settlement and commercial use of Humboldt Bay is relatively brief, beginning about 1850, with some indication of traders as early as 1806. The chronologies presented focus on the major engineering events involving the establishment of jetties and navigation channels, the intensity of maintenance dredging, and the relationship of the various studies of the physical processes of the bay and adjacent beaches. These three aspects are the most central for understanding the natural and anthropogenic influences on the existing morphology and operation of the entrance.

Chapter 4 presents the data compilations in four categories: (a) aerial photographs, (b) maps and charts, (c) studies and reports, and (d) data sources and compilations. It is unlikely that any data review can list every possible source of information. The intent of this review is to provide sufficient information so that the data needs of the inlet study would be satisfied at least to the extent that there is a high confidence that all critical or relevant information is

represented. It is expected that any specific piece of information not included in this review would likely be redundant. In each of the categories a narrative description of the data included is provided and an annotated description of the key pieces of information (in the estimation of the authors of the data review) is presented. For each category, a tabulation of the data is provided in a format that is constructed to facilitate review of the database for specific areas or topics. Finally, Chapter 4 provides a summary of the data review effort, conclusions concerning its completeness and usefulness for the intended purpose. Recommendations, including additional data needs that either do not exist in the database or were not located, are also presented.

2 Description of Study Area

Humboldt Bay is located on a comparatively isolated part of the northern coastline of California. Although, as presented in this report, a good deal of information exists concerning the bay, it is relatively poorly studied compared to other estuarine and lagoonal features on the U.S. coastline that are of similar scale and commercial significance. The descriptions in the following paragraphs are provided as a framework within which to assess and access the database provided in Chapter 3 and are not intended to be a comprehensive summary or investigation of the physical oceanography of Humboldt Bay.

Physical Setting

Humboldt Bay is a multibasin, bar-built, coastal lagoon located approximately 260 miles north of San Francisco, CA, and 220 miles south of Coos Bay, OR. The watershed of the bay is approximately 223 square miles. The major rivers in the region do not drain into the bay, and point source inflows of fresh water are small. The annual freshwater input to the bay is on the order of the tidal prism. Therefore, estuarine conditions are found in localized small river and creek mouth or slough areas and typically only occur seasonally. These peripheral sloughs are best described as seasonally transient estuaries within the overall lagoon. Therefore, the circulation within the bay is almost entirely tidally dominated, and the hydrography of the bay is normally unstratified marine water.

The north coast of California at Humboldt Bay is a cool and moderate climate with few extremes. The climate is marine dominated in response to the cool southward flowing California current system. The air temperatures seldom exceed 75°F and only infrequently drop to the freezing level. Rainfall is moderate, with normal rainfall around Humboldt Bay ranging from 30 to 40 in./year, occurring mostly in the November through March wet season. Summers, however, are often foggy until mid-August, with morning fog sometimes dissipating in the afternoons. Ocean temperatures are in the 50 to 60°F range and typically are between 52 and 56°F and do not vary substantially throughout the year. Hurricanes and extratropical storms of similar intensity do not occur in the region.

The wave climate, however, is the one extreme condition that Humboldt Bay experiences on the north coast. The Pacific Northwest region, Washington, Oregon, and the north coast of California, experiences the most severe wave climate in the continental United States. Swell from both the South Pacific and the North Pacific reach the coastline. However, swell from the northwest

predominates and seas from the southwest are the most severe. Incident wave energy on the north coast is an order of magnitude more intense than found along the Atlantic coast of the United States. This wave climate exerts a significant control on the dynamics and behavior of the Humboldt Bay entrance.

Physical Oceanography

In the absence of significant freshwater inflow, the predominant driving forces in Humboldt Bay are the tides. Waves are a significant driving force as well, particularly near the entrance. Wind can be a significant secondary forcing, particularly in the large shallow portions of the bay at high tide. Approximately 70 percent of the bay is tidal mud flat exposed at low-water elevations. The water-surface area of the bay is about 25 square miles at high tide and 8 square miles at low tide. There is little natural salt marsh remaining around the bay, following a long history of diking, dredging, and filling.

Humboldt Bay tides have mixed semidiurnal variations, which typically show some amplification and phase lag with distance from the entrance. The mean range at the entrance is approximately 4.97 ft and the diurnal range is about 6.93 ft. Amplification is most pronounced to the north with an increase in range of up to 1 ft. The tidal prism of the bay has been estimated by a number of investigators, and appears to be about 3.4 to 3.5×10^9 cu ft on a spring tidal range and about 70 percent of that value on a mean tidal range. Approximately 50 percent of the prism is contributed by North Bay (Arcata Bay) and nearly 30 percent by South Bay.

There is a distinct seasonal pattern in the winds. From March through October, the winds are from the north to northwest sector almost exclusively. Mean wind speeds during this period range from 5.5 to 8 mph. During the winter rainy season, November through February, the winds are primarily from the southwest through the southeast, owing to storms that move from west to east. These storms overlap with the northwest wind patterns and are common from October through March (October and March are transitional). The southern wind patterns result in higher maximum wind speeds associated with distinct storms, whereas the summer winds tend to be more constant, with a typical sea breeze pattern (calm at night and increasing in the afternoon).

The orientation of Humboldt Bay and the prevailing wind direction result in locally generated wind waves throughout the interior of the bay, resulting in localized erosion in the interior portions. Most of the interior shoreline, although previously showing signs of erosion, appears to be fairly stable today. The incident ocean waves are often aligned (wave crest perpendicular) with the entrance, and the alignment of the jetties and the offshore bar (convex outward) appear to focus the waves into Entrance Bay. Extreme erosion has occurred in Entrance Bay, and much of the shoreline is now heavily armored. This apparent focusing of wave energy has resulted in large changes in the channelization (filling) and smoothing of bathymetry of Entrance Bay. It is likely that the wave action also influences mixing, flushing, and circulation within Entrance Bay.

Inlet Operation

The bay is separated from the ocean by two large sand spits with an inlet to the ocean protected by two massive jetties. The jetties, as shown in Figure 2, are approximately 6,000 ft long and 2,200 ft apart. Dredged navigation channels have been constructed across the outer bar, through the Entrance Channel, and into the Fields Landing Channel to the south and Samoa Channel and Eureka Channel to the north. The jetties have fixed the Entrance Channel orientation and stabilized the channel. A large shoal occurs on the north side of the Entrance Channel near the north jetty. The navigation channel is located to the south side, near the south jetty. This configuration of channel and shoal must be related to the horizontal circulation patterns associated with the ebb and flood currents and their redirection to and from the basins to the north and south of Entrance Bay.

Estimates of inlet stability indicate that the throat of the inlet is probably deeper than its equilibrium depth, particularly following the recent (1999) deepening project to 45 ft. Currents in the entrance are strong, with average maximum flood of 1.6 knots and average maximum ebb at 2.0 knots. Maximum flood and ebb currents can reach 2.8 and 3.5 knots, respectively, on extreme tidal ranges. The strong ebb currents often steepen the waves so that vessels cannot safely traverse the harbor Entrance Channel during ebb tide.

Adjacent Beaches

The Humboldt Bay entrance is located at the approximate midpoint of a 40-mile-long littoral cell, an anomalously long cell for the northern California coastline (Figure 3). The cell stretches from the south at False Cape, directly north of Cape Mendocino, north to Trinidad Head. The two major rivers within the cell are the Mad River, located about 14 miles north of the entrance to Humboldt Bay, and the Eel River, located about 7 miles to the south. The Eel River is the major source of sand to the cell. The large sand dunes at the north end of the bay, Lamphere Dunes, appear to be the major sink.

Several previous estimates have described the net alongshore transport in the Humboldt Bay littoral cell as being from north to south. This is consistent with the observation of a seaward shoreline offset at the north jetty compared to the landward offset at the south jetty. Although the apparent offset across the stabilized entrance (jetties) is consistent with a north to south transport path, the source of available sand material does not readily support this conclusion. The primary source of sand material in the cell is from the Eel River, located near the south end of the cell. A distinct seasonal variation in the alongshore transport reconciles the apparent inconsistencies in observations. This seasonal shift in the nature of the transport is consistent with the wave climate previously described.

The net summer transport is to the south, and the surf zone is not sufficiently wide to move sand past the end of the north jetty; thus, an accumulation and the observed offset is formed. During winter storms, however, the surf zone can extend well beyond the jetties and provides a wide northward transport path that can bypass sand readily from south to north. Winter storms involve intense wave action, with nearshore profiles changing as much as 20 ft or more vertically overnight. Therefore, there is little opportunity for accumulation adjacent to the south jetty in winter storms, and the observed offset persists throughout the year.

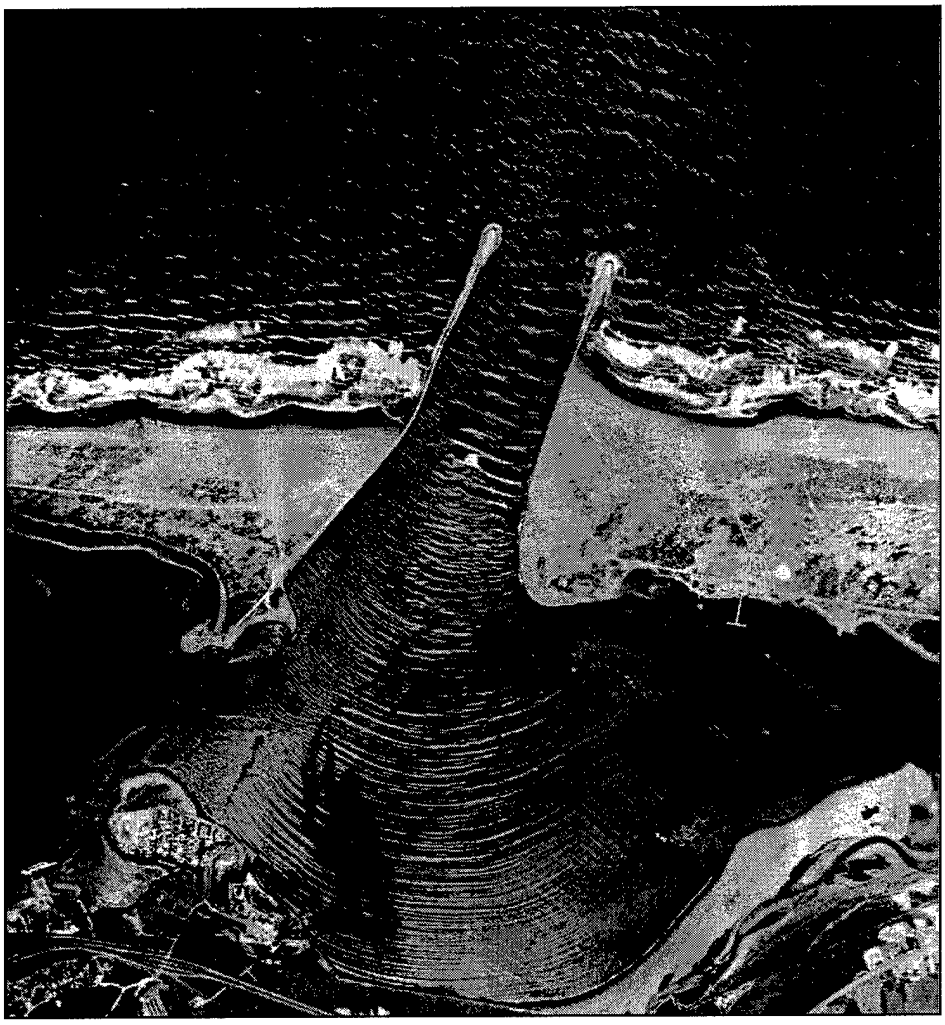

Figure 2. Humboldt Bay jetties (29 April 1974)

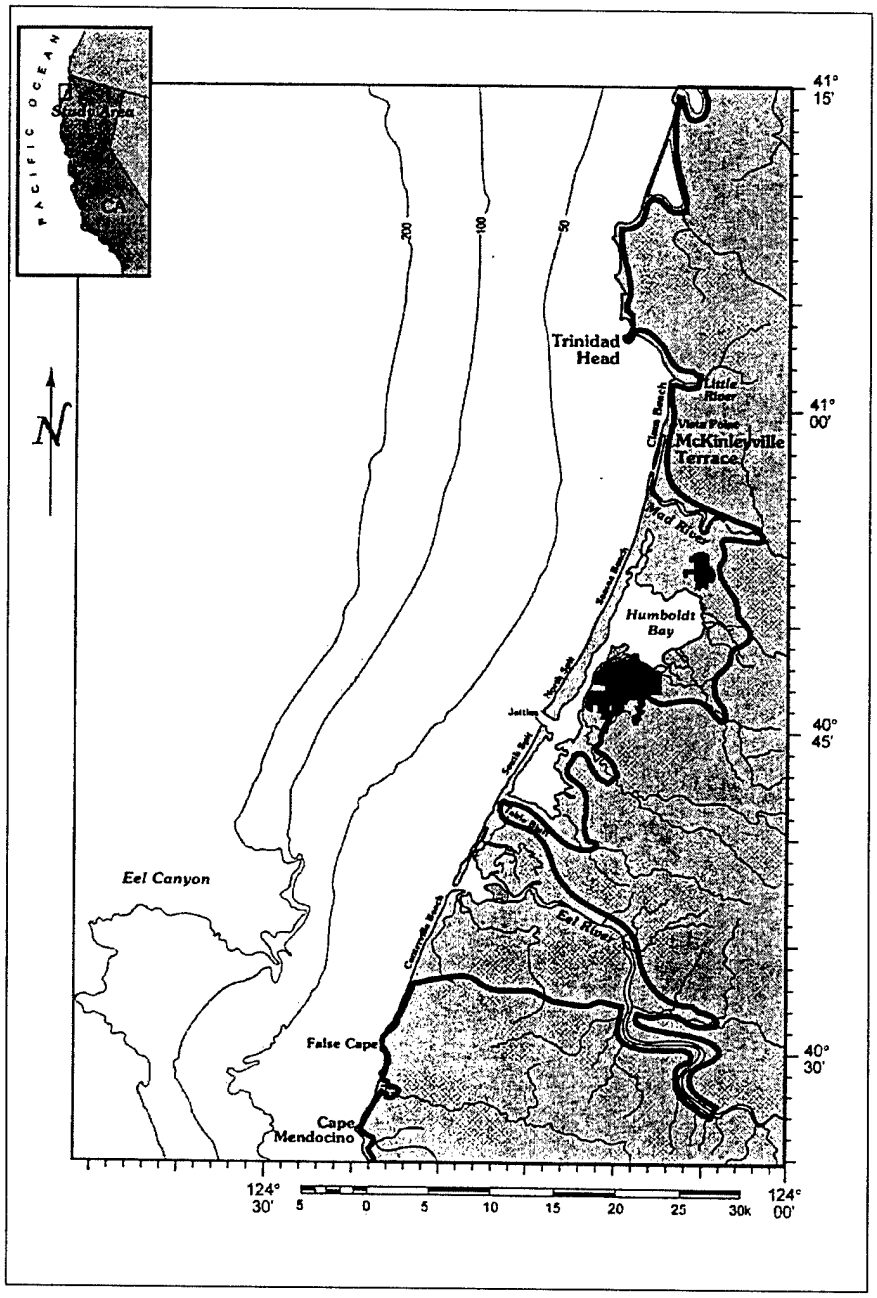

Figure 3. Humboldt Bay littoral cell (from Komar, Borgeld, and Allan 2000)

3 Chronologies of Inlet Development

This chapter provides a temporal and conceptual framework for the data lists contained in Chapter 4. The chronologies are presented in two main categories, engineering projects and studies. The chronologies of the engineering projects describe the engineering projects that have occurred at the entrance and an overview of the dredging quantities associated with the entrance and bar channel maintenance. The chronologies for the studies attempt to list the key studies that have been done that address the general physical oceanography of Humboldt Bay, the inlet dynamics, and the behavior of the adjacent beaches and littoral cell.

History of Engineering Projects

Humboldt Bay as a port and navigation project has a relatively short history. The major engineering projects at the entrance involve stabilization of the entrance with jetties. The chronology is provided in Tables 1, 2, and 3:

a. Table 1. The period of discovery is remarkable for the long period of time that the bay was undiscovered and covers the time of the first European presence in the area, starting with the Spanish voyages to the region in the late 18th century to the mid 19th century after California became a state.

b. Table 2. The period of initial attempts to stabilize the inlet lasting from the late 1800s until the early 1930s when initial attempts using the prevailing technologies were inadequate.

c. Table 3. The period of repair and improvement that was attempted using a more robust approach to jetty building lasting up to the 1970s.

In the late 1970s a fully engineered approach was undertaken by placing massive artificial armour units (dolos) on the jetties. This project represents the existing jetties, although periodic repair has always been required, continuing to the present. Except for a brief time preceding the first projects, stabilization of the entrance has involved twin jetties. A single jetty was proposed in 1883, but this approach was quickly abandoned in favor of twin jetties, with plans approved in 1888.

Table 1 Period of Discovery	
Date	**Description**
1775	Hecta and Bodega land at Trinidad Bay with no mention of Humboldt Bay.
1793	Vancouver lands at Trinidad Bay with no mention of Humboldt Bay.
1804	William Shaler lands at Trinidad Bay with no mention of Humboldt Bay.
1806	First recorded chart of Humboldt Bay (Bay of the Indians). The bay was certainly known to Russian fur traders (probably by 1800) before the 1806 visit by Winship.
1849	Humboldt Bay rediscovered (named Trinity Bay).
1850	Named Humboldt Bay.

Table 2 Period of Initial Improvements	
Date	**Description**
1853	First marker buoys for bay.
1856	Light tower completed on North Spit.
1871±	Studies for navigation improvements begin. Williamson states his opinion that permanent improvements are impossible.
1881	600 vessels/year using bay.
1881	Brush and plank jetties constructed - destroyed in winter.
1881	First USACE project authorized - Eureka Channel first dredged.
1881+	Arcata, Samoa, and Hookton Channels first dredged.
1883	January; first survey for low water jetty on South Spit (South Sands).
1884	South jetty authorized.
1887	Training wall shown on South Spit jetty plans.
1888	Dual jetties authorized.
1889	South jetty construction started (brush and stone construction).
1891	North jetty construction started.
1894	North jetty built out to Bent 420, South jetty built out to Bent 230.
1896	Bar Channel deepened to 25 ft, 100 ft wide.
1900	Initial jetty construction completed – 8,000 ft long, 5 to 10 ft above mean lower low water (mllw).
1911-17	Jetties damaged and repaired, raised from original elevation of 10-12 ft (mllw) to a reconstructed height of +18 ft (mllw).

Table 3 Period of Modern Structures	
Date	**Description**
1939	Dual rubble-mound jetties completed.
1939	Entrance Channel completed (30 ft deep - 500 ft wide).
1939	Eureka, Samoa, Arcata, Fields Landing Channels initial construction completed.
1954	Entrance Channel deepening completed (40 ft).
1954	Eureka and Samoa Channels deepening (to 30 ft) completed and North Bay Channel initial construction completed.
1959	Engineering and design study; Repair on north and south jetty.
1960-63	Repair damage of winter of 1957-58.
1964-65	Extreme damage to jetties (100-ton blocks washed away).
1966-67	Repair and maintenance on north and south jetty.
1969	Jetty repair study and model conducted by ERDC in Vicksburg, MS.
1971-73	Dolosse placed on jetties, heads had been completely destroyed.
1977	USACE names jetties a historical civil engineering landmark.

Dredging for both channel improvements and maintenance has been an ongoing process from the first Humboldt Bay navigation improvement project. The Entrance Channel now receives most of the attention for maintenance dredging, and the volumes and frequency are indicative of the stability and dynamic behavior of the inlet and its role in the littoral processes. However, the North Bay Channel and Fields Landing Channel have also undergone substantial maintenance dredging because of their close proximity to the entrance. Table 4 is a chronology of the maintenance dredging for the bar and entrance channel.

It is hypothesized that future maintenance dredging at the bar and entrance channel, and at the North Bay Channel will decrease in response to the recent deepening project because of decreased shoaling rates. This projection is based on model predictions as reported in the feasibility study for the project.

Chronology of Key Studies

Few studies have been done on the physical oceanography of Humboldt Bay, the inlet dynamics, sediments and sedimentation in the bay, and the behavior of the littoral cell. The chronology of each of the key studies done for each of these topics is listed in Tables 4-7. Additional information on the specific references is provided in "Studies and Reports" section of Chapter 4.

Table 4
Summary of Maintenance Dredging in Bar and Entrance Channel

Date	Bar and Entrance Channel Volumes Removed (cu yd)	Date	Bar and Entrance Channel Volumes Removed (cu yd)
1896	Bar Channel deepened to 25 ft, 100 ft wide.	1980	234,562
1939	Entrance Channel deepened to 30 ft, 500 ft wide.	1981	465,500
1931-54	No maintenance dredging for Bar and Entrance Channel.	1982	389,300
1953	266,830	1983	1,009,876
1954-55	Entrance Channel deepened to 40 ft: 550,450 cu yd dredged.	1984	494,000
1955	129,743	1985	958,071
1956	116,500	1986	991,339
1957	241,00	1987	402,179
1958	243,00	1988	715,022
1959	198,700	1989	429,623
1960	400,000	1990	321,337
1961	388,000	1991	410,000
1962	742,500	1992	230,067
1963	954,500	1993	651,246
1964	478,400	1994	484,721
1965	372,600	1995	635,304
1966	575,600	1996	474,888
1967	527,500	1997	458,693
1968	473,100	1998	232,740
1969	534,00	1999	309,271
1970	370,000	2000	--
1971	220,500		--
1972	405,500		Contact San Francisco District
1973	319,000		Contact San Francisco District; Appendix D
1974	390,500		
1975	381,500		
1976	234,800		
1977	369,000		
1978	304,500		
1979	193,098		

Inlet dynamics

Bruun and Gerritsen (1960); Bruun (1966); O'Brien (1931); Mayor-Mora (1973); Johnson (1972); Jarrett (1976); included the Humboldt Bay Entrance in their data sets in developing criteria for inlet stability. The work by Bruun (1966); Bruun and Gerritsen (1960); O'Brien (1931); and Mayor-Mora (1973) were general studies that were not site specific, but are of interest. The latter two authors, however, considered Humboldt Bay specifically because of its location and configuration.

There is some information about the inlet morphology as described in a few studies of shoreline change near the inlet. The survey report of 1950 and Noble (1971) analyze shoreline change in the vicinity of the entrance provide insight about the behavior of the inlet. Moffatt and Nichol Engineers (1991) provided some updated information on shoreline changes, but did not address the inlet or bar morphology. In 1969, ERDC conducted a Humboldt Bay jetty repair study and model of the entrance.

In the late 1970s, Costa and Stork (1984) conducted a study of the entrance problems of Humboldt Bay, which resulted in additional studies of the adjacent beaches and the physical oceanography of the bay described in the following discussions. The Buhne Point design study conducted at ERDC's Waterways Experiment Station provides some insight about the propagation of waves through the inlet. A limited number of numerical modeling studies have been conducted (Evans 1994; West Consultants 1999), but did not address the inlet dynamics.

Table 5 lists studies that relate to inlet dynamics – no other such specific studies or more recent work have been located.

Table 5
Studies on Inlet Dynamics

Date	Study	Author
1950	Survey Report Humboldt Bay California: Appendix I, "Shoreline Changes"	San Francisco District (1950)
1971	"Shoreline Changes – Humboldt Bay, California"	Noble (1971)
1972	"Tidal Inlets on the California, Oregon, and Washington Coasts"	Johnson (1972)
1976	"Tidal Prism-Inlet Area Relationships"	Jarrett (1976)
1984	"Buhne Point, Humboldt Bay, CA Design for the Prevention of Shoreline Erosion"	Bottin and Earickson (1984)

Physical oceanography

The physical oceanography of Humboldt Bay has been in part described by a variety of investigators, typically as focused studies by HSU students in the course of Master's degree theses or senior projects. These include those conducted by Garcia (1985); Cooper and Fredrick (1985); Beittel (1975); Gast and Skeesick (1964); and Casebeir and Tamil (1973). More comprehensive descriptions were compiled by Costa (1982a), based on other studies and a

data-collection effort conducted by Costa and Stork (1984), and in the Wetlands and Baylands report by Shapiro and Associates (1980) for the San Francisco District. Some models have been completed that provide additional information on the circulation of the bay, including reports by Comozzi, Grimes, and Rajapakse (1997); Evans (1994); and West Consultants (1999).

Table 6 lists physical oceanographic studies that are based on field data collection. Also presented are hydrodynamic modeling studies. Other reports written over the years essentially cite the same information contained in the reports listed.

Table 6
Studies on Physical Oceanography

Date	Study	Author
1964	"Circulation, Water Quality, and Sedimentation of Humboldt Bay, CA"	Gast and Skeesick (1964)
1973	"Physical Dynamics of Arcata Bay"	Casebeir and Tamil (1973)
1975	"Hydrographic Structure of North Humboldt Bay"	Beittel (1975)
1980	"Humboldt Bay Wetlands Review and Baylands Analysis"	Shapiro and Associates (1980)
1982	"The Physical Oceanography of Humboldt Bay"	Costa (1982a, 1982b)
1984	"Prototype Data Collection for Humboldt Bay, CA"	Costa and Stork (1984)
1985	"Tidal Pumping in Humboldt Bay"	Cooper and Fredrick (1985)
1985	"Effect of Groin Extensions and Sediment Deposited at Buhne Point on the Ebb Tidal Current Circulation in Entrance Bay, Humboldt Bay, CA"	Garcia (1985)
1994	"Humboldt Bay Hydrodynamic and Sedimentation Study"	Evans (1994)
1999	"Hydrodynamic, Sedimentation and Bridge Scour Analyses of Samoa Channel, Middle Channel, and Eureka Channel Bridges, Humboldt Bay, CA"	West Consultants, Inc. (1999)

Beach processes and bay sediments

Few studies have been performed on the littoral cells along the Humboldt County coastline. Bascom (1980) describes classic field measurements of offshore profiles in response to waves performed in the late 1940s, and a few profile surveys were made near Humboldt Bay at Table Bluff (Isaacs 1947; Stump and Bascom 1947; see review by Kraus, Wiegel, and Bascom 1996). They recorded vertical changes of as much as 23 ft in response to a single storm. More recent studies include a beach material textural and mineralogical study by Bodin (1982), and some recent studies concerning the Mad River to the north of the Inlet by Borgeld, Scalici, and Lorang (1993) and Komar, Borgeld, and Allan (2000).

Data sources for both Humboldt Bay and littoral cell sediments are limited with a few sites in and around the bay and beaches, but few comprehensive surveys exist. Bodin (1982) probably best summarizes sediment characteristics on the beaches, and Thompson (1971), Costa (1982b), and Gera (1973) have surveyed sediments within the bay. Thompson's (1971) sediment distribution map was general, as it was a study for the Petroleum Research Fund. Costa's (1982) work was primarily limited to the bay channels.

Table 7 lists studies of beach processes. This table also refers to surveys for in-bay sediments characteristics.

Table 7
Studies on Beach Processes and Bay Sediments

Date	Study	Author
1971	"Recent Sediments of Humboldt Bay, Eureka, CA"	Thompson (1971)
1973	"Sediment Distribution in Central Humboldt Bay and Relationship to Bathymetry and Hydrodynamics"	Gera (1973)
1982	"Longshore and Seasonal Variations in Beach Sand, Humboldt County, CA. Implications for Bulk Longshore Transport Direction"	Bodin (1982) Humboldt State University
1982	"Changes in Channel Sediment Characteristics, 1974, and 1980, Humboldt Bay, CA"	Costa (1982a, 1982b)
1993	"Final Project Evaluation Report: Mad River Mouth Migration"	Borgeld, Scalici, and Lorang (1993)
2000	"The Migration of the Mad River Mouth and its Erosional Impacts within the Humboldt Bay Littoral Cell, Northern California"	Komar, Borgeld, and Allan (2000)

4 Inventory of Available Data and Data Sources

The review of available data is presented in four parts. In the first three sections of this chapter, aerial photographs, maps and charts, and studies and reports are described. A short narrative description of the material and identification of the key material are presented. Detailed listings of the information are provided in the referenced appendices. The fourth and last section describes and discusses a variety of data sources that provide contact information necessary for the entrance study, or that may be of more general interest to investigators studying the Humboldt Bay entrance. The final section also contains contact information for the primary and secondary sources for the data presented.

Aerial Photographs

Appendix A, in 12 tabloid-size pages, contains a list of aerial and ground photographs found during the data search for the "Humboldt Bay Entrance Study – Data Review." Appendix B contains tables indicating the abbreviations used for the origin and primary and secondary sources of the photographs (Table B1), the photograph format codes (Table B2), the photograph type codes (Table B3) and the photograph location codes (Table B4) found in the listing. In all cases where the time the aerial photograph (column 3) at the Humboldt Bay Entrance could be determined, the corresponding tidal height and tidal condition is noted in Column 4 of the Photograph Table – Appendix A. The time of the Humboldt Bay entrance aerial photograph was determined from the time printed on the photograph, if available. In most cases, the time of the entrance photograph was calculated based on the start and end time of the flight track. Corresponding tidal height and condition were determined from NOAA/NOS records using the Nautical Software Inc. 1993-1995 program, Tides and Currents for Windows, Version 2.0.

The predominant emphasis in preparing this listing was on aerial photographs rather than on ground photographs, as the study emphasis is on understanding the dynamics of the Humboldt Bay entrance rather than on the Humboldt Bay history or on the engineering history of the jetty construction and maintenance. There are sources of historical ground photographs of Humboldt Bay located in Humboldt County that are beyond the scope of this data review. Aerial photographs determined to be of significance to the study were scanned by an HP ScanJet 5200C, with a resolution of 150 dots per inch (dpi). The scanned aerials files, as *.bmp files, have been transmitted to the CIRP.

The earliest aerial photographs of Humboldt Bay entrance that were found to exist are a set of four 1934 aerial photographs, copies of which reside at the DPW database. This database is one of the most comprehensive in Humboldt County and also on a regional basis. A 1938 aerial photo flight, that probably includes the entrance, is housed at the San Francisco District. Six of the 1939 aerial photographs are at DPW, and more may exist at the San Francisco District or in the Federal Archives in San Bruno, CA. The earliest most complete aerial coverage for the entire bay is the 1948 California Division of Forestry flight.

Aerial photograph coverage for Humboldt Bay became more regular starting with the 1953 aerial photo flight. These aerials along with the 1954, 1958, 1962, 1965, 1966, 1969, 1970, 1974, and 1981 aerials, now held by DPW in the database, are mostly the historic holdings of the Humboldt County Assessors Office. The county was flown regularly for property assessment purposes up until the passage of Proposition 13 (a statewide property tax initiative) which changed the basis for property assessment to a calculation based on the purchase price of property with annual adjustments limited to a percentage maximum of 2 percent, instead of use of field or aerial photo surveys for property evaluations and property tax land assessments. The lack of funding has made it difficult for the DPW database to obtain more recent aerial coverage of Humboldt Bay, except for smaller scale project site aerials.

Humboldt Bay was flown regularly from 1977 to 1996 by the San Francisco District, with copies of the aerials now held at the District's Eureka Field Office. Aerials flights occurred in 1977, 1978, 1979, 1980, 1981, 1985, 1988, 1994, and 1996. The 1985 aerial coverage was taken in color-infrared (CO-IR). The San Francisco District's Regulatory Branch has contracted for an annual CO-IR high altitude aerial photograph sequence to be flown for the entire Pacific Ocean coastline for which the District has responsibility, from San Luis Obispo County north to the Oregon border. The flight is typically taken in October of each year. The aerial photographs are taken for enforcement of regulation (Section 404-Clean Water Act or, Section 10-Rivers and Harbor Act) purpose.

The DPW database slide collection has some examples of these photographs, from the late 1970s early 1980s, primarily limited to Humboldt Bay Entrance Channel and Entrance Bay. The images are striking and often clearly show the wave refraction, diffraction, and reflection patterns in Entrance Bay. These slides were not separately listed in this report, and the slide collection is referred to as a single entry in the Appendix A table. The individual slides were made by occasional DPW staff visits to the San Francisco District by making arrangements with Mr. Douglas Pirie, former coastal engineer for the San Francisco District. Color slides were made by mounting the CO-IR aerial photo negative rolls on a dual roller light stand and setting up a camera on a tripod to shoot the desired aerials as the negatives were passed over the light box. Once in slide form the scale of the original aerial is compromised, but slide scale can be estimated and prints can be also be made. As the negatives are on rolls, it is difficult to easily obtain the aerial photographs of choice as it takes time to find the desired negative in the roll.

There are three recent aerial photo flights of Humboldt Bay, one color flight in 1997, and two in 2000 (1-color (CO) and 1-black and white (BW)). The two color flights (1997 and 2000) were flown under contract from the CDFG, Northern California, North Coast Region Information Services Branch to

Terra-Mar. Both of these aerial flights have now been geo-registered to the U.S. Geological Survey Quadrangle 7.5-min sheets as the photo base for the Humboldt Bay Geographic Information System (GIS) being established for the Humboldt Bay Management Plan by interagency participation under the direction of the (HBHRCD). A more detailed description of the Humboldt Bay GIS is provided in "Data Sources and Compilations." The geo-registered aerial photography files are available from some of the local State and Federal agency offices participating in the Humboldt Bay GIS and the HBHRCD. The format they are available in is as specified in, "Data Sources and Compilations."

The BW 2000 aerial photography flight was flown by WAC, Eugene, OR, and is also commercially available from WAC, which is an aerial photography company. The San Francisco District, Eureka Field Office has one set of the flight for Humboldt Bay. The date and time of the flight is not known at this time, as none of the photographs in the SPN-EK were date or time stamped. Contact information for WAC is provided in Appendix A.

The DPW database slide collection, as noted in the photographs table in Appendix A, contains numerous oblique aerials photographs and on-the-ground slides for Humboldt County and other regional project sites (i.e., Dos Rios Dam site, Potter Valley Dam). The Humboldt Bay oblique aerial photographs in the collection have predominantly been taken from small aircraft or occasionally a helicopter (U.S. Coast Guard). The DPW database Humboldt Bay slides are dominated by the King Salmon-Buhne Point erosion in Entrance Bay as it was a concern for DPW before the existing demonstration shoreline erosion protection project was built. There are numerous on-the-ground slides of storm waves overtopping the shoreline roadway (Buhne Point Drive) at this location. These storm wave photographs may be of interest to the study as the Buhne Point project is located in Entrance Bay directly opposite the entrance to Humboldt Bay. The time and date of most of the slides are documented on the slides. There is also excellent coverage in the DPW database slide collection of post-flood damage and water levels for the Eel and Mad Rivers.

The San Francisco District Eureka Field Office has an extensive oblique aerial photo print and slide collection, as noted in the photographs table (Appendix A). Most of the aerials in the collection were taken since 1974 from the U.S. Coast Guard helicopter stationed at the ACV Airport. The bulk of the photographs document the condition of the jetties either during construction or for maintenance surveys and during and after storm damage. Some of the storm damage photographs are revealing as they document the storm wave conditions at the Humboldt Bay entrance.

Prior to the establishment of the San Francisco District Eureka Field Office, which followed the massive area-wide flood damage from the 1964 flood of record for the Eel River, photographs of the Humboldt Bay entrance were taken by the District staff photographers. From 1965 to the mid-1970s, photographers made multiple trips to document conditions at the Humboldt Bay entrance. These photographs are expected to be at the San Francisco District either in files or on microfiche, if they have not yet been moved to the Federal Archive Record Center in San Bruno, CA.

Maps and Charts

Appendix C, in 24 tabloid-size pages, contains the listing of the maps and charts found during the data search for the "Humboldt Bay Entrance Study – Data Review." Appendix D contains tables indicating the abbreviations used for the map and chart origins and primary and secondary sources (Table D1), the map/chart format codes (Table D2), the map/chart type codes (Table D3), and the map/chart location codes (Table D4), found in the listing.

One significant historical map that is not listed in this report is the 1806 Tebenkof (the draftsman) from the Jonathan Winship (sailing under a Russian flagged fur trading ship) discovery of Humboldt Bay (Bay of Indians), and described in Chapter 3, "History of the Engineering Projects," of this report.

The Map/Chart – Table (Appendix C) entries have been purposely listed in a manner as to preserve the historical significance of the map/chart, especially with the map/chart title, origin, and ID columns of the listing. The map/chart titles are listed, as exactly as possible, with abbreviations shown as they appeared in the original. The origin abbreviations are listed, as exactly as possible, as it appears on the map/chart. This may appear unnecessary at first glance. Almost all the map/charts that appear in this listing are from Federal agency sources that not only changed agency name and affiliations over time, but also in their name changes reflect agency historical organizational shifts.

In addition, during the settling of the west and the organizational development of establishing Federal agencies, the individual draftsmen working in western offices often changed the agency name depending on the local favor at the time. The map/chart origin history of Humboldt Bay is a fascinating topic in itself as it is part of the history of civil works in United States, but, beyond the scope of this report. The same consistency given to origin has been given to the map/chart ID in the listing.

The history of the San Francisco District is also contained within this listing and can be seen in the File: Division: Sheet notation in the Map/Chart ID column in the Map/Chart – Table. The first map sheet created under File: 5 Div: 4 Sheet: 1 is a 1904 map and the first USACE Harbor Lines for Humboldt Bay, delineating the channel boundaries, and the pier and bulkhead boundaries for the bay. The first map sheet created under File: 5 Div: 2 Sheet: 1 is the April 1991 Chart of the Entrance Channel of Humboldt Bay. The first map sheet created under designation of File: 5 Div: 17 Sheet: 1 is a June 1925 map of Sea Condition's at North Jetty Humboldt Bay, California, Jan 1st 1885 – Dec 31st 1924.

Early Humboldt Bay nautical charting (1850) of the bay was conducted by the United States Coast Survey, which is now conducted by the NOAA/NOS. The USACE (then the War Department) began to regularly document the condition of the Humboldt Bay entrance from about 1881, when stabilizing the entrance became an imperative of the local citizens to maintaining the level of trade and commerce needed to support the Humboldt Bay area.

The notes column of the Map/Chart – Table indicates either important features of the map/chart or points to the quality of the map/chart. About 90 map/charts have been copied and provided to the CIRP investigators in various formats (black and white photocopy, blueprint, or Mylar copy) depending on the

quality of the map/chart and the importance of it to the study. These selected map/charts in whole or part may be scanned and digitized for the Humboldt Bay modeling study that is in progress.

Map/charts deemed especially useful were those that fell into one of the following categories:

a. Map/chart displayed the Entrance Channel prior to construction of jetties, with a single jetty, or two early jetties not completed (USACE 1880 to 1930 maps).

b. Map/chart displayed important features or historical trends in Entrance Channel shoaling and historical patterns and configurations of sediment bed forms in Entrance Bay (USACE multiyear comparisons of bathymetry from various years).

c. Map/chart displayed single early (1930s) circulation study results or wave conditions at the entrance (USACE Division 17).

d. Map/chart displayed great amount of bathymetric detail for the area offshore, both north and south, of the Entrance Channel (Multiyear sequence of U.S. Coast Survey (USCS) and U.S. Coast and Geodetic Survey (USC&GS) charts). These same maps/charts could be used to trace the geomorphology of the Humboldt Bay entrance, under a separate study, if interest exists in funding the study.

The San Francisco District Eureka Field Office holds blue-line copies of the Humboldt Bay recent (1999-2000) channel-deepening project. The CIRP investigators have indicated that they already have the latest channel bathymetry in digital form from the San Francisco District.

More recent map/charts that may be of interest are those listed for the HBHRCD established as part of the Humboldt Bay Management Plan. The Humboldt Bay GIS project is described in more detail in "Data Sources and Compilations." These maps exist in hard copy and digital form and can readily be made available to the Entrance Study Principal Investigators. One interesting map in this collection is Map/Chart listing Reference. No. 241, which is a three-map, set containing a 1993 bathymetry map, a 1944-bathymetry map, and a 1944 to 1993 flux map showing changes in bathymetry between 1944 to 1993. The categories lumped together in the hard copy map are probably not as much of interest as the digital files which are based on a digitized 1993 NOAA Chart 18622 and as yet unidentified 1944 chart (probably Map/Chart Reference No. 170, the December 1944 Humboldt Bay, CA, Chart No. 5832).

Another map/chart of interest to the entrance study, that is not yet completed, is the upcoming (2001/02) revision to the 1993 Humboldt Bay, CA, NOAA Chart 18622.

Studies and Reports

Appendix E is an annotated bibliography of the key and potentially important studies that were located based on this data review effort. The annotated bibliography concentrated on the Humboldt Bay entrance and studies that included physical processes data or analysis that would have a direct benefit in

understanding the dynamics of the Humboldt Bay entrance. The annotated bibliography is generally limited to those studies that were found locally in Humboldt County as a result of data review effort.

Because the time frame allotted to locate and review studies, and the level of effort assigned this data review task in its entirety, this annotated bibliography should not be considered exhaustive. Appendix E also includes short descriptions of studies that are known to have included oceanographic data collection, but because obtaining the actual data was beyond the scope of this project are mentioned for further consideration.

Appendix F is a bibliographic compilation of holdings of the HSU Library concerning Humboldt Bay. The documents included in this appendix were selected from the entire listing of "Humboldt Bay" that contained over 2,000 documents. This listing resulted from downloading an online documents search, using keyword combinations, from the HSU Library Web site and then manually editing the list. Documents were reserved or eliminated based on retaining all documents that could potentially be useful. Documents were selected that appeared to either apply directly or indirectly to the Humboldt Bay entrance hydrodynamics and sediment transport dynamics. Some biological documents, primarily HSU Master's degree theses, were listed as some physical data concerning the bay may have been included in the research. Some documents were included that address historical aspects of Humboldt Bay as they may also be of peripheral interest.

Data Sources and Compilations

This section includes the contact information for the primary and secondary data sources for the map/charts, photographs, and documents. It also includes the Humboldt Bay GIS including access to materials on the HBHRCD Web site and access to individual data files. In addition to these data sources, a short outline of some of the projects and persons that may have oceanographic data of various types but for which in-depth listing and investigation was beyond the scope of the data review.

Contact information

Appendix G contains the listing of persons and agencies referenced in the body of this report or who or which are associated with information contained in Appendix A photographs, and Appendix C maps/charts. Some restrictions do apply in gaining access to databases, and contact information can change over time.

Humboldt Bay GIS

The Humboldt Bay GIS has been established in part as a planning tool for the development of the Humboldt Bay Management Plan that is in preparation by the HBHRCD. The HBHRCD has joined with many Federal, state, and local regulatory and resource agencies in the formulation of the Humboldt Bay GIS. The goal of creating the Humboldt Bay GIS system is to create a common

platform that can be used by all agencies, educational institutions, along with the general public, as information and resources planning tool for Humboldt Bay.

Several database layers have been entered into the Humboldt Bay GIS, which is formatted on an ArcInfo software platform. Table 8 shows the coverage that is either in place already or planned for the GIS system regarding the physical characteristics of Humboldt Bay. At the time of preparation of this report the metadata files for the data layers listed in Table 8 were not available. Any completed data layer files are available from the HBHRCD or as downloads from the Humboldt Bay GIS Web site: www.humboldtbay.org.

Nearshore oceanographic studies

Humboldt Bay Wastewater Authority (HBWA), was a late 1970s/early 1980s proposal for a joint services ocean outfall to dispose of combined wastewater from the city of Arcata, the city of Eureka, and the Greater Humboldt Bay area then and now under county jurisdiction (approximately McKinleyville south to College of the Redwoods). Oceanographic field biological studies were conducted from about 1975 to 1977. Data collected included fish and benthic invertebrate populations, sediment data, and some hydrographic parameters. Some of the documents associated with HBWA can be found in the HSU Library. The city of Arcata, Public Works or Environmental Department had a full set of all the documents.

The 301(k) Oceanographic Studies conducted by CH2M HILL in 1985 under contract to Louisiana Pacific Corporation (LP) (Samoa, North Spit) and Crown Simpson Pulp Company (Fairhaven, North Spit). Studies were submitted to the U.S. Environmental Protection Agency (EPA), Region 9, San Francisco, as part of the permitting for the LP and Simpson ocean outfalls. The studies included measurements on currents, hydrographic parameters, water quality, and biology in an area of the near-surf zone along North Spit, approximately 2 to 4 miles north of the north jetty.

The Ocean Outfall Oceanography Monitoring Studies, for Louisiana Pacific Corp's pulp mill discharge, required under National Pollution Discharge Elimination System (NPDES) Permit, U.S. EPA, Region 9, San Francisco. This oceanographic monitoring was conducted by a team of graduate level student scientists under the direction of Dr. John Pequegnat, Oceanography Department, HSU. The monitoring was conducted on a quarterly basis for about 4-5 years. Each monitoring report has an appendix containing the hydrographic and water quality data presented for each quarter. The monitoring reports are not readily available from Dr. Pequegnat, but may be available from USEPA, Region 9 or from Surfriders, a citizen group that sued EPA to enforce provisions of the Clean Water Act on the LP ocean discharge.

Table 8
Humboldt Bay GIS Physical Characteristics Data Layers[1]

Coverage	Sources of Information	Completeness as of 12/2000 (%)
Mean High/Low Tides	(1) 1993 NOAA Chart; Scale 1:25,000; low tide and high tide areas. (2) 1944 USC&GS Chart. Scale 1:30,000; low tide and high tide areas. (3) 1912 C&GS Chart; Scale 1:30,000; low tide and high tide areas.	100 100 100
Substrate Types	(1) Sediment particle size distribution map from: R.W. Thomson (1971) as reported in Shapiro & Assoc. (1980).	100
Subsurface Topography (Bathymetry)	(1) 1993 NOAA Chart; Scale 1:25,000; Bathymetry = TIM or GRID.	90
Shoreline Types	"Classify" GDFG " tidal influence"	0
Disturbance	Recent dredging maps; 1993 NOAA Chart; Scale 1:25,000, 1944 USC&GS Chart, 1912 C&GS Chart; Scale 1:30,000, 1977 NOAA Chart Scale 1:30,000.	50
Freshwater and Salinity Movement	Hydrologic model set up for each drainage area.	20
Water Quality	Shellfish Advisory Committee water quality data, older studies including Ecology of Humboldt Bay (1992); and J.Pequegnat, unpublished 1981 data.	100
Sedimentation and Erosion	(1) Bathymetric changes from 1912, 1944, 1977, 1993 Charts. (2) Zones of sedimentation/ erosion based on slope with low slope (flats) = sedimentation zones and high slope (channels) = erosion zones. (3) Zones of sedimentation/erosion based on particle size distribution map (Thompson 1971).	20

[1] Description of data layers from Progress Report of Physical Mapping – Phase II from "Humboldt Bay Management Plan 2000 Progress Report," HBHRCD, December 2000.

Contacts with specialized knowledge and research interests

Dr. John Pequegnat. Oceanography Department, HSU, has conducted research on nutrients and phytoplankton in Humboldt Bay and nearshore waters which was published as his Ph.D. dissertation from the University of Oregon, Department of Oceanography. He has directed senior class marine field projects, some collecting synoptic hydrographic data in North Bay, North Bay Entrance Channels, and Entrance Bay.

Dr. Jeffry Borgeld. Oceanography Department, HSU, has a collection of student generated beach profiles for various locations in the Humboldt Bay littoral cell from the Eel River to the Mad River. The data are not in a form that is readily available. He has collected beach profiles in the Humboldt Bay littoral cell and at the Mad River mouth in relation to the study of the migration of the mouth of the Mad River. He has videotaped storm waves at the entrance to the Mad River.

Dr. Gary Carver. Former faculty member, Geology Department, HSU has made extensive observations on the Humboldt Bay, nearby rivers, and beach systems concerning the dynamics and potential physical changes by major seismic events, and is a proponent of the mega-thrust concept of seismic events. Dr. Carver conducted early work in Humboldt Bay and environs to define the location of the Humboldt Bay Entrance Fault and other local faults in the Humboldt County area. He was instrumental in helping the county of Humboldt establish its first seismic safety committee and emergency services coordination effort with the help of Donald C. Tuttle, Assistant Public Works Director, DPW, the then Natural Resources Division Director, DPW.

Dr. Kenneth Alto. Geology Department, HSU has made it a life's work to understand and interpret the Franciscan Formation that underlies the entire coastline of northern California. He is an expert in geological processes concerned with bluff erosion in this formation.

Dr. John Turner. Geography Department, HSU, has done an extensive amount of research on the Mad River and its historical and present-day flood flow patterns especially through the pastures and fields north of the city of Arcata (the Arcata Bottoms).

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Appendix A
Listing of Available Photographs by Date

Table A1
Humboldt Bay Entrance Study Data Review

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial ID	Nu
1	1931				Humboldt Bay, Eureka and North Channel	COE, SF Dist	none	n
2	1931				Humboldt Bay, Arcata	COE, SF Dist	none	n
3	1934	7-Jan			Humboldt Bay, jetties and North Spit	COE, SF Dist		Phc
4	1938	14-Dec			Eel River - Rio Dell to Fortuna to Fernbridge	COE, SF Dist	unknown	unl
5	1938	14-Dec			Eel River Loleta to Ferndale	COE, SF Dist	unknown	unl
6	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	
7	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	2
8	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	2
9	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	
10	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	
11	1939	21-Dec	13:40	1.0' LLW	Humboldt Bay	COE, SF Dist	none	
12	1939	21-Dec			Humboldt Bay, Fields Landing	COE, SF Dist	unknown	unl
13	1939	21-Dec			Humboldt Bay, Eureka and vicinity	COE, SF Dist	unknown	unl
14	1939	21-Dec			Humboldt Bay, Samoa Peninsula	COE, SF Dist	unknown	unl
15	1939	21-Dec			Humboldt Bay, North Bay and Arcata and vicinity	COE, SF Dist	unknown	unl

:le	Origin	Aerial ID	Number	Area Included 1	2	3	Format	Type	Scale	Size (in.)	Primary Aerial Photo Location: Location	File No.	
a and North Channel	COE, SF Dist	none	none	EC	NS		BW	V			DPW	1931	CC An
:	COE, SF Dist	none	none	NB			BW	V			DPW	1931	CC An
and North Spit	COE, SF Dist		Photo 1-4	EC	EB		BW	V	1" = 1000'	9 x 9	DPW	1934	US Bo Sa
Fortuna to	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Fe Re Co Br
ndale	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Fe Re Co Br
	COE, SF Dist	none	1-8	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
	COE, SF Dist	none	2-11	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
	COE, SF Dist	none	2-12	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
	COE, SF Dist	none	3-4	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
	COE, SF Dist	none	3-5	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
	COE, SF Dist	none	3-6	HB			BW	V	1" = 850'	9 x 9	DPW	1939	
_anding	COE, SF Dist	unknown	unknown	EB	FL		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Fe Re Co Br
and vicinity	COE, SF Dist	unknown	unknown	NC			BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Fe Re Co Br
Peninsula	COE, SF Dist	unknown	unknown	EC	NS		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Fe Re Co Br
ay and Arcata and	COE, SF Dist	unknown	unknown	NB			BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Fe Re Co Br

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
NS		BW	V			DPW	1931	COE, SF District Archives	
		BW	V			DPW	1931	COE, SF District Archives	
EB		BW	V	1" = 1000'	9 x 9	DPW	1934	USACE Historical Files, Box 9, Federal Archives, San Bruno, CA	Earliest known aerial photograhs of Humboldt Bay Entrance; scale is approximate, series of four photographs, have been scanned.
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has no negatives available.
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has no negatives available.
		BW	V	1" = 850'	9 x 9	DPW	1939		
		BW	V	1" = 850'	9 x 9	DPW	1939		
		BW	V	1" = 850'	9 x 9	DPW	1939		
		BW	V	1" = 850'	9 x 9	DPW	1939		
		BW	V	1" = 850'	9 x 9	DPW	1939		
		BW	V	1" = 850'	9 x 9	DPW	1939		
FL		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
NS		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1" = 850'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial ID
16	1940	13-Dec	11:12	3.5' Falling tide	Humboldt Bay, Entrance		CSR
17	1940	13-Dec			Humboldt Bay		CSR
18	1940	13-Dec			Humboldt Bay		CSR
19	1940	13-Dec			Humboldt Bay		CSR
20	1941	23-Nov	11:36	4.4' Rising tide	Humboldt Bay, Entrance		CVL
21	1941	23-Nov	14:23	6.2' High tide	Humboldt Bay, Entrance		CVL
22	1941	23-Nov			Humboldt Bay, Entrance		CVL
23	1941	23-Nov			Humboldt Bay, Entrance		CVL
24	1942	8-Feb	1:30	1.6' Rising tide from LLW of 0.7'	Humboldt Bay, Entrance	COE, SF Dist	
25	1942	8-Feb			Humboldt Bay, Entrance	COE, SF Dist	
26	1942	8-Feb			Humboldt Bay, Entrance	COE, SF Dist	
27	1945	Nov-45			Eel River, Fernbridge, Loleta; Ferndale and Eel River Delta	COE, SF Dist	unknown
28	1946	Jan-46			Eel River, Fernbridge, Loleta; Ferndale and Eel River Delta	COE, SF Dist	unknown
29	1948	22-Jun	12:05	3.2' Rising tide from LLW of 0.9'	Humboldt Bay, Entrance Channel	CDF	CDF
30	1948	22-Jun	12:08	3.2' Rising tide	Humboldt Bay, Entrance Channel	CDF	CDF
31	1948	22-Jun	12:50	4.2' Rising tide	Humboldt Bay, Entrance Channel	CDF	CDF
32	1948	22-Jun	12:55	4.2' Rising tide	Humboldt Bay, Entrance Channel	CDF	CDF
33	1948	22-Jun	13:25	4.5' Rising tide	Humboldt Bay, Entrance Channel	CDF	CDF
34	1948	22-Jun			Humboldt Bay	CDF	CDF
35	1948	22-Jun			Humboldt Bay	CDF	CDF
36	1948	22-Jun			Humboldt Bay	CDF	CDF
37	1948	22-Jun			Humboldt Bay	CDF	CDF
38	1948	22-Jun			Humboldt Bay	CDF	CDF

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Photo Location	
				1	2	3					Location	File No.
Entrance		CSR	7-123	EC	EB		BW	V	1" = 2,890'	9 x 9	DPW	1940
		CSR	7-126	EC	EB		BW	V	1" = 2,890'	9 x 9	DPW	1940
		CSR	7-121	EC	EB		BW	V	1" = 2,890'	9 x 9	DPW	1940
		CSR	7-122	EC	EB		BW	V	1" = 2,890'	9 x 9	DPW	1940
Entrance		CVL	5B-142	EC			BW	V	1" = 1666'	9 x 9	DPW	1941
Entrance		CVL	5B-186	EC			BW	V	1" = 1666'	9 x 9	DPW	1941
Entrance		CVL	5B-189	EC			BW	V	1" = 1666'	9 x 9	DPW	1941
Entrance		CVL	5B-187	EC			BW	V	1" = 1666'	9 x 9	DPW	1941
Entrance	COE, SF Dist		R14-52	EC			BW	V		9 x 9	DPW	1942
Entrance	COE, SF Dist		R14-50	EC			BW	V		9 x 9	DPW	1942
Entrance	COE, SF Dist		R14-51	EC			BW	V		9 x 9	DPW	1942
ridge, Loleta; Ferndale elta	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office	
ridge, Loleta; Ferndale elta	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office	
Entrance Channel	CDF	CDF	2-14-69	EC			BW	V		9 x 9	DPW	1948
Entrance Channel	CDF	CDF	2-16-72	EC			BW	V		9 x 9	DPW	1948
Entrance Channel	CDF	CDF	2-14-74	EC			BW	V		9 x 9	DPW	1948
Entrance Channel	CDF	CDF	2-14-75	EC			BW	V		9 x 9	DPW	1948
Entrance Channel	CDF	CDF	2-14-127	EC			BW	V		9 x 9	DPW	1948
	CDF	CDF	2-14-70				BW	V		9 x 9	DPW	1948
	CDF	CDF	2-14-71				BW	V		9 x 9	DPW	1948
	CDF	CDF	2-14-73				BW	V		9 x 9	DPW	1948
	CDF	CDF	2-14-78				BW	V		9 x 9	DPW	1948
	CDF	CDF	2-14-77				BW	V		9 x 9	DPW	1948

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
EB		BW	V	1" = 2,890'	9 x 9	DPW	1940		
EB		BW	V	1" = 2,890'	9 x 9	DPW	1940		
EB		BW	V	1" = 2,890'	9 x 9	DPW	1940		
EB		BW	V	1" = 2,890'	9 x 9	DPW	1940		
		BW	V	1" = 1666'	9 x 9	DPW	1941		
		BW	V	1" = 1666'	9 x 9	DPW	1941		
		BW	V	1" = 1666'	9 x 9	DPW	1941		
		BW	V	1" = 1666'	9 x 9	DPW	1941		
		BW	V		9 x 9	DPW	1942		
		BW	V		9 x 9	DPW	1942		Scale is unknown but can estimate from photo; time is between 13:30 and 14:00.
		BW	V		9 x 9	DPW	1942		
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement; Photo set has no negatives available
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement; Photo set has no negatives available.
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin
39	1948	22-Jun			Humboldt Bay	CDF
40	1948	22-Jun			Humboldt Bay	CDF
41	1948	22-Jun			Humboldt Bay	CDF
42	1948	22-Jun			Humboldt Bay	CDF
43	1948	22-Jun			Humboldt Bay	CDF
44	1948	22-Jun			Humboldt Bay	CDF
45	1948	22-Jun			Humboldt Bay	CDF
46	1948	22-Jun			Humboldt Bay	CDF
47	1948	22-Jun			Humboldt Bay	CDF
48	1948	22-Jun			Humboldt Bay	CDF
49	1953	25-Feb			Eel River, Loleta to Fernbridge	COE, SF D
50	1953	18-Jun			Humboldt Bay, Arcata	Pacific Ai
51	1953	18-Jun			Humboldt Bay, Arcata	Pacific Ai
52	1953	18-Jun			Humboldt Bay, South Bay	Pacific Ai
53	1953	18-Jun			Humboldt Bay, Entrance	Pacific Ai
54	1953	18-Jun			Humboldt Bay, Entrance	Pacific Ai
55	1954	21-Jul			Humboldt Bay	USDA
56	1954	21-Jul			Humboldt Bay	USDA
57	1954	21-Jul			Humboldt Bay	USDA
58	1954	21-Jul			Humboldt Bay	USDA
59	1954	21-Jul	13:03	2.9' Rising tide from LLW of 0.7'	Humboldt Bay, Entrance	USDA
60	1957	26-Apr			Humboldt Bay, Eureka and vicinity	COE, SF D
61	1958	3-Aug	13:33	4.6' Rising tide from LLW of 0.4'	Humboldt Bay, Entrance	HC Ass C
62	1958	3-Aug			Humboldt Bay, South Spit	HC Ass C
63	1958	3-Aug			Humboldt Bay, North Spit	HC Ass C
64	1958	3-Aug			Humboldt Bay, Entrance Ch.	HC Ass C
65	1958	3-Aug			Humboldt Bay, Offshore	HC Ass C
66	1958	3-Aug			Humboldt Bay, South Spit	HC Ass C
67	1958	3-Aug			Humboldt Bay, Elk River Spit	HC Ass C

	Origin	Aerial ID	Number	Area Included 1	2	3	Format	Type	Scale	Size (in.)	Primary Aerial Photo Location: Location	File No.	
	CDF	CDF	2-14-80				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-14-121				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-14-122				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-14-123				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-70				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-69				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-121				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-122				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-123				BW	V		9 x 9	DPW	1948	
	CDF	CDF	2-16-68				BW	V		9 x 9	DPW	1948	
nbridge	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Fed Rec Con Brur
	Pacific Air	19180	2-6	NB			BW	V	1"=4000'	9 x 9	DPW	1953	
	Pacific Air	19180	2-7	NB			BW	V	1"=4000'	9 x 9	DPW	1953	
ay	Pacific Air	19180	1-17	SB			BW	V	1"=4000'	9 x 9	DPW	1953	
e	Pacific Air	19180	1-18	EC			BW	V	1"=4000'	9 x 9	DPW	1953	
e	Pacific Air	19180	1-19	EC	OS		BW	V	1"=4000'	9 x 9	DPW	1953	
	USDA	CVL	1N-63				BW	V	1" = 1666'	9 x 9	DPW	1954	
	USDA	CVL	1N-64				BW	V	1" = 1666'	9 x 9	DPW	1954	
	USDA	CVL	1N-65				BW	V	1" = 1666'	9 x 9	DPW	1954	
	USDA	CVL	1N-66				BW	V	1" = 1666'	9 x 9	DPW	1954	
e	USDA	CVL	1N-45	EC			BW	V	1" = 1666'	9 x 9	DPW	1954	
and vicinity	COE, SF Dist	unknown	unknown	NC			BW	V	1" = 500'	9 x 9	COE, SF Dist Office		Fed Rec Con Brur
e	HC Ass Of	HU	5-18	EC			BW	V	1" = 1000'	9 x 9	DPW	1958	Wes Con
pit	HC Ass Of	HU	5-16	SS			BW	V	1" = 1000'	9 x 9	DPW	1958	
pit	HC Ass Of	HU	5-19	NS			BW	V	1" = 1000'	9 x 9	DPW	1958	
e Ch.	HC Ass Of	HU	5-17	EC			BW	V	1" = 1000'	9 x 9	DPW	1958	
	HC Ass Of	HU	4-18	OS			BW	V	1" = 1000'	9 x 9	DPW	1958	
pit	HC Ass Of	HU	4-16	SS	OS		BW	V	1" = 1000'	9 x 9	DPW	1958	
r Spit	HC Ass Of	HU	6-20	EB			BW	V	1" = 1000'	9 x 9	DPW	1958	

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V		9 x 9	DPW	1948		
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1"=4000'	9 x 9	DPW	1953		Scale is approximate.
		BW	V	1"=4000'	9 x 9	DPW	1953		Scale is approximate.
		BW	V	1"=4000'	9 x 9	DPW	1953		Scale is approximate.
		BW	V	1"=4000'	9 x 9	DPW	1953		Scale is approximate.
OS		BW	V	1"=4000'	9 x 9	DPW	1953		Scale is approximate.
		BW	V	1" = 1666'	9 x 9	DPW	1954		Flight completed 9/11/1954. Date of bay coverage shown.
		BW	V	1" = 1666'	9 x 9	DPW	1954		Flight completed 9/11/1954. Date of bay coverage shown.
		BW	V	1" = 1666'	9 x 9	DPW	1954		Flight completed 9/11/1954. Date of bay coverage shown.
		BW	V	1" = 1666'	9 x 9	DPW	1954		Flight completed 9/11/1954. Date of bay coverage shown.
		BW	V	1" = 1666'	9 x 9	DPW	1954		Flight completed 9/11/1954. Date of Bay coverage shown.
		BW	V	1" = 500'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1" = 1000'	9 x 9	DPW	1958	Western Mapping Company	
		BW	V	1" = 1000'	9 x 9	DPW	1958		
		BW	V	1" = 1000'	9 x 9	DPW	1958		
		BW	V	1" = 1000'	9 x 9	DPW	1958		
		BW	V	1" = 1000'	9 x 9	DPW	1958		
OS		BW	V	1" = 1000'	9 x 9	DPW	1958		
		BW	V	1" = 1000'	9 x 9	DPW	1958		

3

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial ID
68	1961	15-Jun			Eel River Delta	COE, SF Dist	unknown
69	1962	22-Aug	10:55	2.1' at LHW	Humboldt Bay, Entrance Bay	HC Ass Of	HCN-2
70	1962	22-Aug			Humboldt Bay, Entrance	HC Ass Of	HCN-2
71	1962	22-Aug			Humboldt Bay, Entrance	HC Ass Of	HCN-2
72	1962	22-Aug			Humboldt Bay, South Spit	HC Ass Of	HCN-2
73	1962	22-Aug			Humboldt Bay, South Bay	HC Ass Of	HCN-2
74	1962	22-Aug			Humboldt Bay, Entrance Bay	HC Ass Of	HCN-2
75	1962	22-Aug			Humboldt Bay, South Bay	HC Ass Of	HCN-2
76	1962	22-Aug			Humboldt Bay, South Bay	HC Ass Of	HCN-2
77	1962	19-Nov			Humboldt Bay, Eureka and vicinity	COE, SF Dist	unknown
78	1965	13-Jan	12:12	1.5' Falling tide	Eel River Mouth	COE, SF Dist	ER
79	1965	18-Jan	11:28	7.7' at High tide	Mad River Mouth	COE, SF Dist	MR
80	1966				Humboldt Bay, Entrance	HC Ass Of	HC 66
81	1966				Humboldt Bay, Entrance Bay	HC Ass Of	HC 66
82	1966				Humboldt Bay, Entrance Bay	HC Ass Of	HC 66
83	1966				Humboldt Bay, Entrance Bay	HC Ass Of	HC 66
84	1967	10-May			Eel River Delta	COE, SF Dist	unknown
85	1969	3-Sep	12:13	3.4' LHW	Humboldt Bay, Entrance	HC Ass Of	HC
86	1969	3-Sep			Humboldt Bay, North Bay	HC Ass Of	HC
87	1969	3-Sep			Humboldt Bay, South Bay	HC Ass Of	HC
88	1970	27-Mar	10:20	0.5' Rising just past -0.1 low tide	Humboldt Bay Jetties	COE, SF Dist	HH

e	Origin	Aerial ID	Number	Area Included 1	2	3	Format	Type	Scale	Size (in.)	Primary Aerial Photo Location: Location	File No.	
	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Fed Rec Con Brui
e Bay	HC Ass Of	HCN-2	8-23	EB			BW	V		9 x 9	DPW	1962	
e	HC Ass Of	HCN-2	7-20	EC			BW	V		9 x 9	DPW	1962	
e	HC Ass Of	HCN-2	7-21	EC			BW	V		9 x 9	DPW	1962	
pit	HC Ass Of	HCN-2	7-19	SS			BW	V		9 x 9	DPW	1962	
ay	HC Ass Of	HCN-2	7-17	SB	FL		BW	V		9 x 9	DPW	1962	
e Bay	HC Ass Of	HCN-2	8-21	EB	BP		BW	V		9 x 9	DPW	1962	
ay	HC Ass Of	HCN-2	6-15	SB			BW	V		9 x 9	DPW	1962	
ay	HC Ass Of	HCN-2	6-17	SB			BW	V		9 x 9	DPW	1962	
and vicinity	COE, SF Dist	unknown	unknown	NC			BW	V	1" = 400'	9 x 9	COE, SF Dist Office		Fed Rec Con Brui
	COE, SF Dist	ER	21-142	OT			BW	V	1" = 1000'	9 x 9	DPW	1965	
	COE, SF Dist	MR	14-1	OT			BW	V	1" = 1000'	9 x 9	DPW	1965	
	HC Ass Of	HC 66	10B-26	EC			BW	V	1" = 1000'	9 x 9	DPW	1966	H. J
	HC Ass Of	HC 66	10B-25	EB			BW	V	1" = 1000'	9 x 9	DPW	1966	
	HC Ass Of	HC 66	11B-26	EB			BW	V	1" = 1000'	9 x 9	DPW	1966	
	HC Ass Of	HC 66	11B-27	EB			BW	V	1" = 1000'	9 x 9	DPW	1966	
	COE, SF Dist	unknown	unknown	ER			BW	V	1" = 1000'	9 x 9	COE, SF Dist Office		Fed Rec Con Brui
	HC Ass Of	HC	18-7	EC			BW	V	1" = 1000'	9 x 9	DPW	1969	
ay	HC Ass Of	HC	18-8	NB	NC		BW	V	1" = 1000'	9 x 9	DPW	1969	
ay	HC Ass Of	HC	18-5	SB			BW	V	1" = 1000'	9 x 9	DPW	1969	
	COE, SF Dist	HH	1 to 6	EC			BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	1970	

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V	1" = 833'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V		9 x 9	DPW	1962		Elk River Spit coverage.
		BW	V		9 x 9	DPW	1962		
		BW	V		9 x 9	DPW	1962		Sun angle over water in one-half of channel shows detail of waves.
		BW	V		9 x 9	DPW	1962		
FL		BW	V		9 x 9	DPW	1962		
BP		BW	V		9 x 9	DPW	1962		King Salmon coverage.
		BW	V		9 x 9	DPW	1962		Southern end of South Bay coverage.
		BW	V		9 x 9	DPW	1962		Southern end of South Bay coverage.
		BW	V	1" = 400'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1" = 1000'	9 x 9	DPW	1965		Eel River coverage, flown post 1964 flood (flood of record).
		BW	V	1" = 1000'	9 x 9	DPW	1965		Mad River coverage, flown post 1964 flood (flood of record).
		BW	V	1" = 1000'	9 x 9	DPW	1966	H. J. Chickering	Entrance Channel coverage, time of 11:37 given for Flight Tract 8 (Photo No. 8A-1).
		BW	V	1" = 1000'	9 x 9	DPW	1966		King Salmon coverage, time of 11:37 given for Flight Tract 8 (Photo No. 8A-1).
		BW	V	1" = 1000'	9 x 9	DPW	1966		Elk River Spit coverage, time of 11:37 given for Flight Tract 8 (Photo No. 8A-1).
		BW	V	1" = 1000'	9 x 9	DPW	1966		Elk River Spit coverage, time of 11:37 given for Flight Tract 8 (Photo No. 8A-1).
		BW	V	1" = 1000'	9 x 9	COE, SF Dist Office		Federal Archives and Record Center, 1000 Commodore Drive, San Bruno, CA 94066	Photo flight description from Jack Farless, COE, SF District Office prior to retirement. Photo set has negatives available.
		BW	V	1" = 1000'	9 x 9	DPW	1969		
NC		BW	V	1" = 1000'	9 x 9	DPW	1969		
		BW	V	1" = 1000'	9 x 9	DPW	1969		
		BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	1970		

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial I
89	1970	22-Jul			Humboldt Bay, Entrance	Cartwright	CH 70
90	1971	28-Oct	14:44	3.2' Rising tide just past HLW	Humboldt Bay, Fields Landing Dock	Clair A. Hill & Assoc. under contract to USACE SF	H H-71
91	1971	28-Oct	14:05 to 14:22	3.1' HLW	Humboldt Bay jetties	COE, SF Dist	H.H.N.
92	1973		14:17		Coastline Aerials Klamath River to Humboldt Bay	unknown	
93	1974	8-Sep	11:12	3.0' Rising tide after HLW	Humboldt Bay, Entrance	unknown	
94	1974	8-Sep	11:12	3.0' Rising tide after HLW	Humboldt Bay, Entrance	unknown	
95	1977	24-Jun	13:28	1.6' Rising tide	Humboldt Bay Entrance	COE, SF Dist	HUB
96	1977	24-Jun			South Bay to Arcata Airport	COE, SF Dist	HUB
97	1977	24-Jun			South Bay to McKinleyville	COE, SF Dist	HUB
98	1977	24-Jun			Freshwater Slough to Arcata	COE, SF Dist	HUB
99	1978	15-Mar	11:35	1.1' Rising tide just past low 1.0'	Humboldt Bay Entrance	COE, SF Dist	HUB
100	1978	15-Mar	11:59	1.3' Rising tide just past low 1.0'	South Bay to Mad River	COE, SF Dist	HUB
101	1978	15-Mar			South Bay to Mad River Mouth	COE, SF Dist	HUB
102	1978	15-Mar			Freshwater Slough to Arcata Marsh	COE, SF Dist	HUB
103	1979	19-Apr	13:01	0.0' MLLW	Humboldt Bay Entrance	COE, SF Dist	HUB
104	1979	19-Apr			South Bay to Arcata Airport	COE, SF Dist	HUB
105	1979	19-Apr			South Bay to McKinleyville	COE, SF Dist	HUB

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Ph Location	
				1	2	3					Location	File
ay, Entrance	Cartwright	CH 70	10B-27	EC			BW	V	1" = 1000'	9 x 9	DPW	197
ay, Fields Landing Dock	Clair A. Hill & Assoc. under contract to USACE SF	H H-71-2	2-1 to 2-8 1-1 to 1-8	FL			BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	197
ay jetties	COE, SF Dist	H.H.N.J.	3-1, 3-2 4-1, 4-2 5-1, 5-1 6-1, 6-2	EC			BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	197
rials Klamath River to ay	unknown		73-054	EC	MR		CO CO-IR	V	1" = 833'	9.5 x 19	COE, Eureka Field Office	197
ay, Entrance	unknown		10A-21	EC			BW	V	1" = 1000'	9 x 9	DPW	197
ay, Entrance	unknown		10A-22	EC			BW	V	1" = 1000'	9 x 9	DPW	197
y Entrance	COE, SF Dist	HUB	1-5	EC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	198
Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	198
McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	198
lough to Arcata	COE, SF Dist	HUB	3-1 to 3-6	NB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	198
y Entrance	COE, SF Dist	HUB	1-5	EC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
Mad River	COE, SF Dist	HUB	2-1 to 2-15	SB	EB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
Mad River Mouth	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
lough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-5	NB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
Entrance	COE, SF Dist	HUB	1-4	EC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197
McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	197

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V	1" = 1000'	9 x 9	DPW	1970		Coverage in Roll 7 which started at 13:00.
		BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	1971	CH2M HILL, Redding CA	
		BW	V	1" = 100'	9 x 9	COE, Eureka Field Office	1971		
MR		CO CO-IR	V	1" = 833'	9.5 x 19	COE, Eureka Field Office	1973		Negatives also in file, good nearshore plume definition, at Humboldt Bay Entrance at time indicated.
		BW	V	1" = 1000'	9 x 9	DPW	1974		Appears to be low tide; time estimated.
		BW	V	1" = 1000'	9 x 9	DPW	1974		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		Photo 1-15 shows remnant of old Mad River mouth and overwash near School Road in McKinleyville.
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1978		
EB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1978		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1978		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1978		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		Flight track line along Humboldt Bay western interior and offshore shorelines. Mad River mouth in Photo No. 1-15.
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		Flight track along Humboldt Bay interior eastern shoreline. Mad River in Photo No. 2-14.

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin
106	1979	19-Apr			Freshwater Slough to Arcata Marsh	COE, SF Dist
107	1979	13-Dec	13:49	1.8' Just before low	Humboldt Bay Entrance	COE, SF Dist
108	1979	13-Dec			South Bay to Arcata Airport	COE, SF Dist
109	1979	13-Dec			South Bay to McKinleyville	COE, SF Dist
110	1979	13-Dec			Freshwater Slough to Arcata Marsh	COE, SF Dist
111	1980	28-Jun	12:42	4.7' Rising tide	Ferndale Flats north to Mad River	COE, SF Dist
112	1980	28-Jun	13:08	4.8' near HHW	Humboldt Bay Entrance	COE, SF Dist
113	1980	28-Jun	13:10	4.8' near HHW	Centerville to North Spit Pulp Mills	COE, SF Dist
114	1980	28-Jun	13:15	4.7' Rising tide	Humboldt Bay Entrance	COE, SF Dist
115	1980	4-Aug	14:18	2.7' Rising tide just past HLW 2.0'	Humboldt Bay Entrance	COE, SF Dist
116	1980	4-Aug	14:18	2.7' Rising tide just past HLW 2.0'	Humboldt Bay Entrance	COE, SF Dist
117	1980	4-Aug	14:27	3.0' Rising tide	South Bay to North Bay (Mad River Slough)	COE, SF Dist
118	1980	4-Aug			South Bay and South Spit	COE, SF Dist
119	1980	4-Aug			South Bay and South Spit	COE, SF Dist
120	1980	4-Aug			South Bay and South Spit	COE, SF Dist
121	1980	4-Aug			South Bay and South Spit	COE, SF Dist
122	1980	4-Aug			Fields Landing and Buhne Spit	COE, SF Dist
123	1980	4-Aug			North Spit to Arcata Bottoms	COE, SF Dist
124	1980	4-Aug			North Bay to South Bay	COE, SF Dist

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Location	
				1	2	3					Location	
ıter Slough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-6	NB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
ıt Bay Entrance	COE, SF Dist	HUB	1-4	EC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
ay to Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
ay to McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
ter Slough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-6	NB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
Flats north to Mad River	COE, SF Dist	HUB	2-1 to 2-40	ER	SB	NB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	
t Bay Entrance	COE, SF Dist	HUB	1-21 to 1-26	HB			BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	
le to North Spit Pulp Mills	COE, SF Dist	HUB	1-1 to 1-27	ER	SS	SB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	
t Bay Entrance	COE, SF Dist	HUB	1-21	EC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	
: Bay Entrance	COE, SF Dist		1-9	EC			BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	
Bay Entrance	COE, SF Dist		1-9	EB	EC		BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	
y to North Bay (Mad River	COE, SF Dist		1-1 to 1-33	SB	NC	NB	BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	
y and South Spit	COE, SF Dist		1-1 to 1-21	SB	SS		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
y and South Spit	COE, SF Dist		2-3 to 2-23	SB	SS		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
y and South Spit	COE, SF Dist		3-1 to 3-19	SB			BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
and South Spit	COE, SF Dist		4-2 to 4-20	SB			BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
ıding and Buhne Spit	COE, SF Dist		5-2 to 5-8	EB	FL		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
to Arcata Bottoms	COE, SF Dist		7-2 to 7-26	NC	NS	NB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1
to South Bay	COE, SF Dist		2-1 to 2-31	NB	SB	EB	BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	1

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		Flight track line along Humboldt Bay western interior and offshore shorelines. Mad River mouth in Photo No. 1-15.
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		Flight track along Humboldt Bay interior eastern shoreline. Mad River in Photo No. 2-14.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1979		
SB	NB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		Photo set has every other photo in flight track, shows both Eel River and Mad River mouths along with interior shorelines of Humboldt Bay.
		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
SS	SB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		Photo set has every other photo in flight track.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
EC		BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	1980		Photo flight tract for Flight 1 does not show end of jetties.
NC	NB	BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	1980		
SS		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
SS		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
FL		BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
NS	NB	BW	V	1" = 400'	9 x 9	COE, Eureka Field Office	1980		
SB	EB	BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	1980		Photo flight track from Arcata Marsh Project to freshwater slough, Entrance Bay to South Bay showing Humboldt Bay interior eastern shoreline.

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin
125	1980	4-Aug			North Bay (Eureka Slough to Arcata Marsh Project)	COE, SF Dist
126	1980	16-Sep	14:58	4.9' Rising tide	Humboldt Bay Entrance	COE, SF Dist
127	1980	16-Sep			South Bay to Arcata Airport	COE, SF Dist
128	1980	16-Sep			South Bay to McKinleyville	COE, SF Dist
129	1980	16-Sep			Freshwater Slough to Arcata Marsh	COE, SF Dist
130	1981	16-Jun	12:20	4.6' LHW	Humboldt Bay, Entrance Bay	CDF
131	1981	16-Jun	14:58	4.0' Falling tide after LHW	Humboldt Bay, Entrance	CDF
132	1981	16-Jun	14:58	4.0' Falling tide after LHW	Humboldt Bay, South Bay	CDF
133	1981	31-May	11:52	4.7' Falling tide after LHW 5.0'	Eel River, Mouth	COE, SF Dis
134	1981	31-May	13:09	4.2' Falling tide after LHW 5.4'	Mad River, Mouth	COE, SF Dis
135	1981	16-Oct	11:41	5.0' Rising tide	Humboldt Bay Entrance	COE, SF Dis
136	1981	16-Oct			South Bay to Arcata Airport	COE, SF Dis
137	1981	16-Oct			South Bay to McKinleyville	COE, SF Dis
138	1981	16-Oct			Freshwater Slough to Arcata Marsh	COE, SF Dis
139	1982	5-May			Entrance Bay	DPW

.evel)	Title	Origin	Aerial ID	Number	Area Included 1	2	3	Format	Type	Scale	Size (in.)	P Lo
	North Bay (Eureka Slough to Arcata Marsh Project)	COE, SF Dist		3-1 to 3-13	NB			BW	V	1" = 1500'	9 x 9	COE Fiel
' tide	Humboldt Bay Entrance	COE, SF Dist	HUB	1-8	EC			BW	V	1" = 1000'	9 x 9	COE Fiel
	South Bay to Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE Fiel
	South Bay to McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE Fiel
	Freshwater Slough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-6	NB			BW	V	1" = 1000'	9 x 9	COE Fiel
' V	Humboldt Bay, Entrance Bay	CDF	CDF-ALL-EU	6-13	EB	BP		BW	V	1" = 1200'	9 x 9	D
' tide HW	Humboldt Bay, Entrance	CDF	CDF-ALL-EU	4-28	EC	EB		BW	V	1" = 1200'	9 x 9	D
' tide HW	Humboldt Bay, South Bay	CDF	CDF-ALL-EU	4-27	SB			BW	V	1" = 1200'	9 x 9	D
' tide HW	Eel River, Mouth	COE, SF Dist	ER	1-9 2-1	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE Fiel
tide HW	Mad River, Mouth	COE, SF Dist	MR	1A-1 1A-2	MR			BW	V	1" = 1000'	9.5 x 9.5	COE. Fiel
tide	Humboldt Bay Entrance	COE, SF Dist	HUB	1-6	EC			BW	V	1" = 1000'	9.5 x 9.5	COE, Fiel
	South Bay to Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Fiel
	South Bay to McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Fiel
	Freshwater Slough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-7	NB			BW	V	1" = 1000'	9 x 9	COE, Fiel
	Entrance Bay	DPW	none	2 of 2	EC	FL		CO	OB	none	11 x 14	D

Date

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V	1" = 1500'	9 x 9	COE, Eureka Field Office	1980		Photo flight track from freshwater slough, Murray Field to Arcata. No end time on flight tract 3.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		Flight track line along Humboldt Bay western interior and offshore shorelines. Mad River mouth in Photo No. 1-15
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		Flight track along Humboldt Bay interior eastern shoreline. Mad River in Photo No. 2-14
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1980		
BP		BW	V	1" = 1200'	9 x 9	DPW	1981		Time estimated from close-by photos.
EB		BW	V	1" = 1200'	9 x 9	DPW	1981		Time estimated from close-by photos.
		BW	V	1" = 1200'	9 x 9	DPW	1981		Time estimated from close-by photos.
		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1981		ER1-9 is at Eel River north spit of mouth at 11:52 and ER2-1 is Eel River south spit of mouth at 11:54; Flight goes up the Eel River to the south fork Eel River confluence.
		BW	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1981		Entire flight is from mouth of Mad River up to Maple Creek; Mouth located across from airport exit on Highway 101.
		BW	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1981		
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1981		Flight track line along Humboldt Bay western interior and offshore shorelines; Mad River Mouth off picture
NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1981		Flight track along Humboldt Bay interior eastern shoreline. Mad River in Photo No. 2-16.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1981		
FL		CO	OB	none	11 x 14	DPW	Draw 23		Two photos dated 5 May 1982 and 5 November 1982, shows King Salmon and Buhne Spit erosion and some of the Fields Landing Channel Rock Slope Protection Project. Photos located in file folder titled "1954, 1960s, 1970 Airports, Little River."

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial I
140	1982	5-May			Humboldt Bay, King Salmon	HC DPW	none
141	1982	1-Oct	12:30	5.5' Just after high tide	Humboldt Bay Entrance	COE, SF Dist	HUB
142	1982	1-Oct			South Bay to Arcata Airport	COE, SF Dist	HUB
143	1982	1-Oct			South Bay to McKinleyville	COE, SF Dist	HUB
144	1982	1-Oct			Freshwater Slough to Arcata Marsh	COE, SF Dist	HUB
145	1982	5-Nov			Humboldt Bay, King Salmon	HC DPW	none
146	1985	23-Apr			Humboldt Bay, Entrance	R.B. Davis	HC-DP
147	1985	9-Jul	13:43	2.0' Rising tide	Humboldt Bay, Loleta to Mad River	COE, SF Dist	HUB
148	1985	9-Jul	14:01	2.4' Rising tide	Humboldt Bay, Eel River to Mad River	COE, SF Dist	HUB
149	1985	9-Jul			Humboldt Bay, Loleta Bottoms to McKinleyville	COE, SF Dist	HUB
150	1985	9-Jul			Loleta to Blue Lake	COE, SF Dist	HUB
151	1985	9-Jul			Fernbridge to Mad River	COE, SF Dist	HUB
152	1985	9-Jul	14:01	2.4' Rising tide	Eel River, Mouth	COE, SF Dist	ERP
153	1988	28-Mar	12:29	2.3' Falling tide	Humboldt Bay, Entrance	COE, SF Dist	WAC
154	1988	28-Mar			Humboldt Bay, South Bay	COE, SF Dist	WAC
155	1988	28-Mar			Humboldt Bay, Entrance	COE, SF Dist	WAC
156	1988	15-Jul			Humboldt Bay, South Bay	COE, SF Dist	WAC 8 A
157	1988	15-Jul			Humboldt Bay, Fields Landing	COE, SF Dist	WAC 8 A
158	1988	15-Jul			Humboldt Bay, Entrance Bay	COE, SF Dist	WAC 8 A
159	1988	15-Jul			Humboldt Bay, North Channels	COE, SF Dist	WAC 8 A
160	1988	15-Jul			Humboldt Bay, North Channels	COE, SF Dist	WAC 8 A

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Photo Location	
				1	2	3					Location	File No
, King Salmon	HC DPW	none	none	EB	FL		C	OB		11 x 14	DPW	Draw 2
Entrance	COE, SF Dist	HUB	1-5	EB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982
Arcata Airport	COE, SF Dist	HUB	1-1 to 1-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982
McKinleyville	COE, SF Dist	HUB	2-1 to 2-16	SB	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982
ough to Arcata Marsh	COE, SF Dist	HUB	3-1 to 3-9	NB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982
, King Salmon	HC DPW	none	none	EB	FL		C	OB		11 x 14	DPW	Draw 2
, Entrance	R.B. Davis	HC-DPW	1-2	EC			BW	V	1" = 1200'	9 x 9	DPW	1985
, Loleta to Mad River	COE, SF Dist	HUB	2-1 to 2-34	HB	MR		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
, Eel River to Mad River	COE, SF Dist	HUB	1-1 to 1-32	EC	SS	ER MR	CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
, Loleta Bottoms to	COE, SF Dist	HUB	3-1 to 3-35	HB			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
Lake	COE, SF Dist	HUB	4-1 to 4-35	OT			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
Mad River	COE, SF Dist	HUB	5-1 to 5-35	OT			CO-IR		1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
uth	COE, SF Dist	ERP	1-16 1-17	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985
, Entrance	COE, SF Dist	WAC	1-73	EC			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988
, South Bay	COE, SF Dist	WAC	1-72	SB			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988
, Entrance	COE, SF Dist	WAC	1-74	EC			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988
, South Bay	COE, SF Dist	WAC 88C-A	20-42 20-43	SB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1985
, Fields Landing	COE, SF Dist	WAC 88C-A	20-44	FL			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988
, Entrance Bay	COE, SF Dist	WAC 88C-A	20-45	EB	EC		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988
, North Channels	COE, SF Dist	WAC 88C-A	20-47 20-48	NC			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988
, North Channels	COE, SF Dist	WAC 88C-A	20-49	NC	WI	EU	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988

Area ncluded			Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
	2	3					Location	File No.		
3	FL		C	OB		11 x 14	DPW	Draw 23		Flat file in draw labeled 1954, 1960s, 1970 airports, Little River, Misc. mouth of Redwood Creek, 1979 Fortuna, King Salmon.
3			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982		
3	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982		Flight track line along Humboldt Bay western interior and offshore shorelines. Mad River mouth in Photo No. 1-16.
3	NB	MR	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982		Flight track along Humboldt Bay interior eastern shoreline. Mad River in Photo No. 2-16.
3			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1982		
3	FL		C	OB		11 x 14	DPW	Draw 23		Flat file in draw labeled 1954, 1960s, 1970 airports, Little River, misc. mouth of Redwood Creek, 1979 Fortuna, King Salmon.
3			BW	V	1" = 1200'	9 x 9	DPW	1985		
3	MR		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		Photos have one-half inch black border, for 10 x 10 actual size.
3	SS	ER MR	CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		Entire flight is from Eel River mouth upstream to Fortuna.
3			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		Shows interior shoreline of Humboldt Bay.
			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		Shows areas upland of Humboldt Bay.
			CO-IR		1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		Shows areas upland of Humboldt Bay.
			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1985		
			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	Good plume and shoaling in entrance with currents and waves shown in East Entrance Bay.
			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	
			BW	V	1" = 2640	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	
			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1985	WAC, Eugene, OR	
			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	
	EC		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	
			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	
	WI	EU	BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1988	WAC, Eugene, OR	Shows Eureka Inner Harbor and one-half Woodley Island.

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Ae
161	1994	28-Apr	12:56	3.9' Rising tide after LLW -1.9'	Eel River, Mouth to Fortuna	COE, SF Dist	E
162	1994	28-Apr	13:28	4.5' Rising tide	Eel River, Mouth to Ferndale	COE, SF Dist	E
163	1994	28-Apr	13:45	4.7' Rising tide	Eel River, Mouth to Ferndale	COE, SF Dist	E
164	1994	28-Apr	14:08	5.0' Rising tide	Eel River, Mouth to Rio Dell	COE, SF Dist	I
165	1996	19-Jul			Humboldt Bay, South Bay	COE, SF Dist	9
166	1996	19-Jul			Humboldt Bay, Fields Landing	COE, SF Dist	9
167	1996	19-Jul			Humboldt Bay, Entrance Bay	COE, SF Dist	9
168	1996	19-Jul			Humboldt Bay, Entrance Bay	COE, SF Dist	9
169	1996	19-Jul			Humboldt Bay, Entrance Bay	COE, SF Dist	9
170	1997		Unknown		Humboldt Bay	CDFG	
171	2000				Humboldt Bay, Entrance Channel	WAC	
172	2000		Unknown		Humboldt Bay	CDFG	
173	2000				Humboldt Bay, Entrance Bay	WAC	(

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Pl Location	
				1	2	3					Location	Fil
Mouth to Fortuna	COE, SF Dist	ERP	1-1 to 1-15	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1
Mouth to Ferndale	COE, SF Dist	ERP	3-1 to 3-24	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1
Mouth to Ferndale	COE, SF Dist	ERP	4-1 to 4-28	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1
Mouth to Rio Dell	COE, SF Dist	ERP	2-1 to 2-25	ER			CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1
Bay, South Bay	COE, SF Dist	96138	1-10-7 to 12	SB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1
Bay, Fields Landing	COE, SF Dist	96138	1-10-13	FL			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1
Bay, Entrance Bay	COE, SF Dist	96138	1-10-14	EB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1
Bay, Entrance Bay	COE, SF Dist	96138	1-10-15	EB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1
Bay, Entrance Bay	COE, SF Dist	96138	1-10-16	EB			BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1
Bay	CDFG			HB			CO	V	1" =2000'	9 x 9	CDFG	1
Bay, Entrance Channel	WAC	HC	7-164	EC			BW	V	1" = 1200'	9 x 9		2
Bay	CDFG			HB			CO	V	1" =2000'	9 x 9	CDFG	
Bay, Entrance Bay	WAC	00-CA	7-121 7-122	EB			BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1988		Time of flight at Eel River mouth is 12:56, with ERP 1-14 and ERP 1-15 showing mouth.
		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1994		Time of flight at Eel River mouth is 13:28, with ERP 3-23 and ERP 3-24 showing mouth. Flight goes over south marshes interior to mouth.
		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1994		Time of flight at Eel River mouth is 13:45, with ERP 4-26 and ERP 4-27 showing mouth. Flight goes over land adjacent to the Eel River from mouth to Scotia.
		CO-IR	V	1" = 1000'	9.5 x 9.5	COE, Eureka Field Office	1994		Time of flight at Eel River mouth is 14:08, with ERP 2-24 and ERP 2-25 showing mouth.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1996		Estimated time 12:35 from 1-10-1 flight track going north, South Bay in 6 photos.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1996		Estimated time 12:35 from 1-10-1 flight track going north.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1996		Estimated time 12:35 from 1-10-1 flight track going north.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1996		Estimated time 12:35 from 1-10-1 flight track going north.
		BW	V	1" = 1000'	9 x 9	COE, Eureka Field Office	1996		Estimated time 12:35 from 1-10-1 flight track going north.
		CO	V	1" =2000'	9 x 9	CDFG	1997	HBHRCD USFWS	Aerials flown by Terra-Mar under contract to California Department of Fish and Game, Northern California, North Coast Region Information Services Branch, Redding, CA. Original scale of aerials is unknown, but the entire area of Humboldt Bay has been geo-registered to the 7.5 min USGS Quadrangle maps; Have yet to determine exact time of flight but have been told tide level of flight is between 1.5 to 2.0 ft.
		BW	V	1" = 1200'	9 x 9		2000		
		CO	V	1" =2000'	9 x 9	CDFG		HBHRCD USFWS	Aerials flown under contract to California Department of Fish and Game, Northern California, North Coast Region Information Services Branch, Redding, CA. Original scale of aerials is unknown but the entire area of Humboldt Bay has been geo-registered to the 7.5 min USGS Quadrangle maps; Have yet to determine exact time of flight but have been told tide level of flight is between 1.5 to 2.0 ft.
		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000	WAC, Eugene, OR	

Ref. No.	Year	Day/ Month	Time at Entrance	Tide Level (ft)	Title	Origin	Aerial ID
174	2000				Humboldt Bay, South Spit	WAC	00-CA
175	2000				Humboldt Bay, South Bay	WAC	00-CA
176	2000				Humboldt Bay, North Spit and Channels	WAC	00-CA
177	2000				Humboldt Bay, North Channels	WAC	00-CA
178	2000				Humboldt Bay, North Bay	WAC	00-CA
179	Various	Various	Various	Various	Slide collection of jetties, construction, maintenance, storm damage	COE, Eureka Field Office	none
180	Various	Various	Various	Various	Slide collection of Humboldt Bay and surrounding area	Hum CO DPW, NR	none

Title	Origin	Aerial ID	Number	Area Included			Format	Type	Scale	Size (in.)	Primary Aerial Photo Location	
				1	2	3					Location	File No.
uth Spit	WAC	00-CA	7-161 7-162 7-163 7-164	SS			BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000
ıth Bay	WAC	00-CA	7-117 7-118 7-119 7-120	SB			BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000
th Spit and Channels	WAC	00-CA	7-124 7-125	NS	NC		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000
th Channels	WAC	00-CA	7-83 7-84 7-85	NC			BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000
th Bay	WAC	00-CA	7-38 7-39 7-40 7-41 7-42 6-212 6-213 6-214 6-215	NB			BW	V	1" = 1200'	9 x 9	WAC, Eugene, OR	2000
tties, construction, damage	COE, Eureka Field Office	none		HB			CO	OB	none	slides and photos	COE, Eureka Field Office	
ımboldt Bay and	Hum CO DPW, NR	none		HB	MR	ER	CO	OB	none	slides and photos	DPW	

Area ncluded		Format	Type	Scale	Size (in.)	Primary Aerial Photo Location		Secondary Location	Notes
2	3					Location	File No.		
		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000	WAC, Eugene, OR	Humboldt Bay Entrance 7-164.
		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000	WAC, Eugene, OR	Fields Landing Channel 7-120.
NC		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000	WAC, Eugene, OR	
		BW	V	1" = 1200'	9 x 9	COE, Eureka Field Office	2000	WAC, Eugene, OR	Eureka Inner Harbor and Woodley Island included.
		BW	V	1" = 1200'	9 x 9	WAC, Eugene, OR	2000		
		CO	OB	none	slides and photos	COE, Eureka Field Office			Photo print and slide collection taken by Jack McKellar, COE, Eureka Field Office. Photos taken since 1964 to document jetty construction, maintenance, and area storm damage taken from the ground and predominantly from the U.S. Coast Guard helicopters. Photos arranged by year.
MR	ER	CO	OB	none	slides and photos	DPW			Slide collection of Humboldt County Department of Public Works, Natural Resources Division, Eureka, CA. Collection includes slides copies of vertical aerials in various other collections pertinent to Humboldt Bay and the Eel and Mad Rivers. Slide collection includes flood and storm damage photos taken from small aircraft and helicopters. Slide collection is arranged by geographic areas.

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Appendix B
Abbreviations Used for Map and Chart Origins in Appendix C

Table B1
Abbreviations Used for Map and Chart Origins in Appendix C (Abbreviations are given as displayed on original maps)

Abbreviation	Origin
Cartwright	Cartwright Aerial Surveys, Inc. Sacramento, CA (took 1970 Humboldt County aerials). May no longer be in business.
CDF	State of California Division of Forestry.
CDFG	State Of California Department of Fish and Game, see Appendix G for contact.
CH2M HILL	CH2M HILL, 2525 Airpark Drive, Redding, CA. 96001-2443; 530-243-5831.
COE Eu Fl Of	Corp of Engineers, Eureka Field Office, for access see Appendix G.
COE SF Dist	Corps of Engineers, San Francisco District.
COE SF Dist Of	Corps of Engineers, San Francisco District.
DPW	Humboldt County, Department of Public Works, Natural Resources Division, Eureka, CA, 707-445-7741; for access to database see Appendix G.
HBHRCD	Humboldt Bay Harbor Recreation and Conservation District, Eureka, CA, for contact information see Appendix G.
HC Ass Of	Humboldt County Assessors Office
N.G. Chickering	N.G. Chickering Jr. Consulting Photogrammetry, Inc. Eugene Oregon (took 1966 Humboldt County aerials for the Humboldt County Assessors Office).
Hum Co DPW, NR	Humboldt County, Department of Public Works, Natural Resources Division, Eureka, CA.
Pacific Air	Pacific Air Industries, 725 E 3rd Street, Long Beach 12, CA, Hemlock 5-8326; (took 1953 aerial photos, may no longer be in business).
R.B. Davis	Richard B. Davis Aerial Photography, 711 H. Street, Crescent City, CA, 707-464-9571 (took 1985 photography).
TeraMar	Jim Nichols, 209-754-3536.
USDA	United States Department of Agriculture (photographs for Humboldt County can be obtained from Jay Harris, CDF, Fortuna, CA 707-726-1256.
USFW	United States Fish and Wildlife Service.
WAC	WAC Corporation, 520 Conger Street, Eugene, OR 97402-2795, 1-800-845-8088 or 541-342-5169, FAX: 503-485-1258.
Western Mapping	Delano Studio and Aerial Surveys Associated with Western Mapping Co. Aerial Surveys, (took 1958 Humboldt County aerial photos.

Table B2
Aerial Format Codes Used in Appendix A

Format Codes	Map Format
BW	Black and White Copy
CO	Color
CO-IR	Color-Infared

Table B3
Aerial Type Codes Used in Appendix A

Type Codes	Aerial Type
OB	Oblique
V	Vertical

Table B4
Aerial Location Codes Used in Appendix A

Location Code	Aerial Location
EB	Entrance Bay
EC	Entrance Channel
ER	Eel River
FL	Fields Landing Channel, South Bay
HB	Humboldt Bay (Entire Bay)
HC	Hookton Channel, South Bay
MR	Mad River
NB	North Bay (Arcata Bay)
NC	North Channels (Includes North Bay Channel, Eureka Channel Outer and Inner Reaches, Samoa Channel)
NS	North Spit
OS	Offshore of Entrance
OT	Other, location given in notes column
SB	South Bay
SS	South Spit

Appendix C
Listing of Available Maps and Charts by Date

Table C1
Listing of Available Maps and Charts by Date

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID
					1	2	3	4	
1	1850		Hydrography of Entrance and part of Humboldt Bay, CA	USCS	EC	EB			
2	1851		Preliminary survey of Humboldt Bay, CA	USCS	HB	EB			Sketch J No.8
3	1851		Humboldt Bay, Ryan Slough	USCS	OT	NB			Register No. 271
4	1851		Humboldt Bay, Lower Part, CA	USCS	HB	OS			Register No. 270
5	1851		Humboldt Sheet No. 2	COE SF	NB				Register No. 271
6	1852		Sketch J No.8 Preliminary Survey of Humboldt Bay, CA	USCS	HB				No.632 Plate No. 107 Ed 2
7	1854		Untitled (Entrance to Humboldt Bay)	unknown	EC	EB			none
8	1858		Preliminary Survey of Humboldt Bay, CA	USCS	HB				No.632 Plate No. 733
9	1859		Hydrography of Entrance and part of Humboldt Bay, CA	USCS	EC	EB			Register No. 710
10	1859		Part of Humboldt Bay, CA (Entrance and Entrance Bay)	USCS	EC	EB	NC	FL	
11	1869		Section X. California Topography From Humboldt Bay to Table Bluff	USCS	HB				Register No. 1137
12	1870		Part of Humboldt Bay, CA	USCS	NB				Register No. 1176
13	1870		Map of the Meander of the 1870 Apparent Shoreline MLLW at Samoa	unknown	NC				none
14	1870		Section X. Part of Humboldt Bay, CA (North Bay)	USCS	NB				Register No. 1176
15	1870		Section X. Part of Humboldt Bay, CA (Entire Bay)	USCS	HB				Register No. 1176
16	1870		Section X Coast south of Trinidad Head	USCS	OT				
17	1870		Section X. Coast north of Trinidad Head	USCS	OT				Register No. 1179
18	1870		Section X. Part of Humboldt Bay, CA	USCS	EC	EB			Register No. 1174
19	1870		Section X. Part of Humboldt Bay, CA	USCS	HC	NB			Register No. 1175

rts by Date

e	Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Cha Location	Recor
ance and part of	USCS	EC	EB				1 of 1	BL CM	BA	1:10000	14 x 24	DPW	RG-0
f Humboldt Bay,	USCS	HB	EB			Sketch J No.8	1 of 1	BL CM PP	BA	1:30000	16 x 20	DPW	RG-0
Slough	USCS	OT	NB			Register No. 271	Sheet 2	BW	SL	1:10000	48 x 48	DPW	
r Part, CA	USCS	HB	OS			Register No. 270	1 of 1	BL	BA	1:10000	80 x 36	DPW	RG-0
2	COE SF	NB				Register No. 271	1 of 1	BL CM	BA	1:10000	20 x 24	DPW	RG-06
inary Survey of	USCS	HB				No.632 Plate No. 107 Ed 2	1 of 1	BW	BA	1:30000	18 x 22	DPW	RG-0
Humboldt Bay)	unknown	EC	EB			none	1 of 1	BL CM	BA	none	24 x 33	DPW	RG-0
f Humboldt Bay,	USCS	HB				No.632 Plate No. 733	1 of 1	PP	BA	1:30000	18 x 24	DPW	RG-0
ance and part of	USCS	EC	EB			Register No. 710	1 of 1	BL	BA	1:10000	80 x 36	DPW	RG-0
y, CA (Entrance	USCS	EC	EB	NC	FL		1 of 1	BL	BA	1:10000	18 x 18	DPW	RG-0
Topography to Table Bluff	USCS	HB				Register No. 1137	1 of 1	PP	TO	1:10000	51 x 31	DPW	RG-0
y, CA	USCS	NB				Register No. 1176	1 of 1	BW	BA	1:10000	29 x 41	DPW	RG-0
of the 1870 MLLW at Samoa	unknown	NC				none	1 of 1	BL	BA	1:2400	24 x 72	DPW	DP\ Humbol Gener File [
mboldt Bay, CA	USCS	NB				Register No. 1176	1 of 1	BW	SL	1:10000	51 x 29	DPW	RG-0
mboldt Bay, CA	USCS	HB				Register No. 1176	1 of 1	BW	SL	unknown	56 x 24	DPW	RG-06
th of Trinidad	USCS	OT						BW PP	SL	1:30000	50 x 29	DPW	RG-0
th of Trinidad	USCS	OT				Register No. 1179	1 of 1	BW PP	SL	1:10000	51 x 29	DPW	RG-0
mboldt Bay, CA	USCS	EC	EB			Register No. 1174	1 of 1	PP	TO	1:10000	51 x 31	DPW	RG-0
mboldt Bay, CA	USCS	HC	NB			Register No. 1175	1 of 1	PP	TO	1:10000	51 x 31	DPW	RG-0

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
:M	BA	1:10000	14 x 24	DPW	RG-06-04	F140		Mylar copy is reversed.
/ PP	BA	1:30000	16 x 20	DPW	RG-06-01	F114	CSL C912 H91 1851 c.2	Soundings in feet to 18' then in fathoms; profiles of Red Bluff (Buhne Point) from Humboldt Bay Entrance; very complete.
V	SL	1:10000	48 x 48	DPW		F113		Two copies, one incomplete (36 x 24).
-	BA	1:10000	80 x 36	DPW	RG-06-03	F113		Soundings bay wide and immediately offshore of Bay Entrance.
:M	BA	1:10000	20 x 24	DPW	RG-06-01.1	F139	Shows North Bay south to Indian Island	
V	BA	1:30000	18 x 22	DPW	RG-06-02	F114		
:M	BA	none	24 x 33	DPW	RG-06-02	F140		Mylar copy is reversed; shows Entrance Channel, Entrance Bay, South Bay.
›	BA	1:30000	18 x 24	DPW	RG-06-03	F114		
-	BA	1:10000	80 x 36	DPW	RG-06-04	F113		
-	BA	1:10000	18 x 18	DPW	RG-06-14	F140		Blue line of linen original. Elk River has no spit. Map shows location of the 1851 astronomical station.
›	TO	1:10000	51 x 31	DPW	RG-06-05	F113		
V	BA	1:10000	29 x 41	DPW	RG-06-08	F114		Shows Arcata Wharf.
.	BA	1:2400	24 x 72	DPW	DPW - Humboldt Bay General Flat File Draw			Prepared in May 1979.
V	SL	1:10000	51 x 29	DPW	RG-06-08	F113		Shows North Bay only.
V	SL	unknown	56 x 24	DPW	RG-06-08.1	F113		Entire bay from 1:10000 reduced to one sheet.
PP	SL	1:30000	50 x 29	DPW	RG-05-05	F113		Trinidad Head south to Mad River (names of offshore rocks and points of interest added in pencil by J.W.M. in 1926 from J.J. Waterman, U of CA, 1920, interviews with local Native Americans).
PP	SL	1:10000	51 x 29	DPW	RG-05-04	F113		Trinidad Head north to Patricks Point State Park - Agate Beach (names of offshore rocks and points of interest added in pencil by J.W.M. in 1926 from J.J. Waterman, U of CA, 1920, interviews with local Native Americans).
›	TO	1:10000	51 x 31	DPW	RG-06-06	F113		
›	TO	1:10000	51 x 31	DPW	RG-06-07	F113		Shows Eureka Channel north to edge of Mad River Slough.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Sh
					1	2	3	4		
20	1870		Hydrographic survey of bar and entrances and approaches to Humboldt Bay, CA	USCS	OS	EC	EB		Register No. 1177	1 c
21	1870		Humboldt Bay Section X Composite	USCS	HB				No. 1174	1 c
22	1871		Hydrography of Humboldt Bay, CA	USCS	EC	EB	SJ		Register No. 1176	1 c
23	1871		Hydrography of Humboldt Bay, CA	USCS	NB	NC			Register No. 1176	2 c
24	1875		Examination of channel across Humboldt Bar, CA	USCS	OS	EC			Register No. 1328	1 c
25	1880	Sep - Oct	Map of parts of Humboldt Bay survey of mouth of Mad River Slough	War Dept.	NB					1 c
26	1881		Improvement of channels in Humboldt Bay (1881 and 1882)	WD Board Eng. Off. Ch. Eng. USArmy					W 469	1 c
27	1882		Entrance to Humboldt Bay	probably US Eng	EC				none	1 c
28	1883	Jan	Humboldt Bay, CA	not labeled, but is WD-COE	EC	EB	NC	FL	W-405	1 c
29	1883		Humboldt Bay, CA Surveys of bar and entrance (1851 1858 1870 1875 1881 1882 1883)	US Eng.	OS	EC	EB		File: 5 Div:2 Sheet: 70 No.:232	1 c
30	1883		Sketch of Entrance to Humboldt Bay	Ch. Eng. USArmy	EC				W 416	1 c
31	1884		Humboldt Bay and Bar, CA	USC&GS	EC	NC	NB		Register No. 1635	2 c
32	1886	Feb	Humboldt Bay, CA	USCS	HB				No. 632	1 c
33	1886		Humboldt Bay, CA	WD-COE	HB					1 c
34	1888		Record of survey for U.S. Corps of Engineers, 18 January 1888	not labeled, but prepared for USACE	EC	NC			Book 48 of Surveys Pages 57 and 58	2 sh
35	1890	Sep	Fields Landing Channel, Humboldt Bay, CA, survey of 15-20 September 1890	WD Board Eng. Off. Ch. Eng. USArmy	FL	SS			W-573-2	1 c

rigin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	Sec Lo
SCS	OS	EC	EB		Register No. 1177	1 of 1	BL CM	BA	1:10000	14 x 24	DPW	RG-06-05	F140	
SCS	HB				No. 1174	1 of 1	CM	BA TO	1:10000	25 x 60	DPW	Large oversize in brown flat folder		
SCS	EC	EB	SJ		Register No. 1176	1 of 2	BL CM	BA	1:10000	14 x 24	DPW	RG-06-06 A	F140	
SCS	NB	NC			Register No. 1176	2 of 2	BL CM	BA	1:10000	14 x 24	DPW	RG-06-06 B	F140	
SCS	OS	EC			Register No. 1328	1 of 1	BL CM	BA	none	15 x 24	DPW	RG-06-08	F140	
Dept.	NB					1 of 1	BL	BA	1:3600	28 x 12	DPW	RG-06-01	F139	
Board Off. Ch. ng. Army					W 469	1 of 1	BW	BA	1:3600	18 x 26	DPW	RG-06-02	F139	NA-Cart records Dept, O Chief of RG No.: 469-8
bably Eng	EC				none	1 of 1	BL	BA		28 x 40	DPW	RG-06-13	F140	NA-RG
ıbeled, s WD-OE	EC	EB	NC	FL	W-405	1 of 1	2-BW	BA	1:30000	17 x 18	DPW	RG-06-03	F140	NA RG- Works M 405
Eng.	OS	EC	EB		File: 5 Div:2 Sheet: 70 No.:232	1 of 1	2-BL	BA	1:30000	28 x 40	DPW	RG-06-09	F140	
Eng. Army	EC				W 416	1 of 1	BW	BA	unknown	18 x 21	DPW	RG-06-01	F143	NA RG I Works M 416
C&GS	EC	NC	NB		Register No. 1635	2 of 2	BL CM	BA	1:20000	24 x 36	DPW	RG-06-07	F140	
SCS	HB				No. 632	1 of 1	2-BW 1-PP	BA	1:30000	33 x 27	DPW	RG-06-06	F114	
COE	HB					1 of 1	BW PP	BA	1:10000	18 x 26	DPW	RG-06-03	F139	NA-Cart records Dept, Of Chief of RG No.7 469-7
beled, epared SACE	EC	NC			Book 48 of Surveys Pages 57 and 58	2 sheets	2-BL	TO	1:2400	28 x 18	DPW		F140	Humbol Recorde
Board Off. Ch. ng. Army	FL	SS			W-573-2	1 of 1	BW	BA	1:2400	27 x 40	DPW	RG-06-01	F141	NA RG-: 2

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
:M	BA	1:10000	14 x 24	DPW	RG-06-05	F140		Mylar copy is reversed.
/	BA TO	1:10000	25 x 60	DPW	Large oversize in brown flat folder			Composite of the entire Humboldt Bay and surrounding marshes; also shows some land features; earliest comprehensive mapping of Humboldt Bay.
:M	BA	1:10000	14 x 24	DPW	RG-06-06 A	F140		Mylar copy is reversed, shows Entrance Channel, Entrance Bay, South Jetty.
:M	BA	1:10000	14 x 24	DPW	RG-06-06 B	F140		Mylar copy is reversed; shows North Channels and North Bay.
:M	BA	none	15 x 24	DPW	RG-06-08	F140		Scale bars shown but numbers unreadable; scalable features can be used to determine scale; copy quality poor, Mylar copy is reversed, shows Entrance Channel.
.	BA	1:3600	28 x 12	DPW	RG-06-01	F139		
V	BA	1:3600	18 x 26	DPW	RG-06-02	F139	NA-Cartographic records of the War Dept, Office of the Chief of Engineers RG No.77 File W 469-8	Shows dredging areas along Eureka Channel across from Woodley Island, Arcata Channels, Hookton Slough at Salmon Creek and Hookton Slough at Indian Mound Slough.
.	BA		28 x 40	DPW	RG-06-13	F140	NA-RG No.77	Shows comparison of high and low waters: HW for 28 August 1881; LW for 29 August 1881;HW and LW for 1 June 1889.
W	BA	1:30000	17 x 18	DPW	RG-06-03	F140	NA RG-77 Civil Works Map File W-405	Dated 17 January 1883; heavy black line showing projected low water jetty upon south sands (future South Jetty).
L	BA	1:30000	28 x 40	DPW	RG-06-09	F140		
/	BA	unknown	18 x 21	DPW	RG-06-01	F143	NA RG No. 77 Civil Works Map File W-416	Shows location of entrance and approximate position of seawall and proposed railroad tracks on South Jetty.
:M	BA	1:20000	24 x 36	DPW	RG-06-07	F140		Mylar copy is reversed, shows North Channels and North Bay.
1-PP	BA	1:30000	33 x 27	DPW	RG-06-06	F114		
PP	BA	1:10000	18 x 26	DPW	RG-06-03	F139	NA-Cartographic records of the War Dept, Office of the Chief of Engineers RG No.77 File W 469-7	Shows approximate location of a training wall at entrance, along with shorelines of 1851 and 1887.
L	TO	1:2400	28 x 18	DPW		F140	Humboldt County Recorders Office	Shows present-day shoreline, 1870 shoreline, and 1919 shoreline for USACE dredge disposal location on Samoa Peninsula.
/	BA	1:2400	27 x 40	DPW	RG-06-01	F141	NA RG-77 #W-573-2	Fields Landing pierhead and bulkhead lines; soundings are reduced to low water of U.S. gauge at South Spit.

3

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Sheet
					1	2	3	4		
36	1891	Feb	Humboldt Harbor, CA	Off. Chief of Eng.	OS	EC			W-555	1 of 1
37	1891	May	Survey of shorelines of North and South Spits and Humboldt Point showing changes in Shoreline	Off. Chief of Eng.	OS	EC	EB		W-571	1 of 1
38	1891	Jun	Fields Landing Humboldt Bay, CA, survey of 15-20 September 1890	Ch. Eng. USArmy	FL				W 573-2	1 of 1
39	1891		Humboldt Bay (Resurvey U.S. Engineer, February 1891)	USC&GS	HB				Chart No. 632 Photolithograph Ed. 5 1891-Resurvey	1 of 1
40	1892	Aug	Humboldt Harbor, CA	US Eng	EB	EC			none	1 of 2
41	1892	Aug	Humboldt Harbor, CA	US Eng	EC				none	2 of 2
42	1894	Jan	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of 1
43	1894		Entrance to Humboldt Bay, CA	USACE	EC	EB				1 of 1
44	1894	Dec	Entrance to Humboldt Bay (Survey of December 1894)	USACE	EC	EB				I of 1
45	1896	Jun	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832, Ed 3	1 of 1
46	1897	Sept	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832 Edition 4	1 of 1
47	1897	Sept	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832 Edition 4	1 of 1
48	1897	Sep	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of 1
49	1899	Sept	Humboldt Bay CA.	US Treasury Dept. C&GS	HB				Chart No. 5832	1 of 1
50	1899	Sep	Humboldt Bay, CA	Treasury Dept. USC&GS	HB				Chart No. 5832	1 of 1
51	1899		Comparative profiles of channel at Entrance to Humboldt Bay, CA, from inner end of jetties to deep water beyond bar from 1875 to completion of work in 1899	probably US Eng	EC				none	1 of 1
52	1899	May	Entrance to Humboldt Bay, CA	COE USA	EC				none	1 of 1
53	1901	Feb	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of 1

igin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	Secc Loc
:hief of ng.	OS	EC			W-555	1 of 1	BW	BA	1:19200	18 x 24	DPW	RG-06-10	F140	NA-Cart Records Dept, Of Chief of RG No.7 555
:hief of ng.	OS	EC	EB		W-571	1 of 1	BW	BA	1:3600	18 x 25	DPW	RG-06-11	F140	NA-RG I W 571
Eng. Army	FL				W 573-2	1 of 1	BL	BA	1:2400	29 x 45	DPW	RG-06-03	F141	NA RG- Works M 573-2
:&GS	HB				Chart No. 632 Photolithograph Ed. 5 1891-Resurvey	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-05	F114	NA-RG 632 Ed. Resurve
; Eng	EB	EC			none	1 of 2	BL CM	BA	1:3600	28 x 40	DPW	RG-06-12 Sheet 1	F140	
; Eng	EC				none	2 of 2	BL CM	BA	1:3600	28 x 40	DPW	RG-06-12 Sheet 2	F140	
C&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-07	F114	NA-RG 5832 E
SACE	EC	EB				1 of 1	BW	BA	1:3600	48 x 42	DPW	RG-06-13	F113	
SACE	EC	EB				I of 1	BL	BA	1:7200	22 x 28	DPW		F139	
;C&GS	HB				Chart No. 5832, Ed 3	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-08	F114	NA-RG 5832 E 1896
;C&GS	HB				Chart No. 5832 Edition 4	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-10	F114	Origina Library Bldg)
;C&GS	HB				Chart No. 5832 Edition 4	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-09	F114	
;C&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-12	F114	
Treasury t. C&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-13	F114	NA-RG 5832 I 1899
easury Dept. SC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-11	F114	
robably IS Eng	EC				none	1 of 1	BL	BA	Ver: 1"=10' HOR: 1"=600'	20 x 24	DPW	RG-06-14	F140	
DE USA	EC				none	1 of 1	2-BL OR	BA	1:7200	25 x 34	DPW	RG-06-15	F140	
SC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-14	F114	

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
V	BA	1:19200	18 x 24	DPW	RG-06-10	F140	NA-Cartographic Records of War Dept, Office of Chief of Engineers RG No.77 File W 555	Shows Entrance Channel in great detail and bathymetry out to the Bar Buoy.
V	BA	1:3600	18 x 25	DPW	RG-06-11	F140	NA-RG No.77 File W 571	Shows 1881, 1887, 1889 shorelines and high water of 1 February 1891.
.	BA	1:2400	29 x 45	DPW	RG-06-03	F141	NA RG-77 Civil Works Map File W 573-2	Dated 17 June 1891, pierhead and bulkhead lines for Fields Landing Channel.
V	NA	1:30000	18 x 22	DPW	RG-06-05	F114	NA-RG No. 23 # 632 Ed.5 Feb 1891 Resurvey	
:M	BA	1:3600	28 x 40	DPW	RG-06-12 Sheet 1	F140		Shows Buhne Spit (Entrance Bay) and east end of North and South jetty.
:M	BA	1:3600	28 x 40	DPW	RG-06-12 Sheet 2	F140		Shows Entrance Channel, with comment: showing lines recommended for jetties by Board of U.S. Engineer, December 1892.
V	NA	1:30000	18 x 22	DPW	RG-06-07	F114	NA-RG No. 23 # 5832 Ed. 2 1894	
V	BA	1:3600	48 x 42	DPW	RG-06-13	F113		Shows north jetty built out to Bent 420 and south jetty built out to Bent 230; survey lines in detail; soundings in feet reduced to low water (forwarded with 30 June 1895 annual report).
.	BA	1:7200	22 x 28	DPW		F139		
/	NA	1:30000	18 x 22	DPW	RG-06-08	F114	NA-RG No. 23 # 5832 Ed.3 June 1896	
/	NA	1:30000	28 x 32	DPW	RG-06-10	F114	Original at Eureka Library (Admin Bldg)	Chart is full size.
/	NA	1:30000	18 x 22	DPW	RG-06-09	F114		Chart is reduced size.
/	NA	1:30000	28 x 32	DPW	RG-06-12	F114		Chart is full size.
/	NA	1:30000	28 x 32	DPW	RG-06-13	F114	NA-RG No. 23 # 5832 Ed. ? Sept 1899	"?" on copy of map available for review
/	NA	1:30000	28 x 32	DPW	RG-06-11	F114		Chart is full size.
	BA	Ver: 1"=10' HOR: 1"=600'	20 x 24	DPW	RG-06-14	F140		Cross section from north jetty to south jetty showing water column depths for 1875, 1883, 1893, 1899 at Bent No. 401.
OR	BA	1:7200	25 x 34	DPW	RG-06-15	F140		
/	NA	1:30000	28 x 32	DPW	RG-06-14	F114		Chart is full size.

Ref. No.	Date	Month	Title	Origin	Area Included 1	2	3	4	Map/Chart ID	Shee
54	1903	Sep	Humboldt Bay, CA	DOC USC&GS	HB				Chart No. 5832	1 of
55	1903	Sep	Humboldt Bay, CA	DOC USC&GS	HB				Chart No. 5832	1 of
56	1903	Sep	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of
57	1903	May	Entrance to Humboldt Bay, CA	USACE	EC	EB				1 of
58	1903	May	Entrance to Humboldt Bay, CA	US Eng SF CAL	EC				Date: July 1913 File:5 Div:14 Sheet:6	1 of
59	1904	May	Harbor lines for Humboldt Bay, CA, Bucksport to Eureka	COE	NC					1 of
60	1904	May	Map of Fields Landing Humboldt Bay, CA, showing pierhead and bulkhead lines	COE, USA	FL	SB			W 573-4	1 of
61	1904	May	Harbor Lines For Humboldt Bay, CA, from Bucksport to Eureka	WD US Army COE USA SF Dist	EB NC				File: 5 Div: 4 Sheet:1	3 she
62	1905	Oct	Profile Humboldt Bay, CA, between jetties to bar for years 1895 to 1905	Chief of Engineers	EC	OS			none	1 of
63	1906	Feb	Humboldt Bay, CA	C&GS	HB				No. 5832	1 of
64	1906	May	Humboldt Bay, CA	C&GS	HB				No. 5832	1 of
65	1906	Feb	Humboldt Bay, CA	DOC USC&GS	HB				Chart No. 5832	1 of
66	1906	Feb	Humboldt Bay, CA	DOC USC&GS	HB				Chart No. 5832	1 of
67	1906	Feb	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of
68	1907	Sep	Hydrographic survey Humboldt Bay from Bucksport to Eureka	COE	NC					1 of
69	1907	Aug	Hydrographic survey of Fields Landing Humboldt Bay, CA	COE SF	FL	EC	EB		File: 5 Div:2 Sheet:6	1 of
70	1908	May	Humboldt Bay, CA	C&GS	HB				No. 5832	1 of
71	1908	May	Humboldt Bay, CA	USC&GS	HB				Chart No. 5832	1 of
72	1908	Oct	Ship channel in front of Eureka, CA	US Eng SF	NC				File:5 Div:14 Sheet:2	1 of
73	1909	Aug	Map of water front at Fields Landing Humboldt Bay, CA, showing locations of pierhead and bulkhead lines	WD USArmy	FL				W 573-8	1 of

	Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No
	DOC USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-16	F140
	DOC USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-15 copy 2	F114
	USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-14	F114
	USACE	EC	EB				1 of 1	BL	BA	1:3600	60 x 48	DPW	RG-06-16.1	F113
	US Eng SF CAL	EC				Date: July 1913 File:5 Div:14 Sheet:6	1 of 1	1-BL 1-PP	BA	1:7200	21 x 28	DPW	RG-06-16	F140
\,	COE	NC					1 of 1	BW	BA	1:3600	36 x 72	DPW	RG-06-3.2	F113
Bay, ad	COE, USA	FL	SB			W 573-4	1 of 1	1-BL 1BW	BA	1:3600	27 x 40	DPW	RG-06-02	F14
CA,	WD US Army COE USA SF Dist	EB NC				File: 5 Div: 4 Sheet:1	3 sheets	2-CM	BA	1:3600	28 x 40	DPW	RG-06-02, 3 sheets	F13
en 05	Chief of Engineers	EC	OS			none	1 of 1	BL	BA	Hor: 1"=4' Vert 1"=10'	22 x 34	DPW	RG-06-10	F14
	C&GS	HB				No. 5832	1 of 1	PP	NA	1:30000	18 x 26	DPW	RG-06-16	F11
	C&GS	HB				No. 5832	1 of 1	BW	NA	1:30000	18 x 26	DPW	RG-06-16 copy2	F11
	DOC USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-16 copy 1	F1
	DOC USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-16 copy 3	F1
	USC&GS	HB				Chart No. 5832	1 of 1	BW PP	NA	1:30000	28 x 32	DPW	RG-06-14 copy 4	F1
Bay	COE	NC					1 of 1	BW	BA	1:3600	36 x 72	DPW	RG-06-3.1	F1
	COE SF	FL	EC	EB		File: 5 Div:2 Sheet:6	1 of 1	2-BL	BA	1:3600	28 x 40	DPW	RG-06-17	F1
	C&GS	HB				No. 5832	1 of 1	BW	NA	1:30000	18 x 26	DPW	RG-06-17	F1
	USC&GS	HB				Chart No. 5832	1 of 1	BW PP	NA	1:30000	28 x 32	DPW	RG-06-17copy 2	F1
CA	US Eng SF	NC				File:5 Div:14 Sheet:2	1 of 1	BW	BA	1:3600	28 x 12	DPW	RG-06-04	F1
ding ations	WD USArmy	FL				W 573-8	1 of 1	3 -BL	BA	1:3600	21 x 27	DPW	RG-06-04	F

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
V	NA	1:30000	18 x 22	DPW	RG-06-16	F140	NA-RG No. 23 # 5832 Ed. ? Sept 1903	
V	NA	1:30000	28 x 32	DPW	RG-06-15 copy 2	F114	NA-RG No. 23 # 5832 Ed. ? Sept 1903	Chart is full size.
V	NA	1:30000	28 x 32	DPW	RG-06-14	F114		Chart is full size.
-	BA	1:3600	60 x 48	DPW	RG-06-16.1	F113		Blue line is a bad copy as dark.
I-PP	BA	1:7200	21 x 28	DPW	RG-06-16	F140		
V	BA	1:3600	36 x 72	DPW	RG-06-3.2	F113		
IBW	BA	1:3600	27 x 40	DPW	RG-06-02	F141	NA RG-77 Civil Works Map File identified on BW copy at a reduced version with no scale	Soundings in transects across Fields Landing Channel and from bayshore out (west) to Southport Channel in South Bay. Three additional blueline copies in another scale also in files.
M	BA	1:3600	28 x 40	DPW	RG-06-02, 3 sheets	F138		Original Issue 11 September 1905; redrawn July 1914.
-	BA	Hor: 1"=4' Vert 1"=10'	22 x 34	DPW	RG-06-10	F143		Dated 11 October 1905; On 10 x 10=1 inch graph paper.
›	NA	1:30000	18 x 26	DPW	RG-06-16	F114	NA-RG No.23 #5832 Ed.? Feb 1906	Soundings in feet; last corrections 1903. "?" on copy of map available for review.
V	NA	1:30000	18 x 26	DPW	RG-06-16 copy2	F114	NA-RG No.23 #5832 Ed.? Feb 1906	"?" on copy of map available for review
V	NA	1:30000	28 x 32	DPW	RG-06-16 copy 1	F114		Chart is full size.
V	NA	1:30000	28 x 32	DPW	RG-06-16 copy 3	F114		Chart is full size.
PP	NA	1:30000	28 x 32	DPW	RG-06-14 copy 4	F114		Chart is full size.
V	BA	1:3600	36 x 72	DPW	RG-06-3.1	F113		2 copies both fragile.
L	BA	1:3600	28 x 40	DPW	RG-06-17	F140		Bad copies but original in U.S. Army Engineer District, San Francisco, files also bad.
/	NA	1:30000	18 x 26	DPW	RG-06-17	F114	NA-RG No.23 #5832 Ed.9 May 1908	
PP	NA	1:30000	28 x 32	DPW	RG-06-17copy 2	F114		Chart is full size.
/	BA	1:3600	28 x 12	DPW	RG-06-04	F139		
L	BA	1:3600	21 x 27	DPW	RG-06-04	F141	NA RG-77 Civil Works Map File W 573-8	Survey map.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID
					1	2	3	4	
74	1909		Fields Landing (Showing proposed changes in bulkhead line)	WD USArmy COE	FL				W 573-9
75	1910	Nov	Improvement of Humboldt Harbor, CA, U.S. land on South Spit	WD COE USArmy	SS	EC			Doc File: D/50/14 Date: Nov 29 1910 File: 5 Div: 1 Sheet:6
76	1911	Apr	Entrance Channels of Humboldt Bay, CA	COE SF	OS	EC	EB		Date: May 1911 File:5 Div:2 Sheet:1
77	1911	May	Improving Humboldt Harbor and Bay, CA, U.S. land on South Spit	WD COE USArmy	SS	EC			File: 5 Div: 1 Sheet:23
78	1912	Apr	Humboldt Bay, CA	DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed.10
79	1912	Apr	Humboldt Bay, CA	DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed.10
80	1913	May	Humboldt Bay, CA	DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed. 11
81	1913		Humboldt Bay, CA	US Eng SF	FL	NB			
82	1914	Jan	Map of Humboldt Bay, CA (survey of 1911)	WD COE SF	HB				File:5 Div:2 Sheet: 17
83	1914	Jan	Map of Humboldt Bay, CA (survey of 1911)	WD COE SF	HB				File:5 Div:2 Sheet: 17
84	1914	Jun	Entrance Channel of Humboldt Bay, CA	COE SF	OS	EC	EB		Date: Sep 1914 File:5 Div:2 Sheet:19
85	1915	Jun	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				No. 5832 Plate No. 3459 Ed. 13
86	1915	Jun	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832
87	1915	Jun	Entrance Channel of Humboldt Bay, CA	COE SF	OS	EC	EB		DOC File: D50/760 Date: Sep 1915 File:5 Div:2 Sheet:21
88	1916	Aug	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832 Plate No. 3459 Ed. 14 Aug 1916
89	1916	Mar	Humboldt Bay jetties, CA, diagram of total stone quantities and comparative profiles	COE	EC	NJ	SJ		none

Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.
WD USArmy COE	FL				W 573-9	1 of 1	BL	BA	1:3600	17 x 21	DPW	RG-06-05	F141
WD COE USArmy	SS	EC			Doc File: D/50/14 Date: Nov 29 1910 File: 5 Div: 1 Sheet:6	1 of 1	BL	SL	1:600	12 x 20	DPW	RG-06-07	F143
COE SF	OS	EC	EB		Date: May 1911 File:5 Div:2 Sheet:1	1 of 1	2-BL	BA	1:6000	28 x 40	DPW	RG-06-18	F140
WD COE USArmy	SS	EC			File: 5 Div: 1 Sheet:23	1 of 1	BL	SL	1:3600	28 x 40	DPW	RG-06-06	F143
DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed.10	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-18 copy 1	F114
DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed.10	1 of 1	BW	NA	1:30000	28 x 32	DPW	RG-06-18 copy 2	F114
DOC&Labor USC&GS	HB				No. 5832 Plate No. 3312 Ed. 11	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-19	F114
US Eng SF	FL	NB				1 of 1	BL CM	BA	1:30000	28 x 40	DPW	RG-06-05	F139
WD COE SF	HB				File:5 Div:2 Sheet: 17	Index Sheet 1of 9	CM BL	BA	1:100000	28 x 40	DPW	RG-06-01	F137
WD COE SF	HB				File:5 Div:2 Sheet: 17	8 sheets	CM BL	BA	1:6000	28 x 40	DPW	RG-06-01	F137
COE SF	OS	EC	EB		Date: Sep 1914 File:5 Div:2 Sheet:19	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-19-1	F140
DOC USC&GS	HB				No. 5832 Plate No. 3459 Ed. 13	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-19 copy1	F114
DOC USC&GS	HB				Chart No. 5832	1 of 1	BW PP	NA	1:30000	18 x 22	DPW	RG-06-20 copy 2	F114
COE SF	OS	EC	EB		DOC File: D50/760 Date: Sep 1915 File:5 Div:2 Sheet:21	1 of 1	CM	BA	1:6000	28 x 40	DPW	RG-06-20	F140
DOC USC&GS	HB				Chart No. 5832 Plate No. 3459 Ed. 14 Aug 1916	1 of 1	BW PP	NA	1:30000	18 x 22	DPW	RG-06-21	F114
COE	EC	NJ	SJ		none	1 of 1	BL	BA	Hor: 1"=200' Vert 1"=10'	28 x 40	DPW	RG-06-11	F143

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
-	BA	1:3600	17 x 21	DPW	RG-06-05	F141	NA RG-77 Civil Works Map File W 573-9	Survey map. Undated but features look close to the 1909 (W 573-8); no author indicated on map but most likely WD U.S. Army Corps of Engineers; Map in draft BL shows ownership of T.P.L.C. docks and adjacent land and includes bearings and distances.
-	SL	1:600	12 x 20	DPW	RG-06-07	F143		
:L	BA	1:6000	28 x 40	DPW	RG-06-18	F140		Very detailed coverage offshore entrance shoals.
-	SL	1:3600	28 x 40	DPW	RG-06-06	F143		Survey done on 1 May 1911; shows right-of ways on south jetty and south spit.
V	NA	1:30000	18 x 22	DPW	RG-06-18 copy 1	F114	NA-RG No.23 #5832 Ed.10 April 1912	
V	NA	1:30000	28 x 32	DPW	RG-06-18 copy 2	F114		Full size chart; entrance and channels are survey of 1911.
V	NA	1:30000	18 x 22	DPW	RG-06-19	F114	NA-RG No. 23 # 5832 Plate No. 3312 Ed. 11 May 1913	
:M	BA	1:30000	28 x 40	DPW	RG-06-05	F139		Fields Landing Channel and north to include Entrance, Entrance Bay and north to North Bay.
BL	BA	1:100000	28 x 40	DPW	RG-06-01	F137		
BL	BA	1:6000	28 x 40	DPW	RG-06-01	F137		Excellent bathymetry Entrance Channel and Entrance Bay on Sheets 6 and 7; some land features and vegetation shown.
.	BA	1:6000	28 x 40	DPW	RG-06-19-1	F140		Very detailed coverage offshore entrance shoals.
V	NA	1:30000	18 x 22	DPW	RG-06-19 copy1	F114	NA-RG No. 23 # 5832 Ed. 13 June 1915	
PP	NA	1:30000	18 x 22	DPW	RG-06-20 copy 2	F114		Good definition in Entrance Bay and North and South Bays.
1	BA	1:6000	28 x 40	DPW	RG-06-20	F140		Very detailed coverage of offshore entrance shoals.
PP	NA	1:30000	18 x 22	DPW	RG-06-21	F114	NA-RG No. 23 # 5832 Ed.14 Aug 1916	
.	BA	Hor: 1"=200' Vert 1"=10'	28 x 40	DPW	RG-06-11	F143		Dated 8 March 1916, both jetties are shown.

3

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID
					1	2	3	4	
90	1917	Dec	Humboldt Bay, CA, United States - West Coast	USC&GS	HB				Chart No. 5832 Plate 3459 Ed. 16
91	1917	Jun	Entrance Channel of Humboldt Bay, CA	US Eng 1st Dist. SF. CA.	OS	EC	EB		File: 5 Div:2 Sheet:28
92	1917	Feb	Drawbridge over Mad River Slough	A.J.Logan County Surveyor					No. 62
93	1918	Jan	Inner channels of Humboldt Bay	US Eng 1st Dist. SF	HB				File:5 Div:14 Sheet:13
94	1919	Sep - Nov	Humboldt Bay - Fields Landing to Rolph	USC&GS	FL	NC			Register No. 3776
95	1919	Sep-Nov	Humboldt Bay - Rolph to Mad River Slough and Arcata Wharf	USCS	NS	NB			Register No. 3777
96	1919		Humboldt Bay - Fairhaven to Arcata	USC&GS	HB				Register No. 4097
97	1919		Entrance to Humboldt Bay	USC&GS	OS	EC	EB	NC	Register No. 4096
98	1920	Oct	Channel in Front of Eureka, Humboldt Bay, CA	WD-COE-USArmy	NC				File:5 Div:14 Sheet:17
99	1920	May	Channel in Front of Eureka, Humboldt Bay, CA	WD-COE-USArmy	NC				File:5 Div:14 Sheet:14
100	1920		Humboldt Bay, CA	COE SF	EC	EB	FL		none
101	1920	July	Entrance Channel of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist SF CA	OS	EC	EB		File: 5 Div:2 Sheet:32
102	1920	Feb	Harbor Lines in Front of Eureka, CA	WD USArmy COE USA SF Dist	NC				Doc File:D34/20 Date: Feb 17, 1920 File: 5 Div: 4 Sheet 5
103	1920		North jetty to Samoa, Humboldt Bay, CA	US Eng Off. 1st Dist SF CA COE SF CA	EC				File:5 Div:20 Sheet:8
104	1920	Dec	Improving Humboldt Harbor, CA., U.S.	US Eng Off. 1st Dist SF CA	EC	NS			File: 5 Div: 20 Sheet:16
105	1921	Mar	Humboldt Bay CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832
106	1921	Dec	Humboldt Bay CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832 Plate No. 3708 Edition 18

Area Included				Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondar Location
1	2	3	4							Location	Record No.	File No.	
HB				Chart No. 5832 Plate 3459 Ed. 16	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-22	F114	NA-RG No. 23 5832 Ed. 16 D 1917
OS	EC	EB		File: 5 Div:2 Sheet:28	1 of 1	BL CM	BA	1:6000	28 x 40	DPW	RG-06-23	F140	
				No. 62	1 of 1	1-Org BL	SL	1"=8'	20 x 37	DPW	RG-06-16	F143	
HB				File:5 Div:14 Sheet:13	1 of 1	CM	BA	1:30000	28 x 40	DPW	RG-06-06	F139	
FL	NC			Register No. 3776	1 of 1	BW PP	SL	1:10000	51 x 29	DPW	RG-06-09	F113	
NS	NB			Register No. 3777	1 of 1	PP	TO	1:10000	51 x 29	DPW	RG-06-10	F113	
HB				Register No. 4097	1 of 1	BL CM	BA	unknown	17 x 24	DPW	RG-06-07	F139	
OS	EC	EB	NC	Register No. 4096	1 of 1	BL CM	NA	unknown	16 x 24	DPW	RG-06-21	F140	
NC				File:5 Div:14 Sheet:17	1 of 1	BL CM	BA	1:2400	28 x 40	DPW	RG-06-08	F139	
NC				File:5 Div:14 Sheet:14	1 of 1	BL CM	BA	1:2400	28 x 40	DPW	RG-06-09	F139	
EC	EB	FL		none	1 of 1	BL	NA	unknown	28 x 40	DPW	RG-06-22	F140	
OS	EC	EB		File: 5 Div:2 Sheet:32	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-23-1	F140	
NC				Doc File:D34/20 Date: Feb 17, 1920 File: 5 Div: 4 Sheet 5	1 of 1	CM	BA	1:1200	15 x 27	DPW	RG-06-01	F138	
EC				File:5 Div:20 Sheet:8	1 of 1	BL CM	BA	1:6000	28 x 40	DPW	RG-06-02	F143	
EC	NS			File: 5 Div: 20 Sheet:16	1 of 1	BL CM	BA	1:7200	28 x 40	DPW	RG-06-03	F143	
HB				Chart No. 5832	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-23	F114	NA-RG No. 23 5832 Ed.17 M 1921
HB				Chart No. 5832 Plate No. 3708 Edition 18	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-24	F114	NA-RG No. 23 5832 Ed.18 D 1921

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
V	NA	1:30000	18 x 22	DPW	RG-06-22	F114	NA-RG No. 23 # 5832 Ed. 16 Dec 1917	
CM	BA	1:6000	28 x 40	DPW	RG-06-23	F140		Map dated 30 July 1917. Excellent hydrography and definition of offshore and entrance shoals. Mylar copy very dark.
BL	SL	1"=8'	20 x 37	DPW	RG-06-16	F143		Original type blue line of drawing on linen, A.J. Logan County Surveyor, Humboldt County.
A	BA	1:30000	28 x 40	DPW	RG-06-06	F139		Dated 15 January 1918.
PP	SL	1:10000	51 x 29	DPW	RG-06-09	F113		Rolph was located on Samoa Peninsula near present day Fairhaven.
	TO	1:10000	51 x 29	DPW	RG-06-10	F113		
CM	BA	unknown	17 x 24	DPW	RG-06-07	F139		Mylar copy is reversed.
CM	NA	unknown	16 x 24	DPW	RG-06-21	F140		Mylar copy is reversed.
CM	BA	1:2400	28 x 40	DPW	RG-06-08	F139		Survey after dredging.
CM	BA	1:2400	28 x 40	DPW	RG-06-09	F139		Survey before dredging.
	NA	unknown	28 x 40	DPW	RG-06-22	F140		Actual date unknown, scale unreadable blueprint copy very dark and unreadable.
	BA	1:6000	28 x 40	DPW	RG-06-23-1	F140		Map dated 23 July 1920, survey points farther apart and bathymetry not as complete as June 1917 map.
A	BA	1:1200	15 x 27	DPW	RG-06-01	F138		
CM	BA	1:6000	28 x 40	DPW	RG-06-02	F143		Approximate date 1920, shows jetties.
CM	BA	1:7200	28 x 40	DPW	RG-06-03	F143		Dated 6 December 1920, shows North Jetty Railroad used to build jetty north to Samoa, includes right-of-ways, fences, and telephone lines to north jetty, shows ownership along north spit.
V	NA	1:30000	18 x 22	DPW	RG-06-23	F114	NA-RG No. 23 # 5832 Ed.17 March 1921	
V	NA	1:30000	18 x 22	DPW	RG-06-24	F114	NA-RG No. 23 # 5832 Ed.18 Dec 1921	

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID
					1	2	3	4	
107	1921	Jun	Channel in front of Eureka, Humboldt Bay, CA	WD-COE-USArmy	NC				File:5 Div:14 Sheet:
108	1922	Jun	Entrance Channels of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	OS	EC	EB		File: 5 Div:2 Sheet:3
109	1922		Eureka, CA, quadrangle	US Army Survey & USC&GS	EC	EB	NC	NB	9-N-II-E/2
110	1923	Jan	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832 Plat No. 3709 Edition 19 Jan 1023
111	1925	Jun	Entrance Channels of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	OS	EC	EB	EB	File: 5 Div:2 Sheet:
112	1925	Mar	Graph of Humboldt Bar surf conditions (1896-1924)	US Eng	EC	OS			File: 5 Div:20 Shee 22
113	1925	Jun	Sea conditions at north jetty Humboldt Bay, CA, 1 January 1885 – 31 December 1924	US Eng. Of. 1st Dist. SF CA	NJ	EC			File: 5 Div:17 Shee
114	1926	Jan	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832
115	1926	Jan	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832
116	1926	Jan	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832 Pla No. 3709 Edition 2 Ed. 20
117	1926	Oct	Eureka Channel & Samoa Shoal, Humboldt Bay, CA	WD-COE-USArmy	NC				File:5 Div:14 Sheet
118	1926	Jun	Samoa Channel, Humboldt Bay, CA	WD-COE-USArmy	NC				File:5 Div:14 Shee
119	1926	Jun	Arcata Channel, Humboldt Bay, CA	WD-COE-USArmy-US Eng-1st Dist.,SF,CA.	NB				File:5 Div:14 Shee
120	1926		Inner Channels of Humboldt Bay, CA	WD-COE-US Eng Of, 1st Dist.,SF,CA.	HB				Doc File:D49/93 F 5 Div:14 Sheet:26
121	1926	Jun	Entrance Channels of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	OS	EC	EB		File: 5 Div:14 She

in	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	Secoı Loca
OE- my	NC				File:5 Div:14 Sheet:19	1 of 1	BL CM	BA	1:2400	28 x 40	DPW	RG-06-10	F139	
OE- y-US f.1st . CA.	OS	EC	EB		File: 5 Div:2 Sheet:39	1 of 1	CM	BA	1:6000	28 x 40	DPW	RG-06-23-2	F140	
my y & .GS	EC	EB	NC	NB	9-N-II-E/2	1 of 1	BW	TO	1:62500	25 x 30	DPW	U.S.G.S. Early Quads Historic Quads File	Map Draw 9	
; .GS	HB				Chart No. 5832 Plate No. 3709 Edition 19 Jan 1023	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-25	F114	NA-RG Nc 5832 Ed.' 1923
OE- y-US f.1st . CA.	OS	EC	EB	EB	File: 5 Div:2 Sheet:48	1 of 1	CM	BA	1:6000	28 x 40	DPW	RG-06-24	F140	
ng	EC	OS			File: 5 Div:20 Sheet: 22	1 of 1	BL	OT	Vert 1"= 20%	17 x 28	DPW	RG-06-12	F143	
I. Of. :. SF	NJ	EC			File: 5 Div:17 Sheet: 1	2 sheets	BL	OT	not applicable	28 x 40	DPW	RG-06-13, 2 sheets	F143	
; GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	25 x 32	DPW	RG-06-26	F114	Original at Library (Ac Bldg)
; GS	HB				Chart No. 5832	1 of 1	OR	NA	1:30000	25 x 32	DPW	RG-06-26 copy 3	F114	
; GS	HB				Chart No. 5832 Plate No. 3709 Edition 20 Ed. 20	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-26	F114	NA-RG Nc 5832 Ed.2 1926
OE- ny	NC				File:5 Div:14 Sheet:23	1 of 1	CM	BA	I:6000	28 x 40	DPW	RG-06-11	F139	
OE- ny	NC				File:5 Div:14 Sheet:22	1 of 1	CM	BA	I:6000	28 x 40	DPW	RG-06-12	F139	
OE- /-US st ,CA.	NB				File:5 Div:14 Sheet:21	1 of 1	CM	BA	I:6000	28 x 40	DPW	RG-06-13	F139	
E-US 1st ,CA.	HB				Doc File:D49/93 File: 5 Div:14 Sheet:26	1 of 1	CM	BA	1:30000	28 x 40	DPW	RG-06-14	F139	
OE- /-US :.1st . CA.	OS	EC	EB		File: 5 Div:14 Sheet:24	1 of 2	CM	BA	1:6000	28 x 40	DPW	RG-06-24	F140	

ıat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
:M	BA	1:2400	28 x 40	DPW	RG-06-10	F139		
1	BA	1:6000	28 x 40	DPW	RG-06-23-2	F140		Very detailed coverage offshore entrance shoals and Entrance Channel, not as good in Entrance Bay.
/	TO	1:62500	25 x 30	DPW	U.S.G.S. Early Quads Historic Quads File	Map Draw 9		Mapped area goes north to Clam Beach. U.S. Eng. U.S. Army Tactical Maps Controlled Reconnaissance Sheet.
/	NA	1:30000	18 x 22	DPW	RG-06-25	F114	NA-RG No. 23 # 5832 Ed.19 Jan 1923	
1	BA	1:6000	28 x 40	DPW	RG-06-24	F140		
	OT	Vert 1"= 20%	17 x 28	DPW	RG-06-12	F143		Dated 20 March 1925, plot of monthly extremes in wave conditions for period 1896 to 1924.
	OT	not applicable	28 x 40	DPW	RG-06-13, 2 sheets	F143		Dated 23 June 1925.
/	NA	1:30000	25 x 32	DPW	RG-06-26	F114	Original at Eureka Library (Admin Bldg)	Map is copied, pieced, taped.
:	NA	1:30000	25 x 32	DPW	RG-06-26 copy 3	F114		Original, printed in color with very good definition of sand shoals in Entrance Bay and North and South Bays.
/	NA	1:30000	18 x 22	DPW	RG-06-26	F114	NA-RG No. 23 # 5832 Ed.20 Jan 1926	
I	BA	I:6000	28 x 40	DPW	RG-06-11	F139		Log of sediment borings in front of Eureka, 1926, on map.
I	BA	I:6000	28 x 40	DPW	RG-06-12	F139		
I	BA	I:6000	28 x 40	DPW	RG-06-13	F139		
I	BA	1:30000	28 x 40	DPW	RG-06-14	F139		
I	BA	1:6000	28 x 40	DPW	RG-06-24	F140		

3

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	She
					1	2	3	4		
122	1926	Jun	Fields Landing Channel, Humboldt Bay, CAL	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL		EB		File: 5 Div:14 Sheet:25	2 of
123	1926	Feb	Copy of map showing lands of Z. Russ Co. and N. Thogerson at Salmon Creek, Humboldt County, CA	US Eng Off. 1st Dist SF CA	SB				File: 5 Div: 20 Sheet:30	1 of
124	1926	Jun	Samoa-north jetty railroad	WD COE USArmy	NS	EC			File: 5 Div:1 Sheet: 22	1 of
125	1927	Apr	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832 Plate No. 3709 Ed.21 April 1927	1 of
126	1927	Jun	Entrance Channels of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA	OS	EC	EB		File: 5 Div:2 Sheet:58	1 of
127	1929	Nov	Arcata Bay	USC&GS	NB				Register No. 4513	1 of
128	1929		Humboldt Bay	USCS	HB					1 of
129	1929		Humboldt Bay Entrance Hydrographic Survey Hydrographic Sheet No. 5001	USC&GS	OS	EC		EB	none	1 of
130	1929	Jun	Point Humboldt, Humboldt Bay, CA, relative positions of high waterline at various periods 1854 to 1929	WD COE USArmy	EB				File: 5 Div:1 Sheet: 24	1 of
131	1929	Jun	Point Humboldt, Humboldt Bay, CA, relative positions of high waterline at various periods 1854 to 1929	WD-COE-USA US Eng.Off. 1st Dist. SF CA, June 1st 1929	EB				File: 5 Div: 1 Sheet: 24	1 of
132	1929	Aug	Tract of land of U.S. Government South Spit Humboldt Bay, CA	WD COE USArmy	SS	EC			File: 5 Div: 1 Sheet:25	1 of
133	1930	Jan	Humboldt Bay, CA, U.S. West Coast	USC&GS	HB				Chart No. 5832	1 of
134	1930	Dec	Channels in Humboldt Bay	WD COE US Eng Of. SF, CA	EC	EB	NC	FL	File:5 Div:1 Sheet:26	1 of
135	1930	Jan	Humboldt Bay, CA, in vicinity of Buhne property	US Eng Off SF CA	EC	EB			File: 5 Div:2 Sheet:65	1 of

Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	
WD-COE-JSArmy-US Eng Off.1st Dist. SF. CA.	FL		EB		File: 5 Div:14 Sheet:25	2 of 2	CM	BA	1:6000	28 x 40	DPW	RG-06-25	F140	
JS Eng Off. 1st Dist SF CA	SB				File: 5 Div: 20 Sheet:30	1 of 1	BL	SL	1:2400	21 x 32	DPW	RG-06-04	F143	
WD COE USArmy	NS	EC			File: 5 Div:1 Sheet: 22	1 of 1	BL	SL	1:3600	28 x 40	DPW	RG-06-08	F143	
DOC USC&GS	HB				Chart No. 5832 Plate No. 3709 Ed.21 April 1927	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-25	F114	
WD-COE-JSArmy-US Eng Off.1st Dist. SF. CA	OS	EC	EB		File: 5 Div:2 Sheet:58	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-25-1	F140	
USC&GS	NB				Register No. 4513	1 of 1	BW PP	SL	1:10000	51 x 29	DPW	RG-06-01	F113	
USCS	HB					1 of 1	BW PP	SL	1:10000	51 x 29	DPW	RG-06-02	F113	
USC&GS	OS	EC		EB	none	1 of 1	BW PP	NA	1:10000	23 x 18	DPW	RG-06-28	F140	NA
WD COE USArmy	EB				File: 5 Div:1 Sheet: 24	1 of 1	3-BL	BA	1:2400	28 x 40	DPW	RG-06-06	F142	
WD-COE-USA US Eng.Off. 1st Dist. SF CA, June 1st 1929	EB				File: 5 Div: 1 Sheet: 24	1 of 1	CM	BA	1:2400	28 x 40	DPW	RG-06-01	F142	
WD COE USArmy	SS	EC			File: 5 Div: 1 Sheet:25	1 of 1	BL	SL	1:3600	9 x 11	DPW	RG-06-05	F143	
USC&GS	HB				Chart No. 5832	1 of 1	BW	NA	1:30000	18 x 22	DPW	RG-06-27	F114	NA 58 19
WD COE US Eng Of. SF, CA	EC	EB	NC	FL	File:5 Div:1 Sheet:26	1 of 2	BL	BA	1:2400	28 x 40	DPW	RG-06-15	F139	
US Eng Off SF CA	EC	EB			File: 5 Div:2 Sheet:65	1 of 1	CM	BA	1:6000	25 x 28	DPW	RG-06-02	F142	

ıat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
1	BA	1:6000	28 x 40	DPW	RG-06-25	F140		
	SL	1:2400	21 x 32	DPW	RG-06-04	F143		Salmon Creek enters South Humboldt Bay in quadrant.
	SL	1:3600	28 x 40	DPW	RG-06-08	F143		Dated 16 June 1926, land survey from south boundary of Samoa to southern end of North Spit, shows U.S. Reservation land at north jetty.
/	NA	1:30000	18 x 22	DPW	RG-06-25	F114		
	BA	1:6000	28 x 40	DPW	RG-06-25-1	F140		
ᴞP	SL	1:10000	51 x 29	DPW	RG-06-01	F113		Shows North Bay only, survey between October and November.
ᴞP	SL	1:10000	51 x 29	DPW	RG-06-02	F113		
ᴞP	NA	1:10000	23 x 18	DPW	RG-06-28	F140	NA-Washington DC	Survey dated 27 July 1932, section of original sheet, chart notes a current station was occupied for 13 hr offshore of Entrance Bay shoreline and current station at Entrance to Fields Landing Channel was occupied for 52 hr.
L	BA	1:2400	28 x 40	DPW	RG-06-06	F142		Dated 1 June 1929.
I	BA	1:2400	28 x 40	DPW	RG-06-01	F142		Dated 1 June 1929, map legend indicates data sources and scales as follows: 1854 USC&G Survey 1:10000; 1870 USC&G Survey 1:10000; 1891 U.S. Eng. Dept. Survey 1:14440; 1903 USC&GS Survey 1:30000; 1911, 1926, and 1929 Surveys U.S. Eng. Dept. 1:6000.
	SL	1:3600	9 x 11	DPW	RG-06-05	F143		Dated 19 August 1929, shows property ownership along South Spit.
/	NA	1:30000	18 x 22	DPW	RG-06-27	F114	NA-RG No. 23 # 5832 Ed. 23 June 1930	
	BA	1:2400	28 x 40	DPW	RG-06-15	F139		Survey map dated 8 December 1930.
I	BA	1:6000	25 x 28	DPW	RG-06-02	F142		Hydrographic survey.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	She
					1	2	3	4		
136	1930	Mar	Erosion at Point, Humboldt Humboldt Bay, CA, 1851 -1930	WD COE USArmy	EB				File: 5 Div:20 Sheet: 31	1 of
137	1930	Dec	Channels in Humboldt Bay, CA	WD COE USArmy	EB	FL	NB		File: 5 Div:1 Sheet: 26	2 of
138	1930	Jan	Surface conditions in vicinity of Buhne Property, Humboldt Bay, CA	US Eng. Of. 1st Dist. SF CA	EB	EC			File: 5 Div:17 Sheet: 2	1 of
139	1931		Humboldt, Bay, CA, Survey	WD COE SF	HB				File:5 Div:2	Ind Sheet 9
140	1931		Humboldt Bay, CA, Survey	WD COE SF	HB				File:5 Div:2	8 she
141	1931	Jul	Preliminary drawing of Humboldt Bar	probably WD but not titled	OS	EC			none	1 o
142	1931	Aug	Entrance channels of Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	OS	EC	EB		File: 5 Div:2 Sheet:68	1 o
143	1933	Mar	Existing inner channels Humboldt Bay, CA	WD COE US Eng Of. SF, CAL					Doc File:D49/122 File: 5 Div:1 Sheet:27	1 c
144	1933		Eureka, CA, quadrangle	USC&GS	NC NB					1
145	1935	Jun	Survey of June 1935, Humboldt Bay, CA, Fields Landing Channel	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL	EB	EC		File: 5 Div:2 Sheet:72	1
146	1936	Jul	Dredging in Fields Landing Channel Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL	EC			File: 5 Div: 1 Sheet: 30-A	1
147	1937	Dec	Annual Survey 1937, Humboldt Bay, CA, Arcata Channel	WD COE US Eng Of SF, CA	NB				File:5 Div:2 Sheet:73	1
148	1938	May	Humboldt Bay, CA, U.S. West Coast	Survey by U.S. Engineers	HB				No ID	1
149	1938	May	Humboldt Bay, CA, U.S. West Coast	Survey by U.S. Engineers	HB				No ID	1

ncluded 3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	Secondary Location	
		File: 5 Div:20 Sheet: 31	1 of 1	BL	BA	1:10000	11 x 17	DPW	RG-06-03	F142		Dated 8
NB		File: 5 Div:1 Sheet: 26	2 of 2	2-BL	TH	1:6000	28 x 40	DPW	RG-06-04	F142		Dated 8 shows c location dredgin North B dredgin
		File: 5 Div:17 Sheet: 2	1 of 1	BL CM	OT	1:6000	28 x 40	DPW	RG-06-14	F143		Shows for Entr Entranc marigra Bay, CA
		File:5 Div:2	Index Sheet 1 of 9	CM	BA	1:100000	28 x 40	DPW	RG-06-02	F137		
		File:5 Div:2	8 sheets	CM	BA	1:6000	28 x 40	DPW	RG-06-02	F137		Excelle Entranc
		none	1 of 1	BL	BA	1:6000	24 x 21	DPW	RG-06-26	F140		
EB		File: 5 Div:2 Sheet:68	1 of 1	BL CM	BA	1:6000	24 x 21	DPW	RG-06-27	F140		Very go Bay; Wi observa noted.
		Doc File:D49/122 File: 5 Div:1 Sheet:27	1 of 1	BL	BA	1:30000	28 x 40	DPW	RG-06-16	F139		Survey
			1 of 1	OR	TO	1:48000	25 x 30	DPW	U.S.G.S. early quads historic quads file	Map Draw 9		
EC		File: 5 Div:2 Sheet:72	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-28-1	F140		Soundi
		File: 5 Div: 1 Sheet: 30-A	1 of 1	BL	BA	1:2400	28 x 40	DPW	RG-06-30-A	F140		Dated 2 Soundi area fo of Entra
		File:5 Div:2 Sheet:73	1 of 4	CM	BA	I:6000	28 x 40	DPW	RG-06-17	F139		Survey
		No ID	1 of 1	BL	NA	1:30000	28 x 32	DPW	RG-06-28 copy 1	F114		Not dat 1938.
		No ID	1 of 1	BL	NA	1:30000	24 x 28	DPW	RG-06-09 copy 2 & 3	F114		Not dat 1938.

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
-	BA	1:10000	11 x 17	DPW	RG-06-03	F142		Dated 8 March 1930.
L	TH	1:6000	28 x 40	DPW	RG-06-04	F142		Dated 8 December 1930, 1 blue line bad, shows dredge Dump Ground 1 at future location of King Salmon for purposes of dredging at Buhne Spit; Dump Ground 2 in North Bay (Arcata Bay) for Arcata Channel dredging.
:M	OT	1:6000	28 x 40	DPW	RG-06-14	F143		Shows ebb tide and flood tide drifter study for Entrance Bay; drifter release at head of Entrance Channel. Note on map "Tidal marigram from predicted tides for Humboldt Bay, CA."
ı	BA	1:100000	28 x 40	DPW	RG-06-02	F137		
ı	BA	1:6000	28 x 40	DPW	RG-06-02	F137		Excellent bathymetry Entrance Channel and Entrance Bay on Sheets 6 and 7.
-	BA	1:6000	24 x 21	DPW	RG-06-26	F140		
:M	BA	1:6000	24 x 21	DPW	RG-06-27	F140		Very good definition of shoals in Entrance Bay; Wind rose based on number of days of observations on map but source of data not noted.
-	BA	1:30000	28 x 40	DPW	RG-06-16	F139		Survey map dated 25 March 1933.
R	TO	1:48000	25 x 30	DPW	U.S.G.S. early quads historic quads file	Map Draw 9		
-	BA	1:6000	28 x 40	DPW	RG-06-28-1	F140		Sounding data in transects across channels.
-	BA	1:2400	28 x 40	DPW	RG-06-30-A	F140		Dated 25 July 1936, image size 11 x 18; Sounding data in transects; Dredge disposal area for Fields Landing Channel is at head of Entrance Channel.
ı	BA	I:6000	28 x 40	DPW	RG-06-17	F139		Survey map dated 15 December 1937.
-	NA	1:30000	28 x 32	DPW	RG-06-28 copy 1	F114		Not dated, U.S. Engineers Surveys to May 1938.
-	NA	1:30000	24 x 28	DPW	RG-06-09 copy 2 & 3	F114		Not dated, U.S. Engineers Surveys to May 1938.

3

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Sheet	Forr
					1	2	3	4			
150	1938	Jul	Dredging in Humboldt Bay, CA, May 1938 survey	WD COE USArmy	FL	EB			none	2 of 2	2-E
151	1938	Sep	Harbor Lines Humboldt Bay, CA	WD COE US Army US Eng. Off SF, CA	EB NC				File: 5 Div: 4 Sheet: 6	1 of 1	2-E
152	1938	Jun	Survey at Fields Landing for U.S.E.D.	Frank E. Kelly County Surveyor	FL	SB			File: 5 Div:1 Sheet: 31	1 of 1	BL
153	1939	Jul	Survey of 13-18 July 1939, Humboldt Bay, CA, Entrance Channel	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	EC				File: 5 Div:2 Sheet:77	1 of 1	CM
154	1939	Jan	Survey of Jan - Feb 1939, Humboldt Bay, CA, Fields Landing Channel	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL				File: 5 Div:2 Sheet:75	3 of 3	BL
155	1939	Nov	Humboldt Bay, CA, Comparison of Periodic Surveys of Bar and Entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78; 5 sheets	1 of 5	BL
156	1939	Nov	Humboldt Bay, CA, comparison of periodic surveys of bar and entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78; 5 sheets	2 of 5	BL (
157	1939	Nov	Humboldt Bay, CA, comparison of periodic surveys of bar and entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78; 5 sheets	3 of 5	BL (
158	1939	Nov	Humboldt Bay, CA, comparison of periodic surveys of bar and entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78; 5 sheets	4 of 5	BL (
159	1939	Nov	Humboldt Bay, CA, comparison of periodic surveys of bar and entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78; 5 sheets	5 of 5	BL (
160	1940	Mar	Humboldt Bay, CA, survey	WD COE SF	HB				File:5 Div:1	Index Sheet	CM
161	1940	Mar	Humboldt Bay, CA, survey (15 March 1940)	WD COE SF	HB				File:5 Div:1	6 sheets	CM
162	1940	Mar	Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL				File: 5 Div:1 Sheet:34	2 of 7	BL
163	1940	Sept	Hydrographic surveys plotted 1919 to 1929 Index Map (Albion River North to Trinidad)	USCS	OS				Chart # 5602 No.2	1 of 1	BV
164	1941	Sep	Humboldt, Bay CA, U.S. West Coast	USC&GS	HB				Chart No. 5832	1 of 1	BL

ded	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	
								Location	Record No.	File No.		
		none	2 of 2	2-BL	BA TH	1:6000	28 x 40	DPW	RG-06-05	F142		Dated 9 Jul with cross c Fields Land map, shows future King
		File: 5 Div: 4 Sheet: 6	1 of 1	2-BL	BA	1:6000	28 x 40	DPW	RG-06-03	F138		Dated 29 S October 19:
		File: 5 Div:1 Sheet: 31	1 of 1	BL	SL	1:3600	18 x 24	DPW	RG-06-07	F143		Dated 16 Ju Hookton Ch in South Ba
		File: 5 Div:2 Sheet:77	1 of 1	CM	BA	1:6000	28 x 40	DPW	RG-06-29	F140		Data in tran 15 August 1
		File: 5 Div:2 Sheet:75	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-29-1	F140		Data in tran
		File: 5 Div: 2 Sheet: 78; 5 sheets	1 of 5	BL	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 1 of 5	F140		Sheet 1 is c DPW collec
		File: 5 Div: 2 Sheet: 78; 5 sheets	2 of 5	BL CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 2 of 5	F140		Individual d 1894, 1896
		File: 5 Div: 2 Sheet: 78; 5 sheets	3 of 5	BL CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 3 of 5	F140		Individual d 1911, 1912 1919.
		File: 5 Div: 2 Sheet: 78; 5 sheets	4 of 5	BL CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 4 of 5	F140		Individual d 1920, 1921 1927.
		File: 5 Div: 2 Sheet: 78; 5 sheets	5 of 5	BL CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 5 of 5	F140		Individual d 1917, 1927 smaller sca surveys of
		File:5 Div:1	Index Sheet	CM	BA	1:36000	28 x 40	DPW	RG-06-03	F137		
		File:5 Div:1	6 sheets	CM	BA	1:6000	28 x 40	DPW	RG-06-03	F137		Sheets 2 ar flats; shorel
		File: 5 Div:1 Sheet:34	2 of 7	BL	BA	1:6000	28 x 40	DPW	RG-06-30	F140		Data in tran
		Chart # 5602 No.2	1 of 1	BW	BA	unknown		HBHRCD				
		Chart No. 5832	1 of 1	BL	NA	1:30000	24 x 37	DPW	RG-06-29	F114		Map is poor

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
iL	BA TH	1:6000	28 x 40	DPW	RG-06-05	F142		Dated 9 July 1938, 1 bad blue line, along with cross channel soundings boring logs in Fields Landing Channel with log data on map, shows dumping ground over most of future King Salmon.
iL	BA	1:6000	28 x 40	DPW	RG-06-03	F138		Dated 29 September 1938, submitted 18 October 1938.
-	SL	1:3600	18 x 24	DPW	RG-06-07	F143		Dated 16 June 1938, land survey of Hookton Channel in front of Fields Landing in South Bay.
M	BA	1:6000	28 x 40	DPW	RG-06-29	F140		Data in transects across channel, published 15 August 1939.
-	BA	1:6000	28 x 40	DPW	RG-06-29-1	F140		Data in transects across channel.
-	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 1 of 5	F140		Sheet 1 is cover/index sheet and not in the DPW collection.
CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 2 of 5	F140		Individual drawings 81/2 x 11; surveys of 1894, 1896, 1897, 1899, 1903, 1905, 1907.
CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 3 of 5	F140		Individual drawings 81/2 x 11; surveys of 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1919.
CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 4 of 5	F140		Individual drawings 81/2 x 11; surveys of 1920, 1921, 1922, 1923,1924, 1925, 1926, 1927.
CM	BA	1:18000	28 x 40	DPW	RG-06-36 Sheet 5 of 5	F140		Individual drawings 81/2 x 11; surveys of 1917, 1927, 1931, 1935, 1937, 1939 with smaller scale drawings scale 1:30000 for surveys of 1851, 1858, 1870, 1882.
M	BA	1:36000	28 x 40	DPW	RG-06-03	F137		
M	BA	1:6000	28 x 40	DPW	RG-06-03	F137		Sheets 2 and 3 good bathymetry; some over flats; shoreline vegetation noted and drawn.
-	BA	1:6000	28 x 40	DPW	RG-06-30	F140		Data in transects across channel; bad copy.
N	BA	unknown		HBHRCD				
-	NA	1:30000	24 x 37	DPW	RG-06-29	F114		Map is poor copy.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Sheet
					1	2	3	4		
165	1941	Nov	Dredging in Fields Landing Channel Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL	EC			File: 5 Div: 1 Sheet: 42	1 of 1
166	1941	Mar	Dredging in Fields Landing Channel Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL	EC			File: 5 Div: 1 Sheet: 35-A	1 of 1
167	1942		Eureka, CA, quadrangle	US Army Survey & USC&GS	EC	EB	NC	NB	none	1 of 1
168	1942	Mar	Easement right of way Fairhaven to U.S. Reservation	WD COE USArmy	NS	EC			File: 5 Div: 1 Sheet:37	1 of 1
169	1943	Jul	Humboldt Bay, CA	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL				File: 5 Div:1 Sheet:81	2 of 3
170	1944	Dec	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832	1 of 1
171	1944		Humboldt Bay	USC&GS	HB				none	1 of 1
172	1946	Jun	Humboldt County, CA, Humboldt Bay Fields Landing Channel	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL	SB			File: 5 Div: 2 Sheet: 85	3 of 3
173	1946	Jul	Humboldt Bay dredging (Fields Landing Channel)	WD-COE-USArmy-US Eng Off.1st Dist. SF. CA.	FL				File: 5 Div: 1 Sheet: 39	3 of 3
174	1947		Humboldt Bay, CA	SF Dist COE	EC	OS			File: 5 Div:51 Sheet: 1	3 of 1
175	1949	May	Humboldt Bay dredging (Fields Landing Channel)	COE US Army Off of Dist Eng	FL				File: 5 Div: 1 Sheet: 42	2 of 2
176	1950	Oct	Humboldt Bay, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832	1 of 1
177	1950		Humboldt Bay, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832	1 of 1

a Included 2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location: Location	Record No.	File No.	Secondary Location	
EC			File: 5 Div: 1 Sheet: 42	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-30-A	F140		Dat 18; dun Ent imn Cha 60
EC			File: 5 Div: 1 Sheet: 35-A	1 of 1	BL	BA	1:6000	28 x 40	DPW	RG-06-30-A	F140		Da So are of
EB	NC	NB	none	1 of 1	BW	TO	1:62500	25 x 30	DPW	U.S.G.S. Early Quads Historic Quads File	Map Draw 9		Ma U. Co
EC			File: 5 Div: 1 Sheet:37	1 of 1	BL	SL	1:6000	11 x 18	DPW	RG-06-05	F143		Da No (o
			File: 5 Div:1 Sheet:81	2 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-30-1	F140		D 29
			Chart No. 5832	1 of 1	OR	NA	1:30000	33 x 38	DPW	RG-06-30	F114		C
			none	1 of 1	BW	NA	1:30000	25 x 30	HBHRCD	Rolls			
SB			File: 5 Div: 2 Sheet: 85	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-31	F140		D 2 s
			File: 5 Div: 1 Sheet: 39	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-31	F140		D s
;	OS		File: 5 Div:51 Sheet: 1	3 of 11	CM	OT	not applicable	28 x 40	DPW	RG-06-14	F143		
L			File: 5 Div: 1 Sheet: 42	2 of 2	BL	BA	1:6000	28 x 40	DPW	RG-06-32	F140		
B			Chart No. 5832	1 of 1	OR	NA	1:30000	25 x 30	DPW	RG-06-30	F114		
iB			Chart No. 5832	1 of 1	BW CM	NA	1:30000	22 x 28	DPW	RG-06-31	F114		

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
-	BA	1:6000	28 x 40	DPW	RG-06-30-A	F140		Dated 19 November 1941; Image size 11x 18; Sounding data in transects; dredge dump ground shown at confluence of Entrance Channel and Entrance Bay immediately at mouth of Fields Landing Channel with pre-disposal depth of 51 to 60 ft.
-	BA	1:6000	28 x 40	DPW	RG-06-30-A	F140		Dated 5 March 1941; image size 11 x 18; Sounding data in transects; dredge disposal area for Fields Landing Channel is at head of Entrance Channel.
V	TO	1:62500	25 x 30	DPW	U.S.G.S. Early Quads Historic Quads File	Map Draw 9		Mapped area goes north to Clam Beach. U.S. Eng. U.S. Army Tactical Maps Controlled Reconnaissance Sheet.
-	SL	1:6000	11 x 18	DPW	RG-06-05	F143		Dated 6 March 1942; shows easements on North Spit from Entrance north to Fairhaven (opposite old Eureka airfield).
-	BA	1:6000	28 x 40	DPW	RG-06-30-1	F140		Data in transects across channel; dated 29 July 1943.
R	NA	1:30000	33 x 38	DPW	RG-06-30	F114		Original, printed in color.
V	NA	1:30000	25 x 30	HBHRCD	Rolls			
.	BA	1:6000	28 x 40	DPW	RG-06-31	F140		Data in transects across channel; dated 27 June 1946; part of Southport Channel shown.
.	BA	1:6000	28 x 40	DPW	RG-06-31	F140		Dated 26 July 1946; blue line dark; map shows dredge disposal sites at mouth of Southport Channel (at Entrance Channel) and in Fields Landing Channel south of Fields Landing dock.
1	OT	not applicable	28 x 40	DPW	RG-06-14	F143		Not dated but data for Station A and B is from Wave Report No. 68 by Scripps dated July 1947 titled "A Statistical Study of Wave Conditions at Five Open Sea Locations Along the California Coast;" map shows swell diagram for period 1932 to 1942 with 1062 observations; Station A is located south of Cape Blanco and Station B is south of Cape Mendocino; also shows wave height and direction for 1936, 1937, 1938.
.	BA	1:6000	28 x 40	DPW	RG-06-32	F140		Dated 12 May 1949; blue line dark; data in transects.
R	NA	1:30000	25 x 30	DPW	RG-06-30	F114		Original, printed in color with borders cut off.
CM	NA	1:30000	22 x 28	DPW	RG-06-31	F114		Date unknown but probably in 1950s.

Ref. No.	Date	Month	Title	Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet
178	1950		Humboldt Bay, CA, shoaling in Fields Landing Channel, shoaling between 1935 to 1937, Map A	COE USArmy SF Dist COE	FL				Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 4	1 of 1
179	1950		Humboldt Bay, CA, shoaling in Fields Landing Channel, shoaling between June 1943 and July 1944, Map B	COE USArmy SF Dist COE	FL				Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 4	1 of 1
180	1950	Sep	Humboldt County, CA, Humboldt Bay Condition Survey of 26 May - 8 June 1950	COE USArmy SF Dist COE t	FL				File: 5 Div: 2 Sheet: 90	3 of 3
181	1950	Feb	Humboldt Bay, CA, depth changes between Fields Landing Channel and Elk River, 1939 and 1946	COE USArmy SF Dist COE	FL	EB			Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 3	8 of 10
182	1950	Feb	Humboldt Bay, CA, changes in high water shoreline	COE US Army SF Dist COE	EC	EB			Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 1	2 of 11
183	1950	Feb	Humboldt Bay, CA, comparison of periodic surveys of bar and entrance	WD COE USArmy	EC	EB			File: 5 Div: 2 Sheet: 78A	1 of 1
184	1950	Feb	Humboldt Bay, CA, (Buhne Point) relative position of MHHW at various periods 1854 - 1926	COE USArmy SF Dist. COE	EB				File: 5 Div:51 Sheet: 1 App. Fig 2-SH.1	10 of 1
185	1950	Feb	Humboldt Bay, CA, (Buhne Point) relative position of MHHW at various periods 1854 - 1926	COE USArmy SF Dist. COE	EB				File: 5 Div:51 Sheet: 1 App. Fig 2-SH.2	11 of 1
186	1950		Accretion on Samoa Peninsula (1870 to 1950)	COE	NS	EC			none	1 of 1
187	1951	Jul	Humboldt County, CA, Humboldt Bay Condition Survey of 16 May - 24 May 1951	COE USArmy SF Dist. COE	FL				File: 5 Div: 2 Sheet:91	3 of 3
188	1951	Nov	Real property at Eureka Humboldt Bay steam plant	Pacific Gas and Electric Co, SF CA	EB				315281 Change 12	1 of 1
189	1952	Jul	Humboldt County, CA, Humboldt Bay maintenance dredging	COE US Army Eng. Dist. SF COE SF, CA	FL				File: 5 Div:1 Sheet:45	3 of 3
190	1954	Mar	Humboldt Bay, CA, U.S. West Coast	DOC USC&GS	HB				Chart No. 5832	1 of 1
191	1954	Jul	Humboldt County, CA, Humboldt Bay hopper dredging	COE US Army Eng. Dist. SF COE SF, CA	FL				File: 5 Div:1 Sheet:47	3 of 3

Area Included				Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location
1	2	3	4							Location	Record No.	File No.	
FL				Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 4	1 of 1	BL	BA	1:6000	27 X 22	DPW	RG-06-33	F140	
FL				Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 4	1 of 1	BL	BA	1:6000	27 X 22	DPW	RG-06-33	F140	
FL				File: 5 Div: 2 Sheet: 90	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-33-1	F140	
FL	EB			Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 3	8 of 10	CM	BA	1:6000	28 x 40	DPW	RG-06-34	F140	
EC	EB			Date: 10 Feb 1950 File:5 Div:51 Sheet:1 App.I Fig 1	2 of 11	CM	BA	1:20000	28 x 40	DPW	RG-06-35	F140	
EC	EB			File: 5 Div: 2 Sheet: 78A	1 of 1	BL CM	BA	1:18000	28 x 40	DPW	RG-06-36 A	F140	
EB				File: 5 Div:51 Sheet: 1 App. Fig 2-SH.1	10 of 11	2-BL 1-CM	BA	1:2400	28 x 40	DPW	RG-06-07 sheet 1 of 2	F142	
EB				File: 5 Div:51 Sheet: 1 App. Fig 2-SH.2	11 of 11	2-BL 1-CM	BA	1:2400	28 x 40	DPW	RG-06-08 sheet 2 of 2	F142	
NS	EC			none	1 of 1	BL	SL	1:2400	52 x 30	DPW	RG-06-09	F143	
FL				File: 5 Div: 2 Sheet:91	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-36-1	F140	
EB				315281 Change 12	1 of 1	2-BL	OT	1:2400	24 x 36	DPW	RG-06-14	F142	PG&E, San Francisco, CA
FL				File: 5 Div:1 Sheet:45	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-38	F140	
HB				Chart No. 5832	1 of 1	OR	NA	1:25000	33 x 38	DPW	RG-06-30	F114	
FL				File: 5 Div:1 Sheet:47	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-39	F140	

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
-	BA	1:6000	27 X 22	DPW	RG-06-33	F140		
-	BA	1:6000	27 X 22	DPW	RG-06-33	F140		
-	BA	1:6000	28 x 40	DPW	RG-06-33-1	F140		Dated 27 September 1950; sounding data in transects.
M	BA	1:6000	28 x 40	DPW	RG-06-34	F140		Dated 10 February 1950; bathymetric survey of November 1946 for part of Entrance Bay to just north of Elk River.
M	BA	1:20000	28 x 40	DPW	RG-06-35	F140		Dated 10 February 1950; shows shorelines of 1854, 1870, 1911, 1919, 1929, 1940.
CM	BA	1:18000	28 x 40	DPW	RG-06-36 A	F140		Dated 10 February 1950; individual drawings 81/2 x 11; Surveys of 1929, 1931, 1935, 1937, 1939, 1940, 1942, 1944.
-CM	BA	1:2400	28 x 40	DPW	RG-06-07 sheet 1 of 2	F142		Dated 10 February 1950; shows shorelines for 1946, 1926, 1911, 1903, 1891, 1870, 1854.
-CM	BA	1:2400	28 x 40	DPW	RG-06-08 sheet 2 of 2	F142		Dated 10 February 1950; shows shoreline for 1955, 1926, 1911, 1903, 1891, 1870, 1854.
-	SL	1:2400	52 x 30	DPW	RG-06-09	F143		Dated July-September 1950; shows 1875 to 1950 shorelines on North Spit; survey notes on map but very dark and almost not readable; blue line copy very dark; copied from dark copy at USAE San Francisco District offices in San Francisco, CA.
-	BA	1:6000	28 x 40	DPW	RG-06-36-1	F140		Dated 9 July 1951; soundings in transects.
L	OT	1:2400	24 x 36	DPW	RG-06-14	F142	PG&E, San Francisco, CA	Original dated 11-30-51 and last change 10-30-75; shows PG&E Power Plant, King Salmon, and Eureka Shipbuilders ownership of Buhne Spit.
-	BA	1:6000	28 x 40	DPW	RG-06-38	F140		Dated 16 July 1952; soundings in transects.
R	NA	1:25000	33 x 38	DPW	RG-06-30	F114		Original, printed in color
-	BA	1:6000	28 x 40	DPW	RG-06-39	F140		Dated 29 July 1954; soundings in transects.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Shee
					1	2	3	4		
192	1955	Aug	State of California Cooperative Beach Erosion Control Study Buhne Point Area, Humboldt Bay, CA, Shoreline Changes, Buhne Spit to Elk River Spit 1854 - 1926	COE US Army Off Dist. Eng. SF Dist. SF, CA	EB				File: 5 Div: 51 Sheet: 2	1 of 7
193	1955	Aug	State of California Cooperative Beach Erosion Control Study Buhne Point Area, Humboldt Bay, CA, Shoreline Changes, Buhne Spit to Elk River Spit 1854 - 1926	COE US Army Off Dist. Eng. SF Dist. SF, CA	EB				File: 5 Div: 51 Sheet: 2	2 of 7
194	1956	Sep	Humboldt County, CA, Humboldt Bay hopper dredging	COE US Army Off Dist. Eng. SF Dist. SF, CA	FL				File: 5 Div:1 Sheet:50	3 of 3
195	1957	Sep	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC	FL	File: 5 Div:1 Sheet:51	3 shee
196	1957	Aug	Harbor lines for Humboldt Harbor and Bay California	USArmy Eng Dist. SF COE SF, CA	HB				File: 5 Div: 4 Sheet: 8	5 shee
197	1958	Sep	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC	FL	File: 5 Div:1 Sheet:53	3 shee
198	1959		Eureka, CA, quadrangle	USGS	HB					1 of 1
199	1959	Aug	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC		File: 5 Div:1 Sheet:54	3 shee
200	1960	Aug	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC		File: 5 Div:1 Sheet:55	3 shee
201	1962	Oct	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC	FL	File: 5 Div:1 Sheet:59	2 shee
202	1962	Jun	Humboldt County, CA, Humboldt Bay Condition Survey of 17-24 May 1962	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div: 2 Sheet:110	3 of 3
203	1964	Oct	Humboldt County, CA, Humboldt Bay hopper dredging	COE SF	EC	EB	NC	FL	File: 5 Div:1 Sheet:61	2 shee
204	1964	Sep	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) before dredging survey of 15-19 September 1964	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div:2 Sheet:124	9 of 1
205	1964	Feb	Untitled but shows: Shoreline of Buhne Spit north to northwestern railroad tracks along Humboldt Bay Entrance Bay	State of CA. Div. Of Highway Contract No. 63-01PC-1	EB				I-Hum-1-G-Eur	8 of 3

Area Included			Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location
2	3	4							Location	Record No.	File No.	
			File: 5 Div: 51 Sheet: 2	1 of 7	BL CM	BA	1:2400	28 x 40	DPW	RG-06-09	F142	
			File: 5 Div: 51 Sheet: 2	2 of 7	BL CM	BA	1:2400	28 x 40	DPW	RG-06-10	F142	
			File: 5 Div:1 Sheet:50	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-40	F140	
EB	NC	FL	File: 5 Div:1 Sheet:51	3 sheets	BL	BA	1:6000	28 x 40	DPW	RG-06-41	F140	
			File: 5 Div: 4 Sheet: 8	5 sheets	2-BL 1-CM	BA	1:6000	30 x 42	DPW	RG-06-04	F138	
EB	NC	FL	File: 5 Div:1 Sheet:53	3 sheets	BL	BA	1:6000	28 x 40	DPW	RG-06-42	F140	
				1 of 1	OR	TO	1:62500	18 x 22	DPW		F139	
EB	NC		File: 5 Div:1 Sheet:54	3 sheets	BL	BA	1:6000	28 x 40	DPW	RG-06-43	F140	
EB	NC		File: 5 Div:1 Sheet:55	3 sheets	BL	BA	1:6000	28 x 40	DPW	RG-06-44	F140	
EB	NC	FL	File: 5 Div:1 Sheet:59	2 sheets	BL	BA	1:2400	28 x 40	DPW	RG-06-45, 2 sheets	F140	
			File: 5 Div: 2 Sheet:110	3 of 3	BL	BA	1:6000	28 x 40	DPW	RG-06-37	F140	
EB	NC	FL	File: 5 Div:1 Sheet:61	2 sheets	BL	BA	1:2400	28 x 40	DPW	RG-06-47, 2 sheets	F140	
			File: 5 Div:2 Sheet:124	9 of 10	BL	BA	1:2400	28 x 40	DPW	RG-06-46	F140	
			I-Hum-1-G-Eur	8 of 37	2-BL	TO	1:2400 with 10' contour interval	20 x 37	DPW	RG-06-13	F142	State of California, Department of Transportation (CALTRANS), Eureka CA

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
:M	BA	1:2400	28 x 40	DPW	RG-06-09	F142		Dated 10 August 1955; shoreline positions for 1955, 1926, 1911, 1903, 1891, 1870, 1854; accompanied Beach Erosion Control Report dated 5 October 1956.
:M	BA	1:2400	28 x 40	DPW	RG-06-10	F142		Dated 10 August 1955; shoreline positions for 1955, 1926, 1911, 1903, 1891, 1870, 1854; accompanied Beach Erosion Control Report dated 5 October 1956.
.	BA	1:6000	28 x 40	DPW	RG-06-40	F140		Dated 12 September 1956; soundings in transects.
.	BA	1:6000	28 x 40	DPW	RG-06-41	F140		Dated 5 September 1957.
-CM	BA	1:6000	30 x 42	DPW	RG-06-04	F138		Dated 1 August 1957; bearings and distances for property as follows: channels, pierhead lines, bulkhead lines, monument locations, for entire Humboldt Bay south down to 40°42' (includes most of channels in South Bay) and north to 40°50' (only includes SW quadrant of North Bay).
.	BA	1:6000	28 x 40	DPW	RG-06-42	F140		Dated 15 September 1958.
R	TO	1:62500	18 x 22	DPW		F139		15-min quad, original printing in color.
.	BA	1:6000	28 x 40	DPW	RG-06-43	F140		Dated 12 August 1959
.	BA	1:6000	28 x 40	DPW	RG-06-44	F140		Dated 19 September 1960, shows maintenance hopper dredging 7-13 June 1960.
.	BA	1:2400	28 x 40	DPW	RG-06-45, 2 sheets	F140		Dated 26 October 1962.
.	BA	1:6000	28 x 40	DPW	RG-06-37	F140		Dated 12 June 1962; soundings in transects.
.	BA	1:2400	28 x 40	DPW	RG-06-47, 2 sheets	F140		Dated 30 October 1964.
	BA	1:2400	28 x 40	DPW	RG-06-46	F140		Dated 5 September 1967; soundings in transects.
L	TO	1:2400 with 10' contour interval	20 x 37	DPW	RG-06-13	F142	State of California, Department of Transportation (CALTRANS), Eureka CA	Dated 3 February 1964 for photography base map with survey points completed June 1964 by R. M. Towill, Inc., 612 Howard St., San Francisco, CA.

3

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Shee
					1	2	3	4		
206	1964	Feb	Untitled but shows: Shoreline of Buhne Spit north to northwestern railroad tracks along Humboldt Bay Entrance Bay	State of CA. Div. Of Highway Contract No. 63-01PC-1	FL				I-Hum-1-G-Eur	3 of 3
207	1964		Fields Landing, South Bay, Shorelines Positions 1851 - 1919	unknown	FL	SB			overlay to I-Hum-1-G-Eur	1 of
208	1965	Jun	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) condition survey of 12 - 14 May 1965	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div:2 Sheet:125	10 of
209	1966	Mar	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) after dredging survey of 15 - 17 February 1966	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div:2 Sheet:129	8 of
210	1968	Jun	Survey for Lamone Call of Eureka Shipbuilders Property near King Salmon Resort TP 4N R1W	Larson & Mac Million	EB				Record of Survey 2264 B1	1 of
211	1969	Oct	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) before dredging survey of 22-28 September 1969	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div:2 Sheet:139	8 of
212	1969	Oct	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) before dredging survey of 22-28 September 1969	COE USArmy Eng. Dist. SF COE SF, CA	FL				File: 5 Div:2 Sheet:139	9 of
213	1970		Untitled but shows: Buhne Spit and King Salmon area elevations	Humboldt County DPW	EB					4 shee
214	1971	Nov	Humboldt County, CA, Humboldt Harbor Jetties Olson Terminal Lumber Company Flight Index	COE Dist Eng. Contract to CH2M HILL	EC				File: 5 Div:19 Sheet:10	1 of
215	1972	Jun	Humboldt Harbor and Bay Navigation Channel Improvements Samoa & Eureka Channels	COE USArmy Eng. Dist. SF COE SF, CA	EC	EB	NC	FL	File:5 Div:45 Sheet:1	1 of
216	1972	Nov	Humboldt County, CA, Humboldt Bay jetties area to be photographed, proposed flight lines	COE USArmy Eng. Dist. SF COE SF, CA	EC				File: 5 Div:19 Sheet:11	1 of
217	1973	Jan	Preliminary Humboldt Bay Marina plan and preliminary record of survey for Humboldt Bay Marina	Trump & Sauble, Griffith & Assoc.	EB				Record of Survey but not filed	2 shee

ea Included			Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	
2	3	4							Location	Record No.	File No.		
			I-Hum-1-G-Eur	3 of 37	CM BL	TO	1:2400 with 10' contour interval	42 x 39	DPW	RG-06-06	F141	State of California, Department of Transportation (CALTRANS), Eureka, CA	Dat bas Jun St., Myl Fiel
SB			overlay to I-Hum-1-G-Eur	1 of 1	Mylar Original	BA	1:2400	18 x 67	DPW	RG-06-07	F141		Unc 196 sho 191 and
			File: 5 Div:2 Sheet:125	10 of 11	BL	BA	1:2400	28 x 40	DPW	RG-06-48	F140		Dat acr
			File: 5 Div:2 Sheet:129	8 of 9	BL	BA	1:2400	28 x 40	DPW	RG-06-50	F140		Dat tran
			Record of Survey 2264 B1	1 of 1	BL (old)	TO	1:1200	22 x 25	DPW	RG-06-11	F142	Humboldt County Recorders Office	Not sun Spit Eng
			File: 5 Div:2 Sheet:139	8 of 9	BL	BA	1:2400	28 x 40	DPW	RG-06-51	F140		Dat app cha
			File: 5 Div:2 Sheet:139	9 of 9	BL	BA	1:2400	28 x 40	DPW	RG-06-52	F140		Dat fron tran
				4 sheets	BL	TO	unknown	28 x 40	DPW	RG-06-16, 4 sheets	F142		Not
			File: 5 Div:19 Sheet:10	1 of 1	CM	Photo Index	1:12000	28 x 40	DPW	RG-06-54	F140		Dat Inde two 1:12 don Hill
:B	NC	FL	File:5 Div:45 Sheet:1	1 of 1	CM	BA	I:6000	28 x 40	DPW	RG-06-19	F139		
			File: 5 Div:19 Sheet:11	1 of 2	CM	Photo Index	1:12000	28 x 40	DPW	RG-06-55	F140		Dat lines
			Record of Survey but not filed	2 sheets	BL	OT	1:1200 (SH.1) 1:2400 (SH.2)	18 x 27	DPW	RG-06-15, 2 sheets	F142		Preli King

ıat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
3L	TO	1:2400 with 10' contour interval	42 x 39	DPW	RG-06-06	F141	State of California, Department of Transportation (CALTRANS), Eureka, CA	Dated 3 February 1964 for photography base map with survey points completed June 1964 by R. M. Towill, Inc., 612 Howard St., San Francisco, CA. BL is base for Mylar overlay for historic shorelines map of Fields Landing DPW File RG-06-07 F141.
riginal	BA	1:2400	18 x 67	DPW	RG-06-07	F141		Undated but is overlay to photo blue line of 1964 CALTRANS map (RG-06-06 F141); shorelines of 1851, 1854, 1859, 1870, 1871, 1919; also shows Tideland Locations S&O and Tide Land Surveys in Fields Landing.
.	BA	1:2400	28 x 40	DPW	RG-06-48	F140		Dated 23 June 1965; Soundings in transects across channel.
.	BA	1:2400	28 x 40	DPW	RG-06-50	F140		Dated 15 March 1966; Soundings in transects across channel.
ıld)	TO	1:1200	22 x 25	DPW	RG-06-11	F142	Humboldt County Recorders Office	Notes low tide line on 13 June 1968 and survey of 30.10 acres including Buhne Point Spit; prepared by Larson & Mac Millan Civil Engineers, 1809 Albee St., Eureka, CA.
.	BA	1:2400	28 x 40	DPW	RG-06-51	F140		Dated 27 October 1969; Fields Landing approach channel; soundings in cross channel transects.
	BA	1:2400	28 x 40	DPW	RG-06-52	F140		Dated 27 October 1969; Fields Landing in front of dock; soundings in cross channel transects.
	TO	unknown	28 x 40	DPW	RG-06-16, 4 sheets	F142		Not dated but probably from early 1970s.
I	Photo Index	1:12000	28 x 40	DPW	RG-06-54	F140		Dated 24 November 1971; Photo Flight Index Sheet of North and South Jetties for two scales of photography 1:2400 and 1:1200 date of photography 10/28/71; work done under contract to C.H.H.& M. Clair A. Hill & Assoc. now CH2M HILL.
I	BA	I:6000	28 x 40	DPW	RG-06-19	F139		
I	Photo Index	1:12000	28 x 40	DPW	RG-06-55	F140		Dated 15 November 1972; show photo flight lines across north jetty and south jetty.
	OT	1:1200 (SH.1) 1:2400 (SH.2)	18 x 27	DPW	RG-06-15, 2 sheets	F142		Preliminary plan for marina to be located at King Salmon, Buhne Spit.

Ref. No.	Date	Month	Title	Origin	Area Included			
					1	2	3	4
218	1973	May	Preliminary layout Humboldt Bay Marina	Griffith & Assoc.	EB			
219	1976	Jun	Humboldt Bay navigation channel improvement recommended disposal sites	COE USArmy Eng. Dist. SF COE SF, CA				
220	1976	Jun	Humboldt Harbor and Bay navigation channel improvements utility relocation	COE USArmy Eng. Dist. SF COE SF, CA	EC	EB	NC	FL
221	1976	Jun	Humboldt Harbor and Bay navigation channel improvements project location & general plan of improvements	COE USArmy Eng. Dist. SF COE SF, CA	EC	EB	NC	FL
222	1976	Mar	Humboldt County, CA, Humboldt Bay, King Salmon area topography	COE USArmy Eng. Dist. SF COE SF, CA	EB			
223	1977	Aug	Preliminary survey plat Humboldt Bay Marina showing project relationship to historic and existing shorelines at King Salmon, Humboldt Bay, CA	Griffith & Assoc.	EB			
224	1980	Jul	Hydrographic and photographic data for Humboldt Bay Survey (July-October)	US Army COE Contract	HB			
225	1981	Aug	Humboldt County, CA, Humboldt Bay (Fields Landing Channel) Hydrographic survey of 12 & 13 August 1981	COE USArmy Eng. Dist. SF COE SF, CA	FL	EB		
226	1981		Index to tideland surveys in and adjacent to Humboldt Bay (on quad sheets)	Humboldt Bay Area Original Land Survey Notes	HB			
227	1982	Oct	Record of survey of Humboldt Bay Harbor Recreation and Conservation District	W&K	HB			
228	1992		1992 Ecoscan resource data sets North Humboldt Bay	CA. F& G	NB			

	Origin	Area Included 1	2	3	4	Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Loca Location	Record No.
t Bay	Griffith & Assoc.	EB				none	1 of 1	BL	OT	1:600	30 x 50	DPW	RG-06-17
nannel d disposal	COE USArmy Eng. Dist. SF COE SF, CA					File:5 Div:45 Sheet:1 Plate:8	8 of 8	CM	BA	l:6000	28 x 40	DPW	RG-06-18
navigation y	COE USArmy Eng. Dist. SF COE SF, CA	EC	EB	NC	FL	File:5 Div:45 Sheet:1	1 of 1	BL	BA	1:24000	28 x 40	DPW	RG-06-20
navigation ect	COE USArmy Eng. Dist. SF COE SF, CA	EC	EB	NC	FL	File:5 Div:45 Sheet:1	1 of 1	2-BL	BA	1:36000	28 x 40	DPW	RG-06-21
nboldt Bay, phy	COE USArmy Eng. Dist. SF COE SF, CA	EB				File: 5 Div: 33 Sheet: 1	1 of 1	CM	TO BA	1:3000	28 x 40	DPW	RG-06-18
mboldt Bay ationship to ines at ay, CA	Griffith & Assoc.	EB				Job No. 177-138.1	1 of 1	BL	TO	1:600	36 x 49	DPW	RG-06-12
aphic data July-	US Army COE Contract	HB				Contract No. DACW07-80-C-0043	2 sheets	2-CM	BA	1:12000	28 x 40	DPW	RG-06-21
mboldt Bay & 13	COE USArmy Eng. Dist. SF COE SF, CA	FL	EB			File: 5 Div:2 Sheet:181	3 of 3	BL	BA	1:2400	28 x 40	DPW	RG-06-53
n and (on quad	Humboldt Bay Area Original Land Survey Notes	HB				none	2 sheets	BL	SL Index	1:48000	28 x 40	DPW	RG-06-18
oldt Bay onservation	W&K	HB				none	5 sheets	CM OR	SL	1:2400	24 x 36	DPW	Humboldt Ba General Flat File Draw
ata sets	CA. F& G	NB				none	1 of 1	CO	TH	unknown	23 x 33	HBHRCD	

y Date

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
.	OT	1:600	30 x 50	DPW	RG-06-17	F142		Dated 13 August 1973; shows acreages and elevations at Buhne Spit.
1	BA	I:6000	28 x 40	DPW	RG-06-18	F139		Map base is blow-up of NOAA Navigation Chart.
.	BA	1:24000	28 x 40	DPW	RG-06-20	F139		Map also shows proposed Humboldt Wastewater Authority regional sewer line offshore Samoa/Manila.
L	BA	1:36000	28 x 40	DPW	RG-06-21	F139		Wind rose in lower right corner of map for period July 1939 to December 1942.
1	TO BA	1:3000	28 x 40	DPW	RG-06-18	F142		Dated 15 March 1976; survey of shoreline and King Salmon boat channels 18-25 February 1976.
.	TO	1:600	36 x 49	DPW	RG-06-12	F142		Dated 30 August 1977 and checked 14 November 1977; shows plans for a marina, shopping mall, restaurant and motel at King Salmon bayward of Buhne Drive at present-day location of barrier beach and rock slope protection; shows 1968 MLW, March 1977 MHW and MLW, November 1977 MHW and MLW.
M	BA	1:12000	28 x 40	DPW	RG-06-21	F139		Smooth sheets for hydrosurvey, I Tech International Technology Limited, Datum MLLW=0.
.	BA	1:2400	28 x 40	DPW	RG-06-53	F140		Dated 21 August 1981; Fields Landing Channel section at Buhne Point only shown; soundings in cross channel transects.
	SL Index	1:48000	28 x 40	DPW	RG-06-18	F143		Index compiled from review of original land survey notes for Humboldt Bay area on file at the Humboldt County Department of Public Works, Engineering Design Section, Eureka, CA.
)R	SL	1:2400	24 x 36	DPW	Humboldt Bay General Flat File Draw			Prepared by Winzler and Kelly Consulting Engineers, Eureka, CA.
)	TH	unknown	23 x 33	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Scale not indicated but estimated to be 1" = 2500' or 1:30000; map is photo overlay of SPOT Corp. imagery; data source is 1992 "Humboldt Bay Ecosystem Study Final Report," CA Fish and Game, Redding, CA; map shows oyster aquaculture, marine habitats, marine vegetation in North Bay.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart ID	Sheet
					1	2	3	4		
229	1999	Apr	Humboldt County, CA, Humboldt Bay Condition survey 30 April and 1 May 1999	USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 297	10 sheets
230	1999	Mar	Humboldt County, CA, Humboldt Bay Condition Survey 18, 20, 21, and 23-27 February and 4 March 1999	USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 296	10 sheets
231	1999	Jan	Humboldt County, CA, Humboldt Bay and Bar and Entrance Channel Condition Survey 5-6 January 1999	USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 295	10 sheets
232	1999	Nov	Humboldt County, CA, Humboldt Bar, Entrance and North Bay Channels	USArmy Eng. Dist. SF COE SF, CA	NC				none	16 sheets
233	1999	Mar	Proposed Humboldt Bay Management Area	CA. F& G	HB				none	1 of 1
234	1999		California Department of Fish and Game Ownership Humboldt Bay Management Area	CA. F& G Teale Data Center	HB				none	1 of 1
235	2000	Apr	Humboldt Bay Condition Survey 25-26 January 2000	USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 298	10 sheets
236	2000	Nov	Humboldt County, CA, Humboldt Bay and Bar and Entrance Channel Condition Survey 12-13 September 2000	COE USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 299	10 sheet
237	2000	Jan	Humboldt Bay Context Area	CA. F& G	HB				none	1 of 1

Origin	Area Included				Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			
	1	2	3	4							Location	Record No.	File No.	
USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 297	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		
USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 296	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		
USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 295	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		
USArmy Eng. Dist. SF COE SF, CA	NC				none	16 sheets	BW	BA	Vert 1" = 10' Hor 1" = 100'	11 x 17	HBHRCD	Rolls		C 2
CA. F& G	HB				none	1 of 1	CO	TH	1: 175000	36 x 45	HBHRCD			C N C E
CA. F& G Teale Data Center	HB				none	1 of 1	CO	TH	unknown	23 x 33	HBHRCD			C N C E
USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 298	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		
COE USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 Div: 2 Sheet: 299	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		
CA. F& G	HB				none	1 of 1	CO	TH	1: 175000	36 x 45	HBHRCD			C N C E

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
-	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated June 25 1999; Survey by USACE, Sacramento District, for the USACE San Francisco District; channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 Bar and Entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.
-	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated 30 March 1999; survey by USACE Sacramento District for the USACE, San Francisco District; channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 Bar and Entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.
-	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated 14 January 1999; survey by Towill, Inc. for the U.S. Army Engineer District, San Francisco; channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 Bar and Entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.
V	BA	Vert 1" = 10' Hor 1" = 100'	11 x 17	HBHRCD	Rolls		CRA Inc 425-673-2518	Dated 25 November 1999; sheets showing Eureka Reach 2 Sections 136+00 to 145+00 and 125+00 to 135+21; cross sections; prepared by CRA Inc. for U.S. Army Engineer District, San Francisco (Manson/COE Check Survey.
)	TH	1: 175000	36 x 45	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Dated 1 March 1999; map projection is Albers Map Units; shows shorelines, rivers, area locators, railroads, highways, airports, area of tidal influence, and main tributaries.
)	TH	unknown	23 x 33	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Scale not indicated but estimated to be 1" = 2500' or 1:30000. Map is photo overlay of SPOT Corp. imagery; compiled by Clint Kellar, CA CDFG, Redding, CA.
.	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated 10 April 2000; survey by USACE, Sacramento District, for the USACE, San Francisco District; channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 Bar and Entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.
.	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated 6 November 2000. Survey by USACE Sacramento District, USACE, San Francisco District; channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 Bar and Entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.
)	TH	1: 175000	36 x 45	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Context area is approximately same boundary as coastal zone boundary; photo background is 1997 TeraMar Imagery.

Ref. No.	Date	Month	Title	Origin	Area Included				Ma
					1	2	3	4	
238	2000		National Wetland Inventory Data for Humboldt Bay	CA. F& G	HB				none
239	2000		Humboldt Bay eelgrass beds interim coverage	CA. F& G	HB				none
240	2000		Shellfish beds and reserves Humboldt Bay	CA. F& G Shapiro and Assoc. (1980)	HB				none
241	2000		Humboldt Bay, CA, comparative bathymetry maps: (1) 1993 NOAA high and low tides bathymetry (2) 1944 high and low tides bathymetry (3) Humboldt Bay area flux from 1944 to 1993.	1993 Data from NOAA and 1944 Data from C&GS	HB				Chart I 1993 D and no Cha 1944 D
242	2000		Humboldt Bay sediment map	Dr. Robert W. Thompson, HSU-Ocean Dept.	HB				none
243	2000		Humboldt Bay, CA, offshore bathymetry	NOS	OS				none
244	2001	Apr	Humboldt Bay condition survey, 2 - 8 March 2001	USArmy Eng. Dist. SF COE SF, CA	NC				File: 5 301

Area Included				Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location
1	2	3	4							Location	Record No.	File No.	
HB				none	1 of 1	CO	TH	unknown	36 x 48	HBHRCD			CDFG, N. CA. NCRISB, Redd CA or CDFG, Eureka, CA.
HB				none	1 of 1	CO	TH	unknown	36 x 48	HBHRCD			CDFG, N. CA. NCRISB, Reddi CA or CDFG, Eureka, CA.
HB				none	1 of 1	CO	TH	unknown	38 x 48	HBHRCD			CDFG, N. CA. NCRISB, Reddi CA or CDFG, Eureka, CA.
HB				Chart No. 18622 for 1993 Data and no Chart identified for 1944 Data	3 sheets	CO	BA	1:100000	24 x 34 w/ 24 x 36 image area	HBHRCD			
HB				none	1 of 1	BW	TH	1:100000	24 x 36	HBHRCD			
OS				none	1 of 1	BW	BA	unknown		HBHRCD			
NC				File: 5 Div: 2 Sheet: 301	10 sheets	BL	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls		

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
)	TH	unknown	36 x 48	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Actual date unknown but likely 2000. Data input by California Department of Fish and Game and the Teale Data Center. Map uses the National Wetland Codes by the U.S. Fish and Wildlife Service
)	TH	unknown	36 x 48	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Approximate scale is 1.5" = 1 mile; shows locations of eelgrass beds in North and South Bay with two examples 9 x 9 Terra-Mar (209-754-3536) 1997 photos inserted in display area of map.
)	TH	unknown	38 x 48	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Approximate scale is 1.5" = 1 mile; shows locations of shellfish beds in North and South Bay from Shapiro and Associates (1980). "Humboldt Bay Wetlands Review and Baylands Analysis," prepared USACE, San Francisco District. Author of map, Karen A. Glatzel, developed it from personal interviews with personnel from California Department of Fish and Game, Eureka California Office, and author's personal observations and research on Humboldt Bay.
)	BA	1:100000	24 x 34 w/ 24 x 36 image area	HBHRCD				Map 1 - 1993 bathymetry map shows conditions in bay for channels and basins, 20' depth contour, marshes - uplands, other water - mudflats with water coverage, low tide (MLLW) above 1993 high tide, high tide (MHHW). (Note: Part of map for Woodley Island and parts of Indian Island are mistakenly marked as 1944 marshes; in 1944 these areas were uplands because of prior dredge spoil placement in early 1900s). Map 2 - 1944 bathymetry map shows conditions in bay for channels, marshes, other water - mudflats, low tide (MLLW) above 1944 high tide (MHHW), high tide (MHHW). Map 3 - 1944 to 1993 flux map shows gains and loss changes in marshes, low tide area, and high tide area.
/	TH	1:100000	24 x 36	HBHRCD				Sediment distribution map originally published by Dr. Robert W. Thompson (1971), "Recent Sediments of Humboldt Bay, Eureka, California," prepared for Petroleum Research Fund Report 789-G2, Oceanography Department, Humboldt State University. Reproduced again in Shapiro and Associates (1980), "Humboldt Bay Wetlands Review and Baylands Analysis" for U.S. Army Enginer District, San Francisco.
/	BA	unknown		HBHRCD				Preliminary map.
	BA	1:2400	30 x 40	USACE Eureka Field Office	Rolls			Dated 11 April 2001; survey by USACE Sacramento District, for the San Francisco District; Channel survey data as follows Sh: 1 Eureka, Sh:2 Samoa, Sh:3 North Bay-Samoa and Eureka, Sh:4 North Bay, Sh:5 North Bay, Sh:6 bar and entrance, Sh:7 North Bay & Fields Landing, Sh:8 Fields Landing, Sh:9 Fields Landing, Sh:10 Samoa.

Ref. No.	Date	Month	Title	Origin	Area Included				Map/Chart II
					1	2	3	4	
245	2001	Jan	Eelgrass beds, Humboldt Bay (draft)	CA. F& G	HB				none
246	2001	Jan	Parcels Humboldt Bay	CA. F& G	HB				none
247	none		Humboldt Bay Samoa Peninsula lines	unknown	NC				none
248	none		Navigation Chart of Humboldt Bay Entrance, Entrance Bay, and Hookton Channel (Fields Landing Channel)	probably COE	EC	EB	FL		none
249	none		King Salmon Sanitation District Map	unknown	EB				File 110-9 Tube 1

	Origin	Area Included				Map/Chart ID	Sheet	Format	Type	Scale	Size (in.)	Primary Map/Chart Loca	
		1	2	3	4							Location	Record No.
ıy (draft)	CA. F& G	HB				none	1 of 1	CO	TH	1:26400	36 x 42	HBHRCD	
	CA. F& G	HB				none	1 of 1	CO	TH	unknown	36 x 48	HBHRCD	
sula lines	unknown	NC				none	2 sheets	CM OR	BA	1:2400	7 x 18	DPW	DPW - Humboldt Bay General Flat File Draw
ıt Bay ı Hookton annel)	probably COE	EC	EB	FL		none	1 of 1	BL	NA	unknown	24 x 34	DPW	RG-06-44
ict Map	unknown	EB				File 110-9 Tube 1C	1 of 1	BL	TO	1:1200	24 x 36	DPW	RG-06-19

ate

nat	Type	Scale	Size (in.)	Primary Map/Chart Location			Secondary Location	Notes
				Location	Record No.	File No.		
)	TH	1:26400	36 x 42	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA or CDFG, Eureka, CA.	Draft map: Eel grass beds plotted on 1997 digital TeraMar color imagery base map; Resolution on eelgrass beds data set is generalized to 2-sq m pixels for display as printed map.
)	TH	unknown	36 x 48	HBHRCD			CDFG, N. CA. NCRISB, Redding, CA, or CDFG, Eureka, CA.	Approximate scale is 1" = 2,640', 1.24" = 1 kilometer. Datasets provided by CDFG and SPOT Image, map composition by Clint Kellar, CDFG, Northern CA.
)R	BA	1:2400	7 x 18	DPW	DPW - Humboldt Bay General Flat File Draw			Shows 1851, 1854, 1859, 1870, 1919 high water; 1854, 1859, 1871 low water; meander lines, section lines, and tide and submerged land surveys.
-	NA	unknown	24 x 34	DPW	RG-06-44	F140		Blow-up of undated Navigation Chart, used for an applied study.
-	TO	1:1200	24 x 36	DPW	RG-06-19	F142		Date unknown; shows lots in King Salmon and sewer hookup location and collection lines.

3

Appendix D
Key for Interpreting Codes in List of Maps and Charts

Table D1
Abbreviations Used for Map and Chart Origins in Appendix C
(Abbreviations are given as displayed on original maps)

Abbreviation	Origin
C&GS	Coast and Geodetic Survey
CA. F&G	State Of California Department of Fish and Game
Ch. Eng. US Army	Chief of Engineers, U.S. Army
CH2M HILL	CH2M HILL, Redding, CA
COE	Corps of Engineers
COE Dist Eng.	Corps of Engineers, District Engineer
COE SF	Corps of Engineers, San Francisco
COE USA	Corps of Engineers, United States of America
COE US Army Eng. Dist. SF COE SF, CA	Corps of Engineers, U.S. Army Engineer District, San Francisco, Corps of Engineers, San Francisco, CA
COE US Army Off of Dist Eng.	Corps of Engineers, U. S. Army, Office of District Engineer
COE US Army Off. Dist. Eng. SF Dist. SF CA	Corps of Engineers U.S. Army, Office of District Engineer, San Francisco District, San Francisco, CA
COE US Army SF Dist. COE	Corps of Engineers, U.S. Army, San Francisco District, Corps of Engineers
DOC USC&GS	Department of Commerce United States Coast and Geodetic Survey
DOC&Labor USC&GS	Department of Commerce and Labor United States Coast and Geodetic Survey
DPW	Humboldt County, Department of Public Works, Natural Resources Division, Eureka, CA
HBHRCD	Humboldt Bay Harbor Recreation and Conservation District, Eureka, CA
Humboldt DPW	Humboldt County, Department of Public Works, Eureka, CA
NA RG	National Archives, Washington, DC, Record Group
Off. Chief of Eng.	Office of Chief of Engineers

(Continued)

Table D1 (Concluded)	
Abbreviation	**Origin**
RG	Record Group
SF Dist COE	San Francisco District Corps of Engineers
State of CA. Div. Of Highways	State of California, Division of Highways
U.S. Engineers	United States Engineers
US Army COE SF Dist	U.S. Army Corps of Engineers, San Francisco District
US Eng	United States Engineers
US Eng 1st Dist. SF CA	United States Engineers, 1st District, San Francisco, CA.
US Eng Off. 1st Dist SF CA COE SF CA	U.S. Engineers Office, 1st District, San Francisco, California, Corps of Engineers, San Francisco, CA
US Eng SF	United States Engineers San Francisco
US Eng. Off. SF CA.	U.S. Engineers Office, San Francisco, CA
US Treasury Dept. C&GS	United States Treasury Department and Coast and Geodetic Survey
US Army Eng Dist. SF COE SF CA	U.S. Army, Engineer District, San Francisco, Corps of Engineers, San Francisco, CA
USC&GS	United States Coast and Geodetic Survey
USCS	United States Coast Survey
W&K	Winzler and Kelly Consulting Engineers, Eureka, CA
WD Board Eng. Off. Ch. Eng. USArmy	War Department, Board of Engineer Office, Chief of Engineers, U.S. Army
WD COE USArmy US Eng. Off. SF CA	War Department, Corps of Engineers, U.S. Army, U.S. Engineers Office, San Francisco, CA
WD COE USArmy US Eng. Off. SF CA	War Department, Corps of Engineers, U.S. Army, U.S. Engineer Office, San Francisco, CA
WD USAmy COE USA SF Dist	War Department, U.S. Army Corps of Engineers, U.S.A. San Francisco District
WD USArmy	War Department, U.S. Army
WD USArmy COE	War Department U.S. Army, Corps of Engineers
WD-COE	War Department, Corps of Engineers
WD-COE-SF	War Department, Corps of Engineers, San Francisco
WD-COE-USA US Eng. Off. 1st Dist. SF CA	War Department, Corps of Engineers, U.S.A., U.S. Engineer Office, 1st District, San Francisco, CA
WD-COE-USArmy	War Department, Corps of Engineers, U.S. Army
WD-COE-USArmy US Eng-1st Dist., SF, CA	War Department, Corps of Engineers, U.S. Army, U.S. Engineer Office, 1st District, San Francisco, CA

Table D2 Map and Chart Format Codes Used in Appendix C	
Format Codes	**Map Format**
BL	Blue line (Blueprint)
BW	Black and White Copy
CM	Copy Mylar
MY	Mylar (Original)
OR	Original
PP	Photo Print Copy

Table D3 Map and Chart Type Codes Used in Appendix C	
Type Codes	**Map or Chart Type**
BA	Bathymetric (Hydrographic)
NA	Navigation
OT	Other (Explained in Notes)
TH	Thematic (Explained in Notes)

Table D4 Map and Chart Location Codes Used in Appendix C	
Location Code	**Map Location**
EB	Entrance Bay
EC	Entrance Channel
ER	Eel River
FL	Fields Landing Channel, South Bay
HB	Humboldt Bay (Entire Bay)
HC	Hookton Channel, South Bay
MR	Mad River
NB	North Bay (Arcata Bay)
NC	North Channels (Includes North Bay Channel, Eureka Channel Outer and Inner Reaches, Samoa Channel)
NS	North Spit
OS	Offshore of Entrance
SB	South Bay
SS	South Spit

Appendix E
Annotated Bibliography of Key Studies and Reports

Barker, G. B. (1971). "The Development of Humboldt Bay Shoals," OCN 199 Oceanography Department, Humboldt State University.

> Directed Study. Investigation of Entrance Bay between Point Humboldt (Buhne Spit) and Elk River Spit. Net accretion estimated between 1939 and 1946 amounted to 461,000 cu yd by SPN in 1946. Study estimated Elk River Spit accreted from 300 to 1,100 ft during same time period.

Beittel, R. L. (1975). "Hydrographic Structure of North Humboldt Bay," OCN 199, Oceanography Department, Humboldt State University.

> Directed study under Dr. John Pequegnat. Hydrographic measurements of Arcata Bay (North Bay) only with measurements in the summer (July and August). Temperature, salinity, and water clarity were measured. Karen Glatzel assisted in the field data collection.

Bodin, P. (1982). "Longshore and Seasonal Variations in Beach Sand, Humboldt County, CA. Implications for Bulk Longshore Transport Direction," M.S. thesis, Humboldt State University.

> A study of the sediment textural parameters and mineralogy for the entire Humboldt littoral cell (False Cape to Trinidad Head). Beach sand mineralogy was compared to river sediments. The implications concerning the littoral transport directions were explored.

Borgeld, J. C., Scalici, M. J., and Lorang, M. (1993). "Mad River Mouth Migration Monitoring Report," California Department of Transportation.

> Not reviewed. A companion report to the final report that only addressed the changes in the immediate vicinity of the Mad River mouth (see Borgeld et al. (1993) below).

Borgeld, J. C., Scalici, M. J., Lorang, M., Komar, P. D., and. Burrows, G. A. (1993). "Final Project Evaluation Report: Mad River Mouth Migration." California Department of Transportation.

Addresses the geomorphological and hydrodynamics of the Humboldt Bay littoral cell in general, and the reach coincident with the migration of the mouth of the Mad River specifically. The purpose of the report was to evaluate a project to limit the extent of the Mad River mouth migration to the north using rock slope protection and a rock groin-like structure.

Borgeld, J. C. (1998). "Mad River Inlet Rock Slope Protection: Final Report," California Department of Transportation.

Not reviewed. Follow-up to the 1993 project evaluation report. There are a series of annual monitoring reports prepared by various authors: J. C. Bulinski (1996), C. C. Fielder (1997, 1998). These reports are listed in the final report as well as in Komar et al. (2000). These annual reports are not included in this bibliography.

Borgeld, J. C. (1998). "Mad River Inlet Rock Slope Protection: Final Report Addendum," California Department of Transportation.

Not reviewed. Follow-up to the 1998 final report.

Borgeld, J. C., and Pequegnat, J. E. (1986). "The Transport Characteristics of Dredged Material Disposal at the Interim Designated Humboldt Ocean Disposal Site (SF-3)," Technical Report Series Telonicher Marine Laboratory TML-3, Humboldt State University.

Sediment transport analysis of the Humboldt Bay dredge disposal site (SF-3) used by the SPN for maintenance of Humboldt Bay channels (site was located just offshore and south of the south jetty; new offshore dredge disposal site now in place). Study investigated mounding potential and sediment transport characteristics of formerly disposed sediments. Collected site bathymetry, current data, and wave data at and in vicinity of the site. Conclusions were sediments finer than 3.00 phi (0.125 mm) do not remain at the site in appreciable quantities, sediments courser than 2.50 phi (0.177 mm) generally remain at the site temporarily, and represent 86 percent of the total dredge volume.

Bott, L. L., and Diebel, C. E. (1982). "A Survey of the Benthic Invertebrate Communities in the Channels of Central Humboldt Bay," Contract No. DAWC07-81-C-0010, U.S. Army Engineer District, San Francisco.

A pre- and post-dredging survey of benthic communities in the bay (Entrance Bay and the channels leading to North Bay). Includes sediment data (see Costa 1982).

Bottin, R. R., Jr., and Earickson, J. A. (1984). "Buhne Point, Humboldt Bay, California Design for the Prevention of Shoreline Erosion," Technical Report CERC-84-5, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Presents the results of a numerical and physical hydrodynamic and sediment transport models that focus on Entrance Bay and South Bay. The study looks at various alternatives for shoreline protection at Buhne Point.

Boyd, W. A. (1979). "An Investigation of Wave Recording by Seismometer at the Entrance to Humboldt Bay, Humboldt State University Senior Project," 15 pp.

Complimentary and preliminary to the study done by Hathaway (1982).

Brown, W. M., and Ritter, J. R. (1971). "Sediment and Turbidity in the Eel River Basin, California," USGS Water Supply paper No. 1986.

Provides sediment loading information for the major riverine contributor of sand to the Humboldt Bay littoral cell.

Brown, W. M. (1973). "Streamflow, Sediment and Turbidity in the Mad River Basin," Water Resources Investigation No. 36-73, U.S. Army Corps of Engineers.

Provides sediment loading information for one of the two major riverine contributors of sand to the Humboldt Bay littoral cell.

Brown, W. M. (1975). "Sediment Transport, Turbidity, Channels Configuration and Possible Effects of Impoundment of the Mad River, Humboldt County, California," Water Resources Investigation No. 26-75, U.S. Army Corps of Engineers.

Not reviewed. Supplementary information to Brown (1973).

Burdick, B. A. (1976). "Surficial Sediment Distribution in a Portion of Humboldt Bay," M.S. thesis, Humboldt State University.

Not reviewed. Provides sediment data for limited channel areas.

California Department of Boating and Waterways. (1983). "Buhne Spit/King Salmon Shore Protection Project at Humboldt Bay in the County of Humboldt," State of California, Resources Agency.

Early investigation and definition of the extreme erosion at Buhne Point (in Entrance Bay) and the possible measures required to protect the residence and business community at King Salmon.

Camozzi, B., Grimes, S., and Rajapakse, I. (1997). "A finite-difference Model for the Tidal Circulation of Humboldt Bay," Humboldt State University.

Not reviewed. Describes the development and results of a finite-difference grid and tidally driven numerical model of the bay.

Casebeir, T .A., and. Toimil, L. J. (1973). "Physical Dynamics of Arcata Bay," OCN 199, Oceanography Department, Humboldt State University.

Directed study under Dr. R. W. Thompson. Some early measurements of the currents and hydrography limited to Arcata (North) Bay. Background meteorological information and some rough flushing calculations.

Cook, S. K. (1970). "Megaripple Migration in South Humboldt Bay," OCN 199, Oceanography Department, Humboldt State University.

Directed study under Dr. R. W. Thompson concerning late spring through summer to early winter megaripple observations along the bayward side of South Spit, Humboldt Bay. Appendices contain color Polaroid pictures of study site and aerial photos from 1966, 1962, 1958 in addition to profiles and phi sizes.

Cooper, C., and Fredrick, M. (1985). "Tidal Pumping in Humboldt Bay," OCN 199, Oceanography Department, Humboldt State University.

Directed study. A student report on current measurements at the connection between Entrance Bay and South Bay that illustrates some interesting features of the flows during tidal reversals.

Costa, S. L. (1982). "The Physical Oceanography of Humboldt Bay," in *Proceedings, Humboldt Bay Symposium*, (C. Toole and C. Diebel, ed.). HSU Center for Community Development.

An overview of the physical oceanography of Humboldt Bay based on previous work and ongoing studies supported by Sea Grant and the Corps of Engineers. Incorporates earlier work by other investigators as well.

Costa, S. L. (1982). "Changes in Channel Sediment Characteristics, 1974, and 1980, Humboldt Bay California," in L. L. Bott, and C. E. Diebel, *A Survey of the Benthic Invertebrate Communities in the Channels of Central Humboldt Bay.* Contract No. DAWC07-81-C-0010, U.S. Army Engineer District, San Francisco.

Provides sediment data in the channels of Humboldt Bay collected and analyzed in conjunction with the benthic survey.

Costa, S. L., Landsteiner, M. C., Stork, J. W., and Goud, T. C. (1982). "Discharge Displacement Calculations for Tidal Flushing," *Proceedings Oceans '82*, Washington, DC.

This paper presents a methodology and the results of tidal displacement distances in North Channel and Entrance Bay. The calculations were

done to investigate the flushing of wastewater discharge from the bay to develop an ebb-tidal discharge from the wastewater treatment plant in Eureka.

Costa, S. L., and. Stork, J. W. (1984). "Prototype Data Collection for Humboldt Bay, California," Contract No. DACW07-81-C-0029, U.S. Army Corps of Engineers.

Describes a yearlong data collection of water levels, salinity, temperature, turbidity, currents, and wind data throughout Humboldt Bay to be used for model development by the Corps of Engineers. The data were supplied as separate submittals on magnetic media, and are available from West Consultants, or Greg Crawford at Humboldt State University, or the primary author of the report. The report is in two volumes including addenda and appendices.

Dartnell, P. (1990). "Predicting Sediment Movement of Dredge Disposal Material Offshore of Humboldt Bay," OCN 199, Oceanography Department, Humboldt State University.

Measured sediment phi sizes from 15 sediment samples collected 24 March 1990, five samples each from three transects.

Ebbesmyer, C., Diebel, C. E., Costa, S. L., and Hinchy, L. (1980). "Tidally Powered Exchange between Two Interconnected Shallow Bays," Unpublished manuscript.

A review of free and anchored drifter studies done in Entrance Bay that provides a good review of the circulation patterns. Much of the material was used in the Shapiro and Associates (1980) report.

Evans, R. A. (1994). "Humboldt Bay Hydrodynamic and Sedimentation Study," Miscellaneous Paper HL-94-2, Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

A hydrodynamic and sediment transport numerical model done in support of the recent deepening project. Predictions of changes in shoaling rate were addressed for various channel depths.

FEMA (1982). "Flood Boundary and Floodway Maps: Humboldt County California (Unincorporated Areas)."

Panels associated with the Bay include 615, 620, 685, 780, 785, 920, 940, 1085, 1110, and 1120. Updated Flood Insurance Studies were published in 1986 for unincorporated areas and for the City of Eureka, and in 1997 for the City of Arcata.

Fiorentino, Chuck. (1980). "Characteristics and Features of Mad River Slough Humboldt County, CA," OCN 199, Oceanography Department, Humboldt State University.

Directed study, Geological Oceanography Senior Paper, concerned with the geological history of the Mad River Slough that references the Mad River Canal once dug in the late 1880s to connect the Mad River to Humboldt Bay.

Gast, J. A., and Skeesick, D. G. (1964). "The Circulation, Water Quality, and Sedimentation of Humboldt Bay California," Special Report No. 2, Humboldt State University, Department of Oceanography.

Presents the results of measurements of hydrography, nutrients, water circulation (currents), and sediments in Humboldt Bay.

Garcia, H. E. (1985). "Effect of Groin Extensions and Sediment Deposited at Buhne Point on the Ebb Tidal Current Circulation in Entrance bay, Humboldt Bay, California," Directed study (Department of Oceanography) at Humboldt State University.

A senior paper that presents a study of the circulation within Entrance Bay using a variety of measurement techniques. Develops general circulation patterns, does not find the same effects at the connection between Entrance Bay and South Bay as some other studies, but this may be caused by the stations occupied, or the changes resulting from the groin at Buhne Point.

Gayman, W. (1974). "Preliminary Report on Investigations of Little River Beach and other Segments of Humboldt County Shoreline," OCN 199, Oceanography Department, Humboldt State University.

Directed study. Not reviewed. Presents some information on waves, beach sediments, and littoral processes.

Gera, A. V. (1973?). "Sediment Distribution in Central Humboldt Bay and Relationship to Bathymetry and Hydrodynamics," OCN 199, Oceanography Department, Humboldt State University.

Directed study. Surficial sediment distribution in Entrance Bay, interpretations of relationship of sediment size distributions to bathymetry and hydrodynamics.

Glatzel, K. A. (1982). "An Historical Overview of Land Use Surrounding Humboldt Bay," in *Proceedings, Humboldt Bay Symposium,* (C. Toole and C. Diebel, ed.), HSU Center for Community Development.

In addition to land use changes and conditions, this paper provides a historical perspective of the baylands and wetlands that have been isolated from tidal action, potentially affecting the tidal prism of the bay since the latter part of the 1800s.

Gusek, L. (1979). "Humboldt Bay: The Effects of the Jetties on North and South Spits," OCN 199, Oceanography Department, Humboldt State University.

Directed study. Traced Corps of Engineers survey maps from 1950, COE Survey Report to show shoreline changes in Entrance Bay.

Hagwood, J. J., Jr. (1981). "Engineers at the Golden Gate," U.S. Army Engineer District, San Francisco.

A monograph describing the history of the Corps of Engineers San Francisco District, projects that includes a substantial description of the development of Humboldt Bay Entrance. A comprehensive listing of archived Corps documents is included. A number of books and articles on Humboldt Bay are included in the bibliography of the monograph that may not be listed in this report.

Hathaway, Kent K. (1982). "A Comparison Between Microseisms and Ocean Waves at the Coast of Northern California," Final report to the Institute of Marine Resources, University of California, San Diego, (Note: The same report was submitted and accepted as a M.S. thesis to Humboldt State University).

Provides some good background information on the local wave climate.

Hess, D. S. (1975). "Influence of Wave Action on Sediment Accumulation Rates on the Tidal Flats of North Humboldt Bay, CA," OCN 199, Oceanography Department, Humboldt State University.

Measured rates of accumulation of sediment from 1/8/75 to 3/7/75. Study under the direction of Drs. R. W. Thompson, and J.A. Gast.

Humboldt State University. (1966). "A Symposium on Humboldt Bay," Center for Community Development, Humboldt State College (prior to name change to university).

Little information on physical processes. Some information on marine resources in the section by D.W. Gotshall, pp. 23-26, contained in the Wildlife Resources Section of the Symposium.

Humboldt State University. (1979). "Hydrographic and Benthic Survey of South Bay," Unpublished data report, Oceanography 195 senior field cruise. Humboldt State University.

Not reviewed. Some data used in Cooper and Fredrick (1985).

Humboldt State University. (1984). Analysis of Circulation Patterns in Humboldt Bay. Unpublished data report, Oceanography 195 senior field cruise. Humboldt State University.

Not reviewed. Data used in Cooper and Fredrick (1985).

International Technology, Ltd. (1981). "Bathymetric Survey, Humboldt Bay, California," Contract No. DACW07-80-C-0043, U.S. Army Engineer District, San Francisco.

A relatively complete bathymetric survey of the bay including the channels and mud flats. The smooth sheets are available at Humboldt County Department of Public Works, Natural Resources Division (see Appendix D.3 for contact information) and should also be available from the U.S. Army Engineer District, San Francisco, possibly in a digital format.

Jarrett, J. T. (1975). "Tidal Prism-Inlet Area Relationships," U.S. Army Coastal Engineering Research Center Report. Fort Belvoir, VA.

Includes the Humboldt Bay Entrance as an example of a twin-jettied inlet.

Jensen, R. E., Hubertz, J. M., and Payne, J. B. (1989). "Pacific Coast Hindcast Phase III, Wave Information," Wave Information Studies Report 17, U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center, Vicksburg, MS.

Provides comprehensive wave hindcast data set for the Pacific coastline including Humboldt County.

Johnson, J. W., More, J. T., and Orret, E. B. (1971). "Summary of Annual Wave Power for Ten Deepwater Stations Along the California, Oregon, and Washington Coasts," Report HEL-24-9, Hydraulics Engineering Laboratory, University of California, Berkeley.

This treatment was a preliminary and supporting study to examine one of the parameters (wave climate) important for inlet dynamics and stability on the U.S. Pacific coastline and was used in Johnson's 1972 Inlet Study.

Johnson, J. W. (1972). "Tidal Inlets on the California, Oregon, and Washington Coasts," Technical Report HEL-24-12, Hydraulic Engineering Laboratory, University of California, Berkeley.

Includes the Humboldt Bay entrance as an example of a Pacific coast inlet. Provides some data on inlet characteristics and stability.

Kia, R. (1992). "Mad River Inlet Dynamics, Interim Report," California Department of Transportation.

Not reviewed. Preliminary to Borgeld's 1993 reports.

Komar, P. D., Borgeld, J. C., and Allan, J. (2000). "The Migration of the Mad River Mouth and its Erosional Impacts within the Humboldt Bay Littoral Cell, Northern California," California Department of Transportation.

This report is basically an extension of Borgeld's 1993 reports and examines the potential effects on beach erosion that might be caused by the structural protection installed at the mouth of the Mad River.

Lamberson, R., Grimes, H. S., and Scarr, D. (1997). "A Tsunami Simulation and Shoreline Inundation model for Humboldt Bay," Humboldt State University.

Not reviewed. A theoretical study of ways to predict effects of Tsunami effects.

Lehre, A., Klien, R. D., and Trush, W. (1993). "Analysis of the Effects of Historic Gravel Extraction on the Lower Geomorphic Character and Fisheries Habitat of the Lower Mad River, Humboldt County, California; Appendix F in Programmatic EIR on Gravel Extraction Removal from the Lower Mad River."

Not reviewed. May have some supplementary information on the nature of the river and sediment transport and may have additional bibliographic information.

National Marine Consultants. (1960). "Wave Statistics for Seven Deep Water Stations along the California Coast."

Provides deep water wave characteristics applicable to the Humboldt County coastline.

Meteorology International, Inc. (1977). "Deep Water Wave Statistics for the California Coast, Stations 1 and 2," California Department of Navigation and Ocean Development.

Provides offshore wave climate data applicable to the Humboldt County coastline.

Moffatt & Nichol, Engineers, (1991). "Shoreline Mapping, Pacific Coast Near Entrance to Humboldt Bay, California," U.S. Army Engineer District, San Francisco.

This report updates the previous investigations by the U.S. Corps of Engineers (1950) and Noble (1971). Provides some good time-histories of the shorelines, from 6 miles north and south, and immediately adjacent to the jetties, but no offshore or ebb delta/bar information.

Noble, R. (1971). "Shoreline Changes – Humboldt Bay, California," Hydraulic Engineering Laboratory, Report HEL 24-4, University of California, Berkeley.

A good review, compilation, and analysis of the shoreline changes in the vicinity of the entrance including the dynamics of the offshore bar. The study extends from before inlet stabilization with jetties to the time of the establishment of permanent modern structures.

Ott Water Engineers, Inc. (1984). "Northern California Coastal Flood Studies," FEMA, Region IX.

Detailed study for Eureka and Buhne Point and some consideration for the rest of the bay. Details the overtopping of Samoa Peninsula in large

storms. Provides the extremes of water level set-ups up to the 500-year return period.

Remson, W. E. (1970). Sedimentation Rate in a Dredged Channel of Arcata Bay. Senior Paper, Oceanography Department, Humboldt State University.

Paper prepared under direction of Dr. R. W. Thompson, Geological Oceanographer. Cores taken at 1,000 ft intervals along a transect line bearing North 19°W from intersection of Highway 101 North with Murray Field turnoff, with transect shown on aerial photo. Additional purpose of study was to calculate change in sedimentation rate on mud flats.

Richard B. Davis Company. (1991). "Planimetric Map of Humboldt Bay – North and South Spits, and Beach Profiles," U.S. Army Engineer District, San Francisco.

Not reviewed. The mapping was used by Moffatt & Nichol (1991) and may provide some information on shoreline position.

Ridgeway, I. K. (1986). "Pyritization in Sediments of Arcata Bay," OCN 199, Oceanography Department Humboldt State University.

Directed study. Not reviewed.

Ritter, J. R. (1972). "Sand Transport by the Eel River and its Effect on Nearby Beaches," USGS open file report No. 2001.07.

A distillation and extension of the data found in Brown and Ritter (1971) that specifically addresses the sand fraction of the sediment load of the Eel River.

Scalici, M. J. (1993). "Historical Review of the Events Shaping the Mad River Delta and Estuary, Northwest California, 1850-1941," Appendix in "Mad River Mouth Monitoring Report," Borgeld et al. (1993).

Not reviewed. May contain some interesting insights about beach processes and inlet dynamics on the Humboldt County coastline. The same author presents a methods paper on this project at the Third Thematic Conference on Remote Sensing for Marine and Coastal Environments (1995, Seattle, WA).

Scheffner, N. W. (1990). "A Dispersion Analysis of the Humboldt Bay, CA, Interim Offshore Disposal Site," Final Report. Prepared for U.S. Army Engineer District, San Francisco, San Francisco, CA (Scheffner is with the U.S. Army Engineer Research and Development Center, Coastal Engineering Research Center, Vicksburg, MS).

Includes waves, currents, short-term modeling and long-term modeling for interim dredge disposal site located 3 n.m. northwest of the entrance to Humboldt Bay.

Shapiro and Associates. (1980). "Humboldt Bay Wetlands Review and Baylands Analysis," U.S. Army Engineer District, San Francisco.

A comprehensive review of the resources of the bay and surrounding land. Includes chapters and discussion on land use, physical oceanography, hydrology, and other resource information.

Snow, D. T. (1962). "Beaches in Northwestern California," University of California, Berkeley, Hydraulics Engineering Laboratory Technical Report Series 14, Issue 25.

Provides some background on the various stretches of beach along the north coast of California.

Thompson, R. W. (1971). "Recent Sediments of Humboldt Bay, Eureka, California," Petroleum Research Fund Report 789-G2, Humboldt State University.

Although dated, this is probably the most comprehensive examination of the geomorphology, surficial sediment textural characteristics, and depositional and erosion patterns available. Sediment budgets were developed, and the morphological history of the bay is discussed.

Toole, C., and. Diebel, C. (ed.). (1982). *Humbolt Bay Symposium Proceedings*. HSU Center for Community Development.

A comprehensive review of the resources of Humboldt Bay with symposia sections on Physical Oceanography (Costa), Erosion at Buhne Point (Tuttle), Biological Oceanography, Fisheries, Birds and Mammals, Land Use (Glatzel), and Resource Management. The symposium also included workshops with expert panels.

Tuttle, D. C. (1982). "The History of Erosion at King Salmon/Buhne Point from 1854 to 1982," in *Proceedings of the Humboldt Bay Symposium.* C. Toole and C. Diebel (ed.), HSU Center for Community Development.

An excellent qualitative and historical review of an erosional problem directly associated with the inlet dynamics, jetty construction, and orientation.

University of Washington. (1955). "Humboldt Bay, California: A literature Survey," Contract No. N62306S-303, U.S. Naval Hydrographic Office.

A comprehensive survey of the knowledge base up to the time of the literature search. This is a good reference for older data sources, but generally of historical interest given the changes to the bay in the intervening years.

U.S. Army Engineer District, San Francisco. (undated). "Construction and Maintenance Data."

Records from the Corps of Engineers tabulating the dredged volumes from the various channels in Humboldt Bay from 1931 through 1983.

U.S. Army Engineer District, San Francisco. (1950). "Survey Report Humboldt Bay California: Appendix I, Shoreline Changes."

Predates the examination by Nobel (1971) but provides a good collection of charts of the entrance of the bay over time.

U.S. Army Engineer District, San Francisco. (1969). "Review of Reports on Humboldt Bay California for Navigation."

A good review of the data and previous studies. Analyses of the benefits and costs of channel improvements and deepening.

U.S. Army Engineer District, San Francisco. (1976). "Environment Statement: Navigation Channel Improvements Authorized for Humboldt Bay, Humboldt County, California."

Analyses of proposed improvements and the environmental effects.

U.S. Army Engineer District, San Francisco. (1979). "Reconnaissance Report for Beach Erosion Control in the Buhne Point/King Salmon Area, Humboldt County, California."

Since waves propagating through the entrance are the cause of the erosion at the point, there is some information on the inlet operation and dynamics in the report. Local sediments and shoreline processes are addressed.

U.S. Army Engineer District, San Francisco. (1979). "Reconnaissance Report Humboldt Harbor and Bay, Review of Reports."

Not reviewed. An updated review of reports for projected future projects.

U.S. Army Engineer District, San Francisco. (1989). "Humboldt Harbor and Bay (Deepening) Investigation Reconnaissance Report."

Provides a preliminary study for channel improvements. Summarizes much of the physical and sediment data for the bay.

U.S. Army Engineer District, San Francisco. (1989). "Humboldt Harbor and Bay (Deepening) General Investigations Reconnaissance Navigation Study, Humboldt County California."

Follows the reconnaissance report and provides more sediment data, including cores and borings.

U.S. Army Engineer District, San Francisco. (1995). "Final Feasibility Report and Environmental Impact Statement/Report for Navigation Improvements, Humboldt Harbor and Bay (Deepening), Humboldt County CA."

Follows the reconnaissance reports and provides more information. A good source for bibliographic information and summaries of existing data on all aspects of Humboldt Bay.

West Consultants, Inc. (1999). "Hydrodynamic, Sedimentation and Bridge Scour Analyses of Samoa Channel, Middle Channel, and Eureka Channel Bridges, Humboldt Bay California," California Department of Transportation Seismic Retrofit Project. West Consultants, Inc, San Diego, CA.

A numerical hydrodynamic and sediment transport (scour) model that concentrates in the North Bay and channels between Entrance Bay and North Bay. The emphasis was on the area of the bridge between Eureka and North Spit.

Appendix F
Available Publications at Humboldt State University Library

Main Author: Humboldt Bay Harbor, Recreation, and Conservation District.
Other Author(s): MFG, Inc.

Title: Draft initial study/negative declaration for the proposed Simpson Paper Company Fairhaven shoreline restoration project at Fairhaven, Humboldt County, California/ lead agency, Humboldt Bay Harbor, Recreation, and Conservation District ; prepared by MFG, Inc.

Variant Title: Humboldt Bay Harbor District Fairhaven restoration project draft initial study/negative declaration.

Subject(s): Simpson Paper Co.
Shore protection--California--Humboldt Bay.
Coastal zone management--California--Humboldt Bay.

Publisher: Arcata, CA: MFG, Inc., 2001.

Description: v, 31 leaves: col. ill., maps; 28 cm.

Notes: Cover title.
"May 2001."

Call Number: TC330 .H85 2001
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt Bay Harbor, Recreation and Conservation District.
Chevron Oil Company.

Title: Mitigated negative declaration for Chevron Eureka Terminal and repair project/ applicant, Chevron Products Co.; lead agency, Humboldt Bay Harbor, Recreation and Conservation District.

Subject(s): Petroleum shipping terminals--California—Eureka Maintenance and repair.
Humboldt Bay (California).

Publisher: Eureka, CA: Humboldt Bay Harbor, Recreation and Conservation District, 2000.

Description: 21, 2 leaves: maps; 28 cm.

Notes: Cover title.
"April 2000."
"00-1611-02011."
Bibliography: leaf 20.

Call Number: HE554.E8 M58 2000
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating)

Other Author(s): Navigation Data Center (U.S.).
Institute for Water Resources (U.S.).

Title: Ports of San Francisco, Redwood City, and Humboldt Bay, California/ prepared by the Navigation Data Center; U.S. Army, Corps of Engineers, Institute for Water Resources.

Subject(s): Harbors--California--San Francisco.
Harbors--California--Redwood City.
Harbors--California--Humboldt Bay.

Publisher: [Fort Belvoir, VA?]: The Corps; Alexandria, VA: For sale by Navigation Data Center; Washington, DC: U.S. G.P.O. [distributor], 2000.

Description: Rev. 2000.
vi, 88 p.: ill., maps; 28 cm..

Series: Port series; no. 30
NDC; 00-P-9.

Notes: "Supersedes a similar report revised in 1991."
Shipping list no.: 2001-0161-P.
Two folded maps in pocket.
Includes index.

Call Number: TC224.C2 P67 2000
Location: U.S. Government Documents, 3rd floor, north.

Main Author: Humboldt Bay Harbor, Recreation and Conservation District.
Other Author(s): Coast Seafoods.
Title: Draft mitigated negative declaration, Coast Seafoods mariculture application, Humboldt Bay, California/ applicant, Coast Seafoods; lead agency Humboldt Bay Harbor, Recreation and Conservation District.

Variant Title: Coast Seafoods mariculture application.

Subject(s): Oyster-culture--Environmental aspects—California
Humboldt Bay.
Humboldt Bay (CA).

Publisher: Eureka, CA. The District, 1999.

Description: 1 v. (various pagings): ill., maps; 28 cm.

Notes: "2 June 1999."
Includes bibliographical references.

Call Number: SH365.C2 H8 1999
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.
Humboldt Bay Forest Products.
Planwest.

Title: Final environmental impact report for the Fields Landing Channel modernization project, Humboldt County, California/ prepared for Humboldt Bay Harbor, Recreation, and Conservation District and for Humboldt Bay Forest Products Inc. ; prepared by Planwest ... [et al.].

Variant Title: Fields Landing Channel modernization project.

Subject(s): Harbors--California--Humboldt Bay.
Dredging--Environmental aspects--California—Fields Landing.
Channels (Hydraulic engineering)--California—Fields Landing.
Environmental impact statements--California--Humboldt Bay.

Publisher: [Eureka, CA.]: The District, 1999.

Description: 1 v. (various pagings): map ; 28 cm.

Notes: "State Clearinghouse #97092078".
"February 1999."

Call Number: TC225.H8 F541 1999
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating)

Main Author: Leroy, Thomas H.

Title: Holocene sand dune stratigraphy and paleoseismicity of the north and south spits of Humboldt Bay, Northern California/ by Thomas H. Leroy.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Geology.
Geology, Stratigraphic--Holocene.
Seismology--California--Humboldt Bay.
Sand dunes--California--Humboldt Bay.

Publisher: 1999.
Thesis (M.S.)--Humboldt State University, 1999.

Description: x, 44 leaves: ill., maps; 29 cm.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1999.
Includes bibliographical references (leaves 43-44).

Call Number: QE699 .L47 1999
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QE699 .L47 1999
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating)

Other Author(s): Winzler and Kelly Consulting Engineers.
Humboldt Bay Municipal Water District.

Title: Initial environmental study for the routine maintenance of facilities in the Mad River/ prepared for lead agency and project proponent, Humboldt Bay Municipal District ... by Winzler & Kelly, Consulting Engineers.

Variant Title: Maintenance of facilities in the Mad River.

Subject(s): Water resources development--California--Mad River.
Mad River Delta (California.)

Publisher: Eureka, CA: Winzler & Kelly, 1999.

Description: 16 leaves: maps; 28 cm.

Notes: "December 10, 1999".
"99-1055-76030."
Includes "Proposed negative declaration for the routine maintenance of facilities in the Mad River."

Call Number: TC425.M3 I49 1999
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Winzler and Kelly Consulting Engineers.
Humboldt Bay Municipal Water District.

Title: Proposed negative declaration for the rehabilitation of the Mad River Slough pipeline crossing/ prepared for Humboldt Bay Municipal District ... by Winzler & Kelly, Consulting Engineers.

Subject(s): Water resources development--California--Mad River.
Mad River Delta (California.).

Publisher: Eureka, CA: Winzler & Kelly, 1999.

Description: 1 v. (various pagings): ill., maps; 28 cm.

Notes: "May 10, 1999".
Includes bibliographical references.

Call Number: TC425.M3 P76 1999
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.
Humboldt Bay Forest Products Inc.
Planwest.

Title: Draft environmental impact report for the Fields Landing Channel modernization project, Humboldt County, California/ prepared for Humboldt Bay Harbor, Recreation, and Conservation District and for Humboldt Bay Forest Products Inc. ; prepared by Planwest ... [et al.].

Variant Title: Fields Landing Channel modernization project.

Subject(s): Harbors--California--Humboldt Bay.
Dredging--Environmental aspects--California—Fields Landing.
Channels (Hydraulic engineering)--California—Fields Landing.
Environmental impact statements--California--Humboldt Bay.

Publisher: [Eureka, CA]: The District, 1998.

Description: 1 v. (various pagings): maps (some fold.): 28 cm.

Notes: "June 1998.
"SCH number: 97092078".
Includes bibliographical references.

Call Number: TC225.H8 F54 1998
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Redwood Community Action Agency. Natural Resources Services.
Conference Name: Symposium on Humboldt Bay (3rd: 1996: Eureka, CA).

Title: 1996 Humboldt Bay Symposium, visions, ideas, issues, and actions/ Natural Resources Services, Redwood Community Action Agency.

Variant Title: Humboldt Bay Symposium: visions, ideas, issues, and actions Envisioning the future on the Bay.

Subject(s): Humboldt Bay (CA).

Publisher: [1997].

Description: 46 p.: col. map ; 28 cm.

Notes: "September 1997."
"... created from discussion sessions on "Envisioning the Future on the Bay" during the 1996 Humboldt Bay Symposium."

Call Number: F868.H8 S9 1996a
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Fish and Wildlife Service. Region 1.
Other Author(s): U.S. Fish and Wildlife Service. Division of Realty.

Title: Conceptual management plan: Lanphere Dunes Unit: Humboldt Bay National Wildlife Refuge, Humboldt County, California/ prepared by U.S. Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge and U.S. Fish and Wildlife Service, Division of Reality.

Variant Title: Lanphere Dunes Unit Humboldt Bay National Wildlife Refuge, Humboldt County, California.

Subject(s): Habitat conservation--California--Humboldt Bay--Planning.
Nature conservation--California--Humboldt Bay--Planning.
Wildlife management areas--California--Humboldt Bay
Recreational use--Planning.
Humboldt Bay National Wildlife Refuge (CA).
Environmental conditions.

Publisher: Portland, OR: The Service, [1997].

Description: ii, 11 p.: maps (some col.); 28 cm.

Notes: Shipping list no.: 97-0341-P.
"July 1997."

Call Number: SK373 .U561 1997
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 .U561 1997
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Giesecke, E. W.
Other Author(s): Society for the History of Discoveries.

Title: Discovery of Humboldt Bay, California, in 1806 from the ship O'Cain, Jonathan Winship, Commander: an episode in a Bostonian-Russian contact voyage of the early American China trade/ E.W. Giesecke.

Subject(s): Winship, Jonathan.
Humboldt Bay (CA)--Discovery and exploration.

Publisher: [Falls Church, VA?]: Society for the History of Discoveries, 1997.

Description: 24 p.: maps; 25 cm.

Series: Terrae incognitae, v.29.

Notes: "Presented at: Society for the History of Discoveries, Arlington, TX, November 1995; Humboldt County Historical Society, Eureka, February 1996; California Map Society, San Francisco, June 1997." Revised October 1996 and November 1997. "'Printer's errata and update', Terrae incognitae, vol.30, pp. 94-100, is consolidated in this offprint."
Includes bibliographical references.

Call Number: F868.H8 .G54 1997
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Fish and Wildlife Service. Region 1.

Title: Environmental assessment: Lanphere Dunes Unit: Humboldt Bay National Wildlife Refuge, Humboldt County, California/ [prepared by] U.S. Fish and Wildlife Service.

Variant Title: Lanphere Dunes Unit Humboldt Bay National Wildlife Refuge, Humboldt County, California
Environmental assessment and land protection plan.

Subject(s): Sand dune conservation--California--Humboldt Bay.
Wildlife refuges--California--Humboldt Bay.
Wetland animals--California--Humboldt Bay.
Endangered plants--Protection--California--Humboldt Bay.
Humboldt Bay National Wildlife Refuge (CA).
Environmental conditions.
Humboldt Bay (CA)

Publisher: Portland, OR: The Service, [1997].

Description: iv, 52, ii, 7 p.: maps (some col.); 28 cm.

Notes: Cover title.
Shipping list no.: 97-0341-P.
"July 1997".
Includes bibliographical references (p. 47-48).

Call Number: SK373.U56 1997
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 .U56 1997
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt Bay Harbor, Recreation and Conservation District. Humboldt Bay Forest Products Inc.

Title: Initial study and environmental assessment: Fields Landing Channel deepening and widening project/ Lead Agency, Humboldt Bay Harbor, Recreation and Conservation District; Project Sponsor, Humboldt Bay Forest Products Inc.

Variant Title: Fields Landing Channel deepening and widening project.

Subject(s): Dredging--Environmental aspects--California—Fields Landing.
Harbors--California--Fields Landing.
Channels (Hydraulic engineering)--California—Fields Landing.

Publisher: [Eureka, CA: Humboldt Bay Harbor, Recreation and Conservation District, 1997].

Description: 36 p.: ill., maps; 28 cm.

Notes: "September 1997."

Call Number: TC225.H8 F54 1997
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Fish and Wildlife Service. Region 1.

Title: Draft conceptual management plan: Lanphere Dunes Unit, Humboldt Bay National Wildlife Refuge, Humboldt County, California/ prepared by U.S. Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge and U.S. Fish and Wildlife Service, Division of Realty, Portland, Oregon.

Variant Title: Lanphere Dunes unit Conceptual management plan, Lanphere Dunes unit.

Subject(s): Wildlife refuges--California--Humboldt County.
Land use--California--Humboldt County--Planning.
Humboldt Bay National Wildlife Refuge (CA).
Humboldt Bay (CA).

Publisher: Portland, OR: Fish and Wildlife Service, 1996.

Description: 10 p.: ill., maps (colored); 28 cm.

Notes: Title from cover.
"December 1996."

Call Number: SK373 .D72 1996
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: SK373 .D72 1996
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Fish and Wildlife Service. Region 1.

Title: Draft environmental assessment and land protection plan: proposed Lanphere Dunes Unit, Humboldt Bay National Wildlife Refuge, Humboldt County, California/ prepared by U.S. Fish and Wildlife Service, Portland, Oregon.

Variant Title: Proposed Lanphere Dunes unit.
Lanphere Dunes unit.
Draft land protection plan, Lanphere Dunes unit.

Subject(s): Wildlife refuges--California--Humboldt County.
Land use--California--Humboldt County--Planning.
Humboldt Bay National Wildlife Refuge (CA).
Humboldt Bay (CA).

Publisher: Portland, OR: Fish and Wildlife Service, 1996.

Description: 36, 10 p.: ill., photos, maps (colored); 28 cm.

Notes: Title from cover.
"December 1996."
Includes bibliographical references.

Call Number: SK373 .D725 1996
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 .D725 1996
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Ota, Allan Y.
United States. Environmental Protection Agency. Region IX.
Jones & Stokes Associates.

Title: Draft environmental impact statement for designation of an ocean dredged material disposal site off Humboldt Bay, California/ prepared by EPA, Region IX ; contact: Allan Ota, in association with Jones & Stokes Associates.

Variant Title: Designation of an ocean dredged material disposal site off Humboldt Bay, California.

Subject(s): Waste disposal in the ocean--California--Humboldt Bay.
Sewage disposal in the ocean--California--Humboldt Bay.
Environmental impact statements--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: San Francisco: U.S. Environmental Protection Agency, Region IX, 1995.

Description: 1 v. in various pagings: maps, charts; 28 cm.

Notes: "March 1995."
Includes bibliographical references.

Call Number: TD763 .D734 1995
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers, San Francisco District.
Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Final feasibility report and environmental impact statement/report for navigation improvements, Humboldt Harbor and Bay (deepening), Humboldt County, California/ Humboldt Bay Harbor, Recreation, and Conservation District, U.S. Army Corps of Engineers, San Francisco District.

Variant Title: Humboldt Harbor and Bay (deepening).

Subject(s): Dredging--Environmental aspects--California--Humboldt Bay.
Harbors--California--Humboldt County.
Humboldt Bay (CA)--Navigation.

Publisher: San Francisco: U.S. Army Corps of Engineers, San Francisco District, 1995.

Description: 2 v.: ill, maps; 29 cm.

Notes: "April 1995."
Library has: v.1-v.2.
Table of Contents: v. 1. Main report, v. 2. Appendices.

Call Number: TC225.H8 F5 1995
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Pacific Affiliates Consulting Engineers.
Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Draft environmental impact report for Louisiana-Pacific Corporation Samoa Terminal reconstruction \ prepared by Pacific Affiliates Consulting Engineers.

Subject(s): Louisiana-Pacific Corporation. Samoa Terminal.
Docks--California--Samoa.

Publisher: [Eureka, CA: Pacific Affiliates, 1994.

Description: 1 v. in various pagings: ill., maps; 28 cm.

Series: Administrative draft #4.

Notes: Cover title.
"June 17, 1994."
Prepared for and under review of Humboldt Bay Harbor, Recreation and Conservation District.

Call Number: HE554.L68 D7 1994

Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers, San Francisco District. Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Draft feasibility report and environmental impact statement/report for navigation improvements: Humboldt Harbor and Bay (deepening), Humboldt County, California/ Humboldt Bay Harbor, Recreation, and Conservation District and U.S. Army Corps of Engineers, San Francisco District.

Subject(s): Harbors--Environmental aspects--California—Humboldt County. Humboldt Bay (CA).

Publisher: [San Francisco: The Corps, 1994].

Description: 2 v.: ill., maps (some folded); 28 cm.

Notes: "December 1994."
Table of Contents: vol.1. Report, vol.2. Appendices.

Call Number: TC225.H8 D73 1994
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Headstrom, Ward.
Title: The effects of tides on the inception of phytoplankton blooms in lagoon-type estuaries/ by Ward Headstrom.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Natural Resources.
Phytoplankton--California--Humboldt Bay.
Salt marsh ecology--California--Humboldt Bay.
Estuarine ecology--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: 1994.
Thesis (M.S.)--Humboldt State University, 1994.

Description: ix, 71 leaves: ill., map; 29 cm.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1994.
Includes bibliographical references (leaves 48-52).

Call Number: QK935 .H434 1994
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection

Call Number: QK935 .H434 1994
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Price, Elizabeth Anne.
Other Author(s): Humboldt State University. Department of Environmental Resources Engineering.

Title: An evaluation of tidal wetland benefits at McDaniel Slough with recommendations for tide control/ by Elizabeth Anne Price.

Subject(s): Salt marsh ecology--California--Humboldt Bay.
Estuarine area conservation--California--Humboldt Bay.
McDaniel Slough (CA).

Publisher: [1994].

Description: iii, 63 leaves: ill., maps; 28 cm.

Notes: "A senior project presented to the Department of Environmental Resources Engineering, Humboldt State University, in partial fulfillment of the requirements for the degree Bachelor of Science."
"May 1994".
Includes bibliographical references (p. 46-49).

Call Number: QH105.C2 P75 1994
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Other Author(s): Pacific Affiliates Consulting Engineers.
Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Final environmental impact report for Louisiana-Pacific Corporation Samoa Terminal reconstruction/ prepared by Pacific Affiliates Consulting Engineers.

Subject(s): Louisiana-Pacific Corporation. Samoa Terminal.
Docks--California--Samoa.

Publisher: [Eureka, CA: Pacific Affiliates, 1994.

Description: 1 v. in various pagings: ill., maps (some fold.); 28 cm.
+ 4 blueprints.

Notes: 4 folded blueprints in pocket.
"October 10, 1994."
Cover title. "Under the direction of the Humboldt Bay Harbor, Recreation and Conservation District...rev. from the draft EIR." Includes bibliographical references.

Call Number: HE554.L68 F56 1994
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers, San Francisco District.

Title: Finding of no significant impact (FONSI): environmental assessment fiscal year (FY) 1994 spring maintenance dredging of the Humboldt Harbor, North Bay, Eureka, Samoa, and Field's Landing channels.

Variant Title: Environmental assessment fiscal year (FY) 1994 spring maintenance dredging of the Humboldt Harbor, North Bay, Eureka, Samoa, and Field's Landing channels.

Subject(s): Harbors--California--Humboldt County--Maintenance and repair.
Harbors--California--Humboldt County.
Environmental impact analysis--California—Humboldt County.
River channels--California--Humboldt County.

Publisher: [San Francisco]: U.S. Army Corps of Engineers, San Francisco District, 1994].

Description: 1 v. (various pagings): ill., maps; 28 cm.

Notes: "January 1994."
Title from cover.

Call Number: TC225.H8 F56 1994
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Barnhart, Roger A.
Other Author(s): Boyd, Milton J.
Pequegnat, John E.
U.S. Fish and Wildlife Service.

Title: The Ecology of Humboldt Bay, California: an estuarine profile/ by Roger A. Barnhart, Milton J. Boyd, and John E. Pequegnat.

Variant Title: Estuarine profile.

Subject(s): Humboldt State University--Faculty publications.
Ecology--California--Humboldt Bay.
Wetlands--California--Humboldt County.
Humboldt Bay (CA).

Publisher: Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service, [1992].

Description: viii, 121 p.: ill., maps; 28 cm.

Series: Biological report/ U.S. Fish and Wildlife Service; 1.

Notes: "January 1992."
Includes bibliographical references (p. 79-85).

Call Number: QH541.C2 B3 1992
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: QH541.C2 B3 1992
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): David Keith Todd Consulting Engineers.
Humboldt Bay Municipal Water District (CA).

Title: Groundwater reconnaissance of the Humboldt Bay area/ David Keith Todd, Consulting Engineers, Inc.

Subject(s): Groundwater--California--Humboldt County.
Groundwater--California--Humboldt County--Quality.
Water resources development--California--Humboldt County.

Publisher: [1992].

Description: 1 v. (various pagings): 3 maps; 28 cm.

Notes: At head of title: Humboldt Bay Municipal Water District, Eureka, California.
Includes bibliographical references.

"The purpose of the report is to determine the feasibility of developing adequate groundwater resources in the Humboldt Bay area which are not likely to be deemed "under the influence of surface water"."--Introduction.

Call Number: GB1025.C2 G7 1992
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Valentine, David Wade.

Title: Late Holocene stratigraphy, Humboldt Bay, California: evidence for late Holocene paleoseismicity of the southern Cascadia subduction zone/ by David Wade Valentine.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Geology.
Geology, Stratigraphic--Holocene.
Seismology--California--Humboldt Bay.
Faults (Geology)--California--Humboldt Bay.

Publisher: 1992.
Thesis (M.S.)--Humboldt State University, 1992.

Description: vi, 82 leaves: ill., maps; 29 cm.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1992.
Includes bibliographical references (leaves 59-63).

Call Number: QE699 .V35 1992
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QE699 .V35 1992
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Other Author(s): Schwarz, Mischa.
Winzler and Kelly Consulting Engineers.
Humboldt Bay Municipal Water District (CA).

Title: Amended initial study for Humboldt Bay Municipal Water District rock dike project on summer low-flow channel of the Mad River/ prepared for Humboldt Bay Municipal Water District by Winzler & Kelley, Consulting Engineers; principal investigator, Mischa Schwarz.

Subject(s): Dams--California--Humboldt County.
Water-supply--California--Humboldt County.
Barrages--California--Mad River.

Publisher: [Eureka (CA): Winzler and Kelly Consulting Engineers], 1991.

Description: [58] leaves in various foliations: maps., charts; 28 cm.

Notes: "SCH 91043048."
"90-004-H30."
"July 1991."

Call Number: TC557.C3 W563 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): United States. Economic Development Administration.
Martin O'Connell Associates.

Title: Humboldt Bay development plan: final report/ Martin O'Connell Associates.

Subject(s): Harbors--California--Humboldt Bay.

Publisher: Wellesley, Mass.: Martin O'Connell Associates, 1991.

Description: 1 v. in various pagings: charts; 28 cm.

Notes: "August 20, 1991."
"Submitted to City of Eureka, County of Humboldt, Humboldt Bay Harbor District, Redwood Region Economic Development Commission."
"This report was prepared under an award from the U.S. Department of Commerce Economic Development Administration."
"U.S. Department of Commerce Economic Development Administration technical assistance Program Project #07-06-03189."

Call Number: HE554.H84 H86 1991
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: HE554.H84 H86 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Schwarz, Mischa.
Winzler and Kelly Consulting Engineers.
Humboldt Bay Municipal Water District (CA).

Title: Initial study for Humboldt Bay Municipal Water District rock dike project on the Mad River/ prepared for Humboldt Bay Municipal Water District by Winzler & Kelley, Consulting Engineers; principal investigator, Mischa Schwarz.

Subject(s): Dams--California--Humboldt County.
Water-supply--California--Humboldt County.
Barrages--California--Mad River.

Publisher: [Eureka (CA): Winzler and Kelly Consulting Engineers], 1991.

Description: 14 leaves: 3 maps; 28 cm.

Notes: "90-004-H30."
"April 1991."

Call Number: TC557.C3 W56 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt County (CA). Planning Department
Pacific Watershed Associates.

Title: Physical processes, geomorphology and management options for the coastal sand dunes of Humboldt Bay, Humboldt County, California/ prepared for Humboldt County Planning Department, Eureka, California by Pacific Watershed Associates.

Subject(s): Sand dunes--California--Humboldt Bay.
Geomorphology--California--Humboldt County.
Humboldt Bay (CA).

Publisher: Arcata, CA: Pacific Watershed Associates, 1991.

Description: xi, 76 [46] p.: ill., maps; 28 cm.

Notes: Cover title.
"December 1991."
Includes bibliographical references.

Call Number: GB635.C2 P49 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Water Resources Support Center (U.S.).
U.S. Army Corps of Engineers.

Title: The Ports of San Francisco, Redwood City, and Humboldt Bay, California/ prepared by the Water Resources Support Center; U.S. Army, Corps of Engineers.

Subject(s): Harbors--California--San Francisco.
Harbors--California--Redwood City.
Harbors--California--Humboldt Bay.

Publisher: Washington, DC: U.S. G.P.O.; Fort Belvoir, VA: For sale by the Center, 1991.

Description: Rev. 1991.
vi, 93 p.: ill., maps; 28 cm. + 2 maps.

Series: Port series: no. 30.

Notes: "Supersedes a similar report revised in 1983"--P. v.
Two folded maps in pocket.
Includes index.
"NDC 91-P-1"--Cover.

Call Number: TC224.C2 P67 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: O'Hara, Susan Pritchard.
Other Author(s): Graves, Gregory.

Title: Saving California's coast: Army Engineers at Oceanside and Humboldt Bay/ by Susan Pritchard O'Hara and Gregory Graves.

Subject(s): United States. Army. Corps of Engineers.
Coastal engineering--California--Oceanside.
Coastal engineering--California--Humboldt Bay.
Shore protection--California--Oceanside.
Shore protection--California--Humboldt Bay.
Jetties--California--Humboldt Bay.

Publisher: Spokane, WA: A. H. Clark, 1991.
Description: 277 p.: ill., maps; 24 cm.

Series: Western lands & waters series: 16.

Notes: Includes bibliographical references (p. [259]-269) and index.

Call Number: TC225.O35 O36 1991
Location: A-M 2nd Floor; N-Z 3rd Floor-Main Collection.

Call Number: TC225.O35 O36 1991
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Pequegnat, John E., Humboldt State University, Department of Oceanography.
U.S. Army Corps of Engineers.

Title: Sediment characteristics, benthic infauna, demersal fish and macroinvertebrates: analysis of communities found offshore in water between 18 and 73 meters deep west of Humboldt Bay, California, and at the nearshore disposal site (August 1989, November 1989, and March 1990)/ report prepared by John E. Pequegnat ... [et al. for U.S. Army Corps of Engineers].

Subject(s): Waste disposal in the ocean--California--Humboldt Bay.
Marine ecology--California--Humboldt Bay.
Dredging spoil.
Humboldt Bay (CA).

Publisher: [Trinidad, CA: Telonicher Marine Laboratory, Department of Oceanography, Humboldt State University], 1990.

Description: 148 leaves: maps, charts; 28 cm.

Notes: "This report is the second and final report of a biological\ecological analysis of the region offshore of Humboldt Bay, Humboldt County, California.
"Ocean baseline survey report, October 25, 1990."
On cover: Prepared by Humboldt State University, Department of Oceanography, Telonicher Marine Laboratory, Trinidad, California for U.S. Army Corps of Engineers.
Includes bibliographical references.

Call Number: TD763 .S44 1990
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: TD763 .S44 1990
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Fish and Wildlife Service.

Title: Draft management plan: Humboldt Bay National Wildlife Refuge.

Subject(s): Wildlife refuges--California--Humboldt County.
Humboldt Bay National Wildlife Refuge (CA).

Publisher: [Portland, OR: U.S. Fish and Wildlife Service, Region 1, 1989].

Description: 43 p.: maps; 28 cm.

Notes: "May 1989."

Call Number: SK373 D73 1989
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Humboldt County (CA). Board of Supervisors.
Other Author(s): Humboldt County (CA). Planning Department

Title: Humboldt Bay area plan of the Humboldt County Local Coastal Program.

Variant Title: Humboldt County general plan.

Subject(s): Regional planning--California--Humboldt County.
Coastal zone management--California--Humboldt County.
Land use--Environmental aspects--California—Humboldt County.
City planning--California--Humboldt County.
Humboldt County (CA).

Publisher: [Eureka, CA: Planning Division of the Planning and Building Department, County of Humboldt, 1989].

Description: 1 v. (various pagings): maps; 28 cm.

Notes: "July 1989."
On cover: Humboldt County general plan, Vol. II, Humboldt Bay Area plan of the Humboldt County Local Coastal Program. Prepared by Humboldt County Planning Department.

Call Number: HT393.C32 H85 1989
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers. San Francisco District.

Title: Humboldt Harbor and Bay (deepening): general investigations reconnaissance navigation study: Humboldt County, California/ U.S. Army Corps of Engineers, San Francisco District.

Variant Title: Reconnaissance report, Humboldt Harbor and Bay (deepening) investigation Navigation study, Humboldt Harbor and Bay (deepening).

Subject(s): Channels (Hydraulic engineering)--California—Humboldt Bay.
Harbors--California--Humboldt Bay--Maintenance and repair.
Harbors--California--Humboldt Bay.
Humboldt Bay (CA)--Navigation.

Publisher: San Francisco, CA: The District, 1989.

Description: 1 v. (various pagings): ill., maps: 28 cm.

Notes: "November 1989."
Cover title: Humboldt Harbor and Bay (deepening) investigation: reconnaissance report.
Other title: Humboldt Harbor and Bay (deepening) navigation study, reconnaisance report.

Call Number: TC225.H8 U49 1989
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Fish and Wildlife Service.
U.S. Fish and Wildlife Service. Region 1.
Title: Management plan: Humboldt Bay National Wildlife Refuge/ prepared [by] the Fish and Wildlife Service.

Subject(s): Wildlife refuges--California--Humboldt County.
Humboldt Bay National Wildlife Refuge (CA).

Publisher: Portland, OR: U.S. Fish and Wildlife Service, Region 1, [1989].

Description: 47 leaves: ill., maps; 28 cm.

Notes: "October 1989."
Bibliography: leaves 46-47.

Call Number: SK373 .M36 1989
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 .M36 1989
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Helvie, Jack.
Other Author(s): Nelson, Eric.
Coleman, Rick.
U.S. Fish and Wildlife Service.

Title: Environmental assessment update: proposed land acquisition for Humboldt Bay National Wildlife Refuge, Humboldt County, California/ prepared by U.S. Department of the Interior, Fish and Wildlife Service, Region 1; authors: Jack Helvie, Eric Nelson, Rick Coleman.

Variant Title: Proposed land acquisition for Humboldt Bay National Wildlife Refuge, Humboldt County, California.

Subject(s): Wildlife refuges--California--Humboldt County.
Humboldt Bay National Wildlife Refuge (CA).
Humboldt Bay (CA).

Publisher: Portland, OR: Region 1, The Service, 1988.

Description: ii, 46, 1 leaves: col. ill., maps.

Notes: Stamped on cover: "Draft."
"January 1988."
Bibliography: leaves 41-42.

Call Number: SK373 U55 1988
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 U55 1988
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Vick, Greg S.

Title: Late Holocene paleoseismicity and relative sea level changes of the Mad River Slough, Northern Humboldt Bay, California/ by Greg S. Vick.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Geology.

Sea level--Pacific Ocean.
Seismology--California--Humboldt County.
Humboldt Bay (CA).

Publisher: 1988.
Thesis (M.S.)--Humboldt State University, 1988.

Description: ix, 87 leaves: ill., maps, photo.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1988.
Bibliography: leaves 59-70.

Call Number: GC89 V53
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GC89 V53
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Other Author(s): California. Department of Health Services, California.
Environmental Planning and Local Health Services Branch.

Title: Report to the 1988 California Legislature on the water quality monitoring program and 1988 sanitary survey of Humboldt Bay pursuant to Section 25612, Health and Safety Code/ California Department of Health Services.

Subject(s): Water quality management--California--Humboldt Bay.
Sewage disposal--California--Humboldt Bay.
Sewage--Microbiology.

Publisher: [1988].

Description: 9 leaves; 28 cm.

Notes: "Prepared by Environmental Planning and Local Health Services Branch, Environmental Health Division."
"July 1988".

Call Number: TD524.C2 R4 1988
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers, San Francisco District.
U.S. Army Corps of Engineers, Los Angeles District.
Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Buhne Point Shoreline Erosion Demonstration Project/ San Francisco and Los Angeles Districts, Corps of Engineers; local sponsor, Humboldt Bay Harbor, Recreation and Conservation District.

Subject(s): Shore protection--California--Buhne Point.
Beach erosion--California--Humboldt Bay Region.
Buhne Point (CA).

Publisher: [San Francisco: The Corps], 1987-1988.

Description: Final.
6 v. in 4: ill., maps (some fold.), photos; 28 cm.

Table of Contents: [1] Executive summary. Main report [2-4] Appendices (3 v).

Call Number: GB458.8 B84 1987
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Eicher, Anni Lauter.

Title: Salt marsh vascular plant distribution in relation to tidal elevation, Humboldt Bay, California/ by Anni Lauter Eicher.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Biology.
Salt marsh plants--California--Humboldt Bay.
Salt marsh ecology--California--Humboldt Bay.
Tides--California--Humboldt Bay.

Publisher: 1987.
Thesis (M.A.)--Humboldt State University, 1987.

Description: ix, 86 leaves: ill., maps.

Notes: Typescript (photocopy).
Thesis (M.A.)--Humboldt State University, 1987.
Bibliography: leaves 70-78.

Call Number: QK938.S27 E53
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QK938 S27 E53
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Pritchard, Susan J.

Title: The shifting sands of Humboldt bar/ by Susan J. Pritchard.

Subject(s): Jetties--History.
Sand bars--California--Humboldt Bay--History.
Humboldt County (CA)--History.

Publisher: 1987.
Thesis (M.A.)--University of California, Santa Barbara, 1987.

Description: 192 p.; 28 cm.

Notes: Photocopy of typescript.
Thesis (M.A.)--University of California, Santa Barbara, 1987.
Includes bibliographical references.

Call Number: F868.H8 P758 1987
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers, Los Angeles District.
Other Author(s): U.S. Army Corps of Engineers, San Francisco District.

Title: Comprehensive condition survey of North and South jetties, Humboldt Harbor, Humboldt County, CA/ prepared by U.S. Army Corps of Engineers, Los Angeles District for U.S. Army Corps of Engineers, San Francisco District.

Subject(s): Harbors--California--Eureka.
Harbors--California--Crescent City.
Geology--California--Humboldt Bay.
Geology--California--Crescent City.
Humboldt Bay (CA).

Publisher: [Los Angeles, CA?]: U.S. Army Corps of Engineers, Los Angeles District, 1986.

Description: 1 v. (various pagings): ill., maps; 28 cm. + 5 maps, on sheets 36 cm. x 47 cm.

Notes: Attachment 1 is accompanied by 5 maps in pocket.
Includes bibliographical references: (p. C1-C3, D75).
Table of Contents: Attachment [1] Condition surveys for the jetties at Humboldt Bay, California, and the outer breakwater at Crescent City, California for the Los Angeles District, U.S. Army Corps of Engineers/ by John R. Dingler, Roberto J. Anima.
Attachment 2. Humboldt Bay, California trackline map: side-scan sonar and jetty-toe interpretation.
Attachment 3. Report on the diving inspection of the jetties at Humboldt Bay, California/ by John R. Dingler.

Call Number: TC225.H8 A542 1986
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Hathaway, Kent K.

Title: An investigation of ocean wave generated microseisms and harbor oscillations on the coast of northern California/ by Kent K. Hathaway.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Natural Resources.
Ocean waves--California--Humboldt Bay.
Microseisms.
Seiches--California--Humboldt Bay.

Publisher: 1986.
Thesis (M.S.)--Humboldt State University, 1986.

Description: xiii, 125 leaves: ill., maps.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1986.
Includes bibliographies.

Call Number: GC856 H38
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GC856 H38
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Schafran, W. C. (Walter C.).
Other Author(s): Humboldt State University. Center for Community Development.

Title: The northwest coast of California and Humboldt Bay: seen by few, missed by many/ Walter C. Schafran.

Subject(s): Humboldt Bay (CA)--History.
Pacific Coast (CA)--Discovery and exploration.

Publisher: Arcata, CA: Center for Community Development, Humboldt State University, [1985?].

Description: 38 p.: maps.

Notes: Typescript (photocopy).
Bibliography: p. 36.

Call Number: F868.H8 S34
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Bottin, Robert R.
Other Author(s): Earickson, Jeffrey A.
U.S. Army Corps of Engineers, San Francisco District.
U.S. Army Corps of Engineers, Los Angeles District.
U.S. Army Engineer Waterways Experiment Station.

Title: Buhne Point, Humboldt Bay, California: design for the prevention of shoreline erosion: hydraulic and

numerical model investigations/ by Robert R. Bottin, Jr., Jeffrey A. Earickson.

Variant Title: Design for the prevention of shoreline erosion.

Subject(s): Beach erosion--California--Mathematical models.
Hydraulic models.
Shore protection--California--Mathematical models.
Buhne Point (CA).
Humboldt Bay (CA).

Publisher: Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station; [Springfield, VA: available from National Technical Information Service, 1984].

Description: 336 p. in various pagings, 111 p. of plates: ill., maps; 28 cm.

Series: Technical report; CERC-84-5.

Notes: Cover title.
Bibliography: p. 58-59. 27.

Call Number: GB458.8 B68 1984
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers, Los Angeles District.
Other Author(s): U.S. Army Corps of Engineers, San Francisco District.

Title: Comprehensive condition survey, North and South jetties, Humboldt Harbor, Humboldt County, CA and outer breakwater, Crescent City Harbor, Del Norte County, CA: Appendix E, Geotechnical report/ prepared by U.S. Army Corps of Engineers, Los Angeles District.

Subject(s): Harbors--California--Eureka.
Harbors--California--Crescent City.
Geology--California--Humboldt Bay.
Geology--California--Crescent City.
Humboldt Bay (CA)

Publisher: [San Francisco, CA]: U.S. Army Corps of Engineers, San Francisco District, 1984.

Description: 1 v. (various pagings): ill., maps.

Notes: Bibliography: p. E-66.

Call Number: TC225.H8 A54 1984
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Woodward-Clyde Consultants.
Other Author(s): Exxon Company USA.
Humboldt County (CA), Planning Department.

Title: Final environmental impact report for Exxon platform jacket assembly site: County of Humboldt, Eureka, California/ prepared by Woodward-Clyde Consultants for Humboldt County Planning Department.

Variant Title: Exxon platform jacket assembly site.

Subject(s): Drilling platforms--Environmental aspects—California Humboldt Bay Region.
Industrial location--Environmental aspects—California Humboldt Bay Region.
Regional planning--California--Humboldt Bay Region.
Environmental impact statements--California—Humboldt County.
Samoa Peninsula (CA).

Publisher: [San Francisco, CA: Woodward-Clyde], 1984.

Description: 1 v. in various pagings: ill., maps; 28 cm.

Notes: "Approved and certified on April 17, 1984".
"State clearing house no. 83033003".
Includes bibliography.

Call Number: TN871.3 W66 1984
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Costa, Steven L.
Other Author(s): Stork, James W.
U.S. Army Corps of Engineers. San Francisco District.
Humboldt State University. Foundation.

Title: Humboldt Bay prototype data collection: final project report, submitted to U.S. Army Corps of Engineers, San Francisco District ... by Humboldt State University Foundation/ principal investigators: Steven L. Costa, James W. Stork.

Variant Title: Prototype data collection for Humboldt Bay, California.

Subject(s): Oceanography--California--Humboldt Bay.
Tides--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [Arcata, CA: The Foundation, 1984].

Description: 2 v. in 1: ill., maps.

Notes: Bibliography: p. 137-139.
Table of Contents: [Report] Addenda and appendices.

Call Number: GC856 C67
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Costa, Steven L.
Other Author(s): Stork, James W.
U.S. Army Corps of Engineers, San Francisco District.
Humboldt State University. Foundation.

Title: Prototype data collection for Humboldt Bay, California: [final project report, Humboldt Bay Prototype data collection]/ prepared for U.S. Army Corps of Engineers, San Francisco District ; [principal investigators: Steven L. Costa, James W. Stork; associate investigators: Carol E. Diebel, Kent K. Hathaway, Mary C. Landsteiner].

Variant Title: Final project report, Humboldt Bay Prototype data collection Humboldt Bay Prototype data collection.

Subject(s): Oceanography--California--Humboldt Bay.
Tides--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [Arcata, CA: The Foundation, 1984].

Description: xi, 146 leaves: ill., maps; 28 cm.

Notes: "Submitted to U.S. Army Corps of Engineers, San Francisco District, contract no. DACW07-81-C-0029 ... by Humboldt State University Foundation, Humboldt State University, Arcata, California"--P. [i].
"August 1984."
Includes bibliographical references (p. 137-139).

Call Number: GC856 .C672 1984
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Woodward-Clyde Consultants.
Other Author(s): Exxon Company USA.
Humboldt County (CA). Board of Supervisors.

Title: Exxon platform jacket assembly site: draft environmental impact report/ prepared by Woodward-Clyde Consultants under contract to the County of Humboldt, Eureka, California.

Subject(s): Drilling platforms--Environmental aspects—California Humboldt Bay Region.
Industrial location--Environmental aspects—California Humboldt Bay Region.
Regional planning--California--Humboldt Bay Region.
Environmental impact statements--California—Humboldt County.
Samoa Peninsula (CA).

Publisher: [San Francisco, CA?: Woodward-Clyde], 1983.

Description: 281 p. in various pagings: ill., maps.

Notes: Bibliography: [Sect.] 6, p. 1-8.

Call Number: TN871.3 W66
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Gould, Terry.
Norris, Dan.
Brown and Caldwell.

Title: Initial study, greater Eureka area wastewater treatment program: step 3 modifications/ Brown and Caldwell.

Subject(s): Sewage disposal--California--Eureka.
Sewage disposal--California--Humboldt Bay Region.

Publisher: [Eugene, OR: B.&C., 1983].

Description: 25 leaves in various foliations, 2 leaves of plates: maps.

Notes: "... prepared under the direction of Don Dodge ... written by Terry Gould and Dan Norris ..."--Pref.

Call Number: TD525.H86 B36
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Water Resources Support Center (U.S.).
U.S. Army Corps of Engineers.

Title: The Ports of San Francisco, Redwood City, and Humboldt Bay, California/ prepared by the Water Resources Support Center.

Subject(s): Harbors--California.
Harbors--California--San Francisco.
Harbors--California--Redwood City.
Harbors--California--Humboldt Bay.

Publisher: Washington, DC: U.S. G.P.O.; Fort Belvoir, VA: For Sale by the Center, 1983.

Description: vi, 112 p.: ill., maps; 26 cm.

Series: Port series; no. 30, rev. 1983.

Notes: At head of title: U.S. Army Corps of Engineers.
Five maps on 3 folded leaves in pocket.
Chiefly tables.

Call Number: TC224.C2 P67 1983
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Martin, Wallace E.

Title: Sail & steam on the northern California coast, 1850-1900/ compiled by Wallace E. Martin; introduction by Karl Kortum ; introductory text for the photographic sections by David Hull.

Variant Title: Sail and steam on the northern California coast, 1850-1900.

Subject(s): Navigation--California--Humboldt Bay Region--History.
Shipwrecks--California--Humboldt Bay Region.
Shipbuilding--California--Humboldt Bay.
Coastwise shipping--California--History.
Humboldt Bay (CA)--History.

Publisher: San Francisco, CA: National Maritime Museum Association in cooperation with the Golden Gate National Recreation Area, 1983.

Description: xvi, 351 p.: ill.; 29 cm.

Notes: "The manuscript and an extended index are held by the J. Porter Shaw Library at the National Maritime Museum in San Francisco"--T.p. verso. Consists predominately of a collection of articles from area newspapers.

Call Number: VK24.C2 M37
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: VK24.C2 M37
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): ANATEC Laboratories, Inc.
RAMLIT Associates.
Hugo B. Fischer, Inc.
California Regional Water Quality Control Board—North Coast Region.

Title: Humboldt Bay nonpoint source study project: planning study of nonpoint source bacterial contamination, and circulation and flushing of Humboldt Bay; final report, presented to California Water Quality Control Board/ by ANATEC Laboratories, inc., RAMLIT Associates, [and] Hugo B. Fischer, Inc.

Variant Title: Nonpoint source bacterial contamination.

Subject(s): Water--Pollution--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: Santa Rosa, CA: ANATEC Laboratories, 1982.

Description: 1 v. (various pagings): ill., maps.

Notes: Includes bibliographies.
Library's copy lacks Appendices A-E.
Table of Contents: Final report
App. F. Literature review and field study reports.

Call Number: TD224.C3 H84
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Toole, C. L. (Christopher L.), Diebel, Carol.
Humboldt State University, Center for Community Development.

Title: Proceedings of the Humboldt Bay Symposium: March 26, 1982, Eureka, California/ edited by Christopher Toole and Carol Diebel.

Variant Title: Humboldt Bay Symposium proceedings.

Subject(s): Oceanography--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [Arcata, CA]: Humboldt Bay Symposium Committee in cooperation with the H.S.U. Center for Community Development, 1982.

Description: 116 p.: ill., maps.

Notes: Cover title: Humboldt Bay Symposium proceedings.

Call Number: F868.H8 P76 1982
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 P76 1982
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection

Call Number: F868.H8 P76 1982
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 P76 1982
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Bott, Lorrie L., Diebel, Carol E., Boyd, Milton J.

Title: A survey of the benthic invertebrate communities in the channels of Central Humboldt Bay: final project report/ prepared by Lorrie L. Bott and

Carol E. Diebel, under the direction of Milton J. Boyd, Steven L. Costa.

Subject(s): Benthos--California--Humboldt Bay.
Dredging (Biology).
Marine invertebrates--California--Humboldt Bay.

Publisher: Arcata, CA: Humboldt State University, 1982.

Description: ix, 139, [114] leaves: ill., maps; 28 cm.

Notes: Prepared for U.S. Army Corps of Engineers, San Francisco District DACW07-81-C-0010.
Bibliography: ß. 136-139.

Call Number: QH91.8.B4 S87 1982
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: QH91.8.B4 S87 1982
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Bretnall, Peter B.

Title: Wastewater conflict on Humboldt Bay/ by Peter B. Bretnall.

Subject(s): Humboldt Bay Wastewater Authority.
Sewage disposal--California--Humboldt Bay Region.

Publisher: 1982.

Description: 47 p.; 28 cm.

Notes: Submitted in Barnum competition, 1982.
Cover title.

Call Number: TD525.H86 B74 1982
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: TD525.H86 B74 1982
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Janeway, William D.

Title: A comparison of the water quality from point and non-point source discharges into northern Humboldt Bay, Humboldt County, California/ by Willian D. Janeway.

Subject(s): Humboldt State University--Theses.
Humboldt State University--Theses--Natural Resources.
Sewage disposal--California--Arcata.
Water quality management--California--Humboldt Bay.

Publisher: 1981.
Thesis (M.S.)--Humboldt State University, 1981.

Description: x, 61 leaves: ill., maps.

Notes: Typescript (photocopy).
Thesis (M.S.)--Humboldt State University, 1981.
Bibliography: leaves 39-40.

Call Number: TD525.A73 J35
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TD525 A73 J35
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Other Author(s): Brown and Caldwell.

Title: Initial study, Eureka wastewater treatment plant step 2 modifications/ Brown and Caldwell, Consulting Engineers.

Variant Title: Eureka wastewater treatment plant step 2 modifications.

Subject(s): Sewage disposal--California--Eureka.
Sewage disposal--California--Humboldt Bay Region.

Publisher: Walnut Creek, CA: Brown & Caldwell, 1981.

Description: 2, 15, [9] leaves, 1 fold. leaf of plates: ill., maps.

Notes: Letter of transmittal, March 31, 1981, inserted.

Call Number: TD525 H86 B35
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Winzler and Kelly Consulting Engineers.
Other Author(s): Eureka (CA).

Title: Draft environmental impact report, wastewater management plan for the greater Eureka area: state clearinghouse no. 80011802 ; prepared for: City of Eureka/ prepared by: Winzler and Kelly.

Variant Title: Wastewater management plan for the greater Eureka area Environmental impact report for Step 1, wastewater management.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Sewage disposal--California--Eureka.

Publisher: Eureka, CA: Winzler and Kelly, 1980.

Description: ca. 350 p.: ill., maps.

Notes: On cover: Environmental impact report for Step 1, wastewater management planning for the Greater Eureka area.
Includes bibliographical references.

Call Number: TD525 H86 W5752
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Winzler and Kelly Consulting Engineers.
Eureka (CA).

Title: Final environmental impact report, wastewater management plan for the greater Eureka area: state clearinghouse no. 80011802/ prepared for City of Eureka by Winzler and Kelly.

Variant Title: Wastewater management plan for the greater Eureka area Environmental impact report for Step 1, wastewater management.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Sewage disposal--California--Eureka.

Publisher: Eureka, CA: Winzler and Kelly, 1980.

Description: ca. 350 p.: ill., maps.

Notes: On cover: Environmental impact report for Step 1, wastewater management planning for the Greater Eureka area.
"10 July 1980."
Includes bibliographical references.

Call Number: TD525.H86 W5753
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Shapiro & Associates.

Title: Final Humboldt Bay wetlands review and baylands analysis:
submitted to U. S. Army Corps of Engineers, San Francisco District/ prepared by Shapiro and Associates, Inc.

Variant Title: Humboldt Bay wetlands review and baylands analysis.

Subject(s): Regional planning--California--Humboldt Bay.
Wetland ecology--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: Seattle, WA: Shapiro, 1980.

Description: 3 v.: ill., maps.

Notes: "Contract no. DACW07-78-C-0082."
Bibliography: vol. 3, p. G 1-38.
Table of Contents: 1. Summary and findings, 2. Base information, and 3. Habitat classification and mapping, and appendices.

Call Number: F868 H8 S532 1980
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868 H8 S532 1980
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Winzler and Kelly Consulting Engineers.
Other Author(s): Eureka (CA).
North Coast Regional Water Quality Control Board.

Title: Greater Eureka area facilities plan: draft, April 4, 1980, submitted to the City of Eureka and the North Coast Regional Water Quality Control Board/ [by] Winzler and Kelly Consulting Engineers.

Variant Title: Wastewater management planning for the Greater Eureka area Step 1.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Sewage disposal--California--Eureka.

Publisher: Eureka, CA: Winzler & Kelly, 1980.

Description: ca. 550 p.: ill., maps.

Notes: On cover: Step 1, Wastewater management planning for the Greater Eureka area.
Includes bibliographies.

Call Number: TD525 H86 W575 1980
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Klamt, Robert R.
Other Author(s): North Coast Regional Water Quality Control Board.

Title: Humboldt Bay wastewater circulation studies, April of 1979/ Robert R. Klamt.

Subject(s): Sewage disposal--California--Arcata.
Sewage--Environmental aspects.
Shellfish fisheries--California--Humboldt Bay.

Publisher: Santa Rosa, CA: California Water Quality Control Board, North Coast Region, 1980.

Description: 33, 7 p.: ill., maps.

Series: Office report ; no. 80-2.

Notes: Bibliography: p. 32.

Call Number: TD525.A73 K43
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Title: The ports of Port Hueneme and Humboldt Bay, California/ Prepared by Water Resources Support Center.

Subject(s): Harbors.
Harbors.

Publisher: Fort Belvoir, VA: U.S. Army Corps of Engineers, Water Resources Support Center, 1980.

Description: 1st ed.
47 p., 2 maps: ill.; 27 cm.

Series: Port series, no. 29.

Call Number: TC223.8 H8
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Humboldt County (CA). Planning Department.

Title: Humboldt County local coastal program: [draft] technical studies.

Subject(s): Coastal zone management--California--Humboldt Bay.

Publisher: [Eureka, CA: The Department] 1979.

Description: v.

Notes: Library has: Vol. 1.
Table of Contents:
[1] Access.
[2] Agriculture.
[3] Commercial fishery and beach use.
[4] Habitat sensitivity.
[5] Housing.
[6] Recreational demand.
[7] Timber.
[8] Urban services.
[9] Visual.
[10] Water quality.

Call Number: HT393 C32 H86 1979
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Shapiro & Associates.

Title: Outline report: Humboldt Bay wetlands review and baylands analysis/ prepared for San Francisco District, U.S. Army Corps of Engineers [by] Shapiro & Associates, Inc.

Variant Title: Humboldt Bay wetlands review and baylands analysis.

Subject(s): Regional planning--California--Humboldt Bay Region.
Humboldt Bay (CA).

Publisher: [s.l.]: Shapiro & Associates, Inc., 1979.

Description: 41 leaves, in various foliations.

Notes: Bibliography: ß. 5.1-5.11.

Call Number: F868 H8 S53
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Metcalf & Eddy.

Title: Wastewater treatment process alternatives for the greater Eureka area/ Metcalf & Eddy, engineers, in association with LACO Associates, Environmental Analysts, inc., [and] Arthur J. Inerfield & Associates.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Sewage disposal--California--Eureka.

Publisher: Palo Alto, Ca.: Metcalf & Eddy, 1979.

Description: ca 250 leaves: ill., maps.

Notes: Report prepared for the City of Eureka, the Humboldt Community Services District, and County Service Area No. 3.
Includes bibliographical references.

Call Number: TD525 H86 M472
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: United States. Economic Development Administration.
Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Final supplemental environmental impact statement: Humboldt Bay Harbor Recreation and

Conservation District marina/ Economic Development Administration, U.S. Department of Commerce.

Variant Title: Humboldt Bay Harbor Recreation and Conservation District marina.

Subject(s): Regional planning--California--Humboldt Bay Region.
Woodley Island Marina (CA).
Humboldt Bay (CA).

Publisher: Washington, DC: E.D.A., 1978.

Description: 204 p. in various paginations: ill.

Notes: "October 1978."
Bibliography: p. 96-97.

Call Number: F868.H8 U55 1978b
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: United States. Economic Development Administration.
Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Humboldt Bay Harbor Recreation and Conservation District marina: draft supplemental environmental impact statement.

Subject(s): Regional planning--California--Humboldt Bay Region.
Woodley Island Marina (CA).
Humboldt Bay (CA).

Publisher: Washington, DC: E.D.A., 1978.

Description: xi, 97 p.: ill.

Notes: "August 1978."
Bibliography: p. 88-89.

Call Number: F868.H8 U55 1978a.
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Humboldt County (CA). Planning Department.

Title: Humboldt County LCP work program: preliminary Humboldt Bay Planning Area issue identification/ Humboldt County Planning Dept.-- Variant Title: Humboldt County local coastal program work program.

Subject(s): Coastal zone management--California--Humboldt Bay.
Regional planning--California--Humboldt Bay.

Publisher: [Eureka, CA]: The Department, 1978.

Description: 56 p.: ill., maps.

Notes: On cover: Review draft, local coastal program work program.

Call Number: HT393.C32 H86 1978a
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Benson, James R.
Other Author(s): Fredrickson, David A. (David Allen), McGrew, Karen C.
Humboldt Bay Wastewater Authority.
Winzler and Kelly Consulting Engineers.

Title: Archaeological reconnaissance of the Humboldt Bay area/ prepared by James R. Benson, David A. Fredrickson, Karen C. McGrew ; prepared under contract to Humboldt Bay Wastewater Authority.

Variant Title: Archaeological resources analysis.

Subject(s): Wiyot Indians--Antiquities.
Indians of North America--Antiquities.
Indians of North America--California--Humboldt Bay Region Antiquities.
Sewage--Environmental aspects--California--Humboldt Bay Region.

Publisher: [Eureka, CA: Winzler & Kelly Consulting Engineers, 1977].

Description: 95 leaves in various foliations: maps.

Notes: Cover title: Archaeological resources analysis, September, 1977.
Includes bibliographies.

Call Number: E99.W8 B45
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Pirie, Douglas M.
Other Author(s): Steller, David D.
U.S. Army Corps of Engineers. San Francisco District.
Earth Science Consulting and Technology.
United States. National Aeronautics and Space Administration.

Title: California coastal processes study - Landsat II: final report, Landsat investigation #22200/ Douglas M. Pirie, David D. Steller; prepared for National Aeronautics and Space Administration, Goddard Space Flight Center [by U.S. Army Engineer District, San

Francisco, CA, and Earth Science Consulting and Technology].

Subject(s): Coast changes--California.
Remote sensing.
Humboldt Bay (CA).

Publisher: Greenbelt, Md.: Goddard Space Flight Center, 1977.

Description: 152 leaves in various foliations: ill., maps; 28 cm.

Notes: Contract S-54062A.
Includes bibliographies.
Table of Contents: Humboldt Bay area (Sect. 7).

Call Number: GB458.8 P57
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers. San Francisco District.

Title: Environmental evaluation of alternatives for the improvement of Hookton Channel, Fields Landing, Humboldt County, California/ prepared by U.S. Army Engineer District, San Francisco, Corps of Engineers.

Variant Title: Improvement of Hookton Channel, Fields Landing, Humboldt County, California.

Subject(s): Harbors--Environmental aspects--California—Humboldt County.
Marine sediments--California--Humboldt Bay.
Hookton Channel (CA).
Humboldt Bay (CA).

Publisher: [San Francisco: The District, 1977].

Description: iii, 45 p.: ill., maps; 28 cm.

Notes: At head of title: Working paper.
"October 1977".
Includes bibliographical references (p. 44-45).

Call Number: GC97.8 H66 E5 1977
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers. San Francisco District.

Title: Final environmental statement: Humboldt Bay harbor marina regulatory permit application.

Variant Title: Humboldt Bay harbor marina regulatory permit application.

Subject(s): Harbors--Environmental aspects--California--Humboldt Bay.
Marinas--Environmental aspects--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: San Francisco, CA: U.S. Army Engineers District, [1977].

Description: 1 v. (various pagings): ill., maps; 27 cm.

Notes: "Public notice 10643-21."
Cover title.
"August 1977."
Includes bibliographical references.

Call Number: F868.H8 F55
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Environmental Research Consultants (Firm).
Other Author(s): Winzler and Kelly Consulting Engineers.

Title: Humboldt Bay Wastewater Authority regional sewage facility project: summary report of existing environmental documents/ Environmental Research Consultants, inc. and Winzler & Kelly.

Subject(s): Humboldt Bay Wastewater Authority.
Sewage disposal--California--Humboldt Bay Region.
Humboldt Bay Region (CA).

Publisher: [Eureka, CA: The Authors, 1977].

Description: 46, 7 [22] leaves: ill., maps.

Call Number: TD525.H86 E59
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TD525.H86 E59
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Martin, Wallace E.

Title: Waterfront yarns of Humboldt Bay, from the era of wooden ships and iron men/ Wallace E. Martin.

Subject(s): Coastwise navigation--California.
Eureka (CA)--History.

Publisher: [Eureka, CA: The author, 1977].

Description: 26 p.: ill.

Call Number: HE752.C2 M37

Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: HE752.C2 M37
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S Army Corps of Engineers.

Title: Addendum to final environmental statement: navigation improvement, Humboldt Harbor and Bay, California (August 1976): re-evaluation of disposal sites 13A (land disposal) and 17 (beach disposal)/ U.S. Army Corps of Engineers, San Francisco, California.

Variant Title: Environmental statement, Humboldt Harbor and Bay, California, Navigation improvement: Humboldt Harbor and Bay, California.

Subject(s): Harbors--Environmental aspects--California—Humboldt County.
Humboldt Bay (CA).

Publisher: [San Francisco]: U.S. Army Corps of Engineers, San Francisco District., 1976.

Description: 1 v. in various pagings: ill., maps; 27 cm.

Notes: "August 1976."
On cover: Environmental statement, Humboldt Harbor and Bay, California: Navigation improvement. August 1976.
Includes bibliographical references.

Call Number: TC225.H8 A44 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Winzler and Kelly Consulting Engineers.
Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.
Elk River Spit.

Title: Addendum to the Woodley Island environmental impact report for Humboldt harbor marina: a study of alternate marina sites: Elk River Spit [for] Humboldt Bay Harbor, Recreation and Conservation District/ [by] Winzler & Kelly, consulting engineers.

Variant Title: Woodley Island environmental impact record.

Subject(s): Humboldt Bay (CA).

Publisher: [Eureka, CA, 1976].

Description: 7, 3 leaves, 2 leaves of maps.: ill.

Call Number: F868.H8 E58b
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Winzler and Kelly Consulting Engineers.
Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.
Environmental Research Consultants (Firm).

Title: Addendum to the Woodley Island environmental impact report for Humboldt harbor marina: a study of alternate marina sites [for] Humboldt Bay Harbor, Recreation and Conservation District/ [by] Winzler & Kelly, consulting engineers.

Variant Title: Woodley Island environmental impact report.

Subject(s): Regional planning--California--Humboldt Bay Region.
Humboldt Bay (CA).

Publisher: [Eureka, CA, 1976].

Description: 48 leaves: maps.

Notes: On cover: Humboldt Bay Harbor marina, a study of alternate marina sties.

Call Number: F868.H8 E58a
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers. San Francisco District.

Title: Design memorandum, no. 1: general design, navigation channel improvements, Humboldt Harbor and Bay, California/ U.S. Army Engineer District, San Francisco, Corps of Engineers.

Variant Title: Navigation improvement, Humboldt Harbor and Bay, California, General design, Humboldt Harbor and Bay, California. Navigation channel improvements, Humboldt Harbor and Bay, California.

Subject(s): Harbors--Environmental aspects--California—Humboldt County.
Humboldt Bay (CA)--Navigation.

Publisher: [San Francisco, CA]: The District, 1976.

Description: 1 v. in various pagings: ill., maps (some fold.); 27 cm.

Notes: "August 1976."
Title on cover: Design memorandum, no. 1: General design, Humboldt Harbor and Bay: navigation improvement.

Call Number: TC225.H8 D4 1976
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TC225.H8 D4 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers.

Title: Draft environmental statement: navigation channel improvements authorized for Humboldt Harbor and Bay, Humboldt County, California/ prepared by U.S. Army Corps of Engineers, San Francisco District.

Variant Title: Environmental statement, Humboldt Harbor and Bay, California
Navigation improvement: Humboldt Harbor and Bay, California, Navigation and channel improvements authorized for Humboldt Harbor and Bay, Humboldt County, California.

Subject(s): Harbors--Environmental aspects--California—Humboldt County.
Humboldt Bay (CA).

Publisher: [San Francisco]: The District, 1976.

Description: iv, 75 [50] p.: ill., maps; 27 cm.

Notes: "March 1976."
On cover: Environmental statement, Humboldt Harbor and Bay, California: Navigation improvement. February 1976.
Includes bibliographical references.

Call Number: TC225.H8 D73 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers.

Title: Final environmental statement: navigation channel improvements authorized for Humboldt Harbor and Bay, Humboldt County, California/ prepared by U.S. Army Corps of Engineers, San Francisco District, California.

Variant Title: Environmental statement, Humboldt Harbor and Bay, California
Navigation improvement: Humboldt Harbor and Bay, California, Navigation channel improvements authorized for Humboldt Harbor and Bay, Humboldt County, California.

Subject(s): Harbors--Environmental aspects--California—Humboldt County.
Humboldt Bay (CA).

Publisher: [San Francisco]: The District, 1976.

Description: 1 v. in various pagings: ill., maps; 27 cm.

Notes: "August 1976."
On cover: Environmental statement, Humboldt Harbor and Bay, California: Navigation improvement. August 1976.
Includes bibliographical references.

Call Number: TC225.H8 F76 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers, San Francisco District.

Title: Humboldt Bay Harbor marina regulatory permit application: draft environmental statement.

Subject(s): Regional planning--California--Humboldt Bay Region.
Harbors--Environmental aspects--California--Humboldt Bay.
Marinas--Environmental aspects--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [San Francisco, CA: U.S. Army Engineer District, 1976].

Description: 2 v.: ill., maps; 28 cm.

Notes: Vol. 1 contains draft environmental statement, and v. 2, appendices A: Miscellaneous supporting documents; B: Environmental impact report; C: A study of alternate marine sites.

Call Number: F868.H8 H853 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): U.S. Army Corps of Engineers.
Title: Public meeting on review of reports, Humboldt Harbor and Bay/ United States Corps of Engineers.

Subject(s): Harbors--California--Humboldt Bay.
Humboldt Bay (CA)--Navigation.

Publisher: [Eureka, CA: Humboldt County Court Reporters, 1976?].

Description: 2 v. in 1 ; 28 cm.

Notes: Typescript of transcript from public meetings held April 7, and April 12, 1976, to discuss navigation improvements in Humboldt Harbor and Bay.
Table of Contents: [pt. 1] Wednesday, Apr. 7, 1976 [pt.2] Monday, Apr. 12, 1976.

Call Number: TC225.H8 P8 1976
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Burdick, Brett A.
Other Author(s): Humboldt State University. Department of Geology.

Title: Surficial sediment distribution in a portion of Humboldt Bay/ by Brett A. Burdick.

Subject(s): Geology--California--Humboldt Bay. Sedimentation and deposition.

Publisher: [Arcata, CA]: [s.n.] 1976.

Description: 38 leaves: ill., maps.

Notes: Senior thesis (Geology 181)--Humboldt State University, 1976.
Bibliography: leaves 34-35.

Call Number: QE90.H82 B87
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Other Author(s): Winzler and Kelly Consulting Engineers.

Title: Draft environmental impact report for Standard Oil Company of California drilling project, Samoa, California.

Subject(s): Drilling platforms--Environmental aspects—California, Humboldt Bay Region.
Industrial location--California--Humboldt Bay Region.
Regional planning--California--Humboldt Bay Region.
Environmental impact statements--California--Humboldt Bay Region.
Samoa Peninsula (CA).

Publisher: [1975].

Description: 1 v. (various foliations: ill., maps; 28 cm.

Notes: "March 1975".
"Prepared by Winzler and Kelly Laboratory." "The proposed project involves the drilling of an exploratory well for the production of natural gas on the North Spit of Humboldt Bay."

Call Number: TN871.3 .D7 1975
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Earth Sciences Associates.

Title: Geology of the Humboldt Bay region, with special reference to the geology of the Humboldt Bay power plant site and vicinity.

Subject(s): Humboldt Bay Power Plant.
Geology--California--Humboldt Bay Region.

Publisher: Palo Alto, CA, 1975.

Description: 50 ß. illus. (22 fold. in pockets).

Notes: "Prepared for the Pacific Gas and Electric Company."
Bibliography: ß. 47-50.

Call Number: QE90.H8 E37
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Koebig & Koebig.
Other Author(s): United States. Economic Development Administration.

Title: Humboldt Bay master plan/ Prepared for Humboldt Bay Harbor, Recreation, and Conservation District, July, 1975.

Subject(s): Harbors--California--Humboldt Bay.

Publisher: [Los Angeles] 1975.

Description: 1 v. (various pagings): fold. maps; 28 cm.

Notes: "Prepared for Humboldt Bay Harbor, Recreation, and Conservation District." "This technical assistance study was accomplished under a grant with the Economic Development Administration. ...".

Call Number: F868.H8 K62 1975
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 K62 1975
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: TERA Corporation.
Other Author(s): Pacific Gas and Electric Company.

Title: Humboldt Bay seismic network; annual report, August 1974-August 1975.

Subject(s): Earthquakes--California--Humboldt Bay.

Publisher: Berkeley, CA, 1975.

Description: 23 ß. illus. (part fold.).

Notes: "Report no. TR-75-4013 submitted to Pacific Gas and Electric Company."

Call Number: QE535.2.U6 T47
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Winzler and Kelly Consulting Engineers.
Other Author(s): Humboldt Bay Wastewater Authority.

Title: Humboldt Bay Wastewater Authority regional water pollution control project design report/ Principal consultant: Winzler & Kelly, consulting engineers.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Sewage disposal--California--Eureka.
Humboldt Bay Region (CA).

Publisher: Eureka, CA, 1975.

Description: 524 p. in various pagings, 70 leaves of plates: ill., maps, plans (mostly fold.).

Notes: Includes bibliographies.

Call Number: TD525.H86 W58
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Boyd, Milton J.
Other Author(s): Roelofs, Terry D. Thompson, Robert Wayne.
U.S. Army Corps of Engineers.

Title: Identification and distribution of benthic communities in the central portion of Humboldt Bay, California: final project report/ project director: Milton J. Boyd; co-investigators: Terry D. Roelofs, Robert W. Thompson.

Subject(s): Humboldt State University--Faculty publications.
Marine biology--California--Humboldt Bay.
Benthos--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: Arcata, CA, 1975?

Description: 87 leaves: ill., maps.

Notes: "Submitted to U.S. Army Corps of Engineers, Contract no. DACW07-75-0035."
Bibliography: leaves 66-69.

Call Number: QH95.3 B69
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: QH95.3 B69
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Environmental Research Consultants (Firm).
Other Author(s): Humboldt Bay Harbor, Recreation, and Conservation District.

Title: Woodley Island marina project; final environmental impact report.

Subject(s): Regional planning--California--Humboldt Bay Region.
Humboldt Bay (CA).

Publisher: [Arcata, CA] 1975.

Description: 73, 10, 81 ß. illus.

Notes: At head of title: Humboldt Bay Harbor, Recreation and Conservation District.
Bibliography: ß. 72-73.

Call Number: F868.H8 E58
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 E58
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Environmental Research Consultants (Firm).

Title: Eureka-Arcata regional sewage facility project; environmental impact report.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Humboldt Bay Region (CA).

Publisher: Arcata, CA, 1974.

Description: 1 v. (various pagings) illus., maps.

Notes: Includes bibliography.

Call Number: TD525.H86 E68
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TD525.H86 E68
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Koebig & Koebig.
Other Author(s): Environmental Research Associates (Firm).
Winzler and Kelly Consulting Engineers.
Humboldt Bay Harbor, Recreation, and Conservation District.
United States. Economic Development Administration.

Title: Humboldt Bay master plan/ [prepared for] Humboldt Bay Harbor, Recreation, and Conservation District [by] Koebig & Koebig, Inc. in cooperation with Environmental Research Consultants, Winzler and Kelly, Williams, Kuebelbeck and Associates.

Subject(s): Humboldt Bay (CA)--Harbors.

Publisher: [Los Angeles: Koebig and Koebig, 1974].

Description: 1 v. (various pagings); 28 cm.

Notes: "This technical assistance study was completed under a grant with the Economic Development Administration." Includes bibliographical references.

Call Number: F868 .H8 K62
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 K62
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Metcalf & Eddy.

Title: Project report for the Eureka-Arcata area regional wastewater management plan. Prepared for City of Eureka [and] City of Arcata.

Variant Title: Eureka-Arcata area regional wastewater management plan.

Subject(s): Sewage disposal--California--Humboldt Bay Region.
Humboldt Bay Region (CA).

Publisher: Palo Alto, CA, 1974.

Description: 1 v. (various pagings) maps, charts.

Notes: Includes bibliography.

Call Number: TD525.H86 M47
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TD525.H86 M47
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Fish and Wildlife Service.

Title: Proposed land acquisition and operation of the Humboldt Bay National Wildlife Refuge, California: Department of the Interior environmental assessment/ Fish and Wildlife Service, U.S. Department of the Interior.

Subject(s): Wildlife refuges--California--Humboldt County.
Humboldt County National Wildlife Refuge (Proposed).

Publisher: Portland, OR: The Service, 1974.

Description: vii, 48 leaves.: maps.

Call Number: SK373 .U55 1974
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: SK373 U55 1974
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Pacific Gas and Electric Co.

Title: An evaluation of the effect of cooling water discharge on the beneficial uses of receiving waters at Humboldt Power Plant/ Pacific Gas and Electric Company.

Subject(s): Thermal pollution of rivers, lakes, etc.—California, Humboldt Bay.
Marine biology--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: San Francisco, CA, 1973.

Description: 1 v. (various pagings) illus., maps (part fold.).

Notes: Report of a task force, including research by J.R. Adams.
Includes bibliography (12 ß.).

Call Number: TK1345.E8 P33
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Seattle Marine Laboratories.
Other Author(s): Crown Simpson Pulp Company (Fairhaven, CA).
Louisiana-Pacific Corporation (Samoa, CA).

Title: Hydrographic and biological studies in the area of the marine receiving waters of two pulp mills near Humboldt Bay, California. Submitted to Crown

Simpson Pulp Company, Fairhaven, CA, and Louisiana-Pacific Corporation, Samoa, CA.

Subject(s): Wood-pulp industry--California--Humboldt County.
Marine pollution--California--Humboldt County.

Publisher: Seattle, 1973.

Description: 69 ß. maps, plans.

Notes: In Louisiana-Pacific Corporation, Samoa, CA Technical report on waste discharge to the ocean. 1973.

Call Number: TD899.W65 L68
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Monroe, Gary W.
Other Author(s): California. Department of Fish and Game.

Title: The natural resources of Humboldt Bay / prepared by Gary W. Monroe; assisted by Stanley J. Thompson ... [et al.].

Subject(s): Natural resources--California--Humboldt Bay.
Estuarine area conservation--California--Humboldt Bay.

Publisher: [Sacramento]: California. Department of Fish and Game, 1973.

Description: 160, [37] p.: ill., maps; 28 cm.

Series: Coastal wetlands series; no. 6.

Notes: "References": p. 156-160.

Call Number: HC107.C2 M66
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: HC107.C2 M66
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Casebier, Thomas A.
Other Author(s): Toimil, Lawrence J.

Title: Physical dynamics of Arcata Bay/ by Thomas A. Casebier and Lawrence J. Toimil.

Subject(s): Oceanography--California--Humboldt Bay.
Arcata Bay (CA).
Humboldt Bay (CA).

Publisher: [Arcata, CA] 1973.

Description: 23 leaves, 25 leaves of ill. (maps, diagrs.).

Notes: Bibliography: leaves 22-23.

Call Number: GC856 C38
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating)

Call Number: GC856 C38
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Harding, Lawrence W.

Title: Primary production in Humboldt Bay, by Lawrence W. Harding, Jr.

Subject(s): California State University, Humboldt--Theses.
California State University, Humboldt--Theses--Biology.
Primary productivity (Biology)--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [Arcata, CA] 1973.
Thesis (M.A.)--Humboldt State University, 1973.

Description: iii, 55 ß. illus.

Notes: Thesis (M.A.)--Humboldt State University, 1973.
Bibliography: ß. [38]-43.

Call Number: QH91.57.P4 H37
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QH91.57.P4 H37
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Gera, Andrew V.
Other Author(s): Humboldt State University. Department of Geology.

Title: Sediment distribution in central Humboldt Bay and relationship to bathymetry and hydrodynamics.

Subject(s): Geology--California--Humboldt County.
Sedimentation and deposition.
Humboldt Bay (CA).

Publisher: [Arcata, CA] 1973.

Description: 17 ß. illus.

Notes: Senior thesis (Geology 181)--Humboldt State University, 1973.
Bibliography: ß. 17.

Call Number: QE90.H8 G47
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Louisiana-Pacific Corporation.
Other Author(s): California Regional Water Quality Control Board—North Coast Region.

Title: Technical report on waste discharge to the ocean by Louisiana-Pacific Corporation pulp mill at Samoa, California; submitted to California Regional Water Quality Control Board, North Coastal Region.

Subject(s): Wood-pulp industry--Waste disposal.
Wood-pulp industry--California--Humboldt County.
Marine pollution--California--Humboldt County.

Publisher: [Samoa, CA] 1973.

Description: 42 [8] 69 ß. maps, plans (1 fold. in pocket).

Notes: Appendix B: Hydrographic and biological studies in the area of the marine receiving waters of two pulp mills near Humboldt Bay, California, submitted to Crown Simpson Pulp Company, Fairhaven, CA, and Louisiana-Pacific Corporation, Samoa, CA, ... by Seattle Marine Laboratories.

Call Number: TD899.W65 L68
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Malovos, Andrew J.

Title: Marine disasters off the Humboldt County coastline and in the vicinity of Humboldt Bay, by Andrew J. Malovos.

Subject(s): California State University, Humboldt--Theses.
California State University, Humboldt--Theses--History.
Shipwrecks--California--Humboldt Bay Region.
Shipwrecks--California.

Publisher: [Arcata, CA, 1972].
Thesis (M.A.)--Humboldt State University, 1972.

Description: 253 ß. illus., maps (part fold.).

Notes: Thesis (M.A.)--Humboldt State University, 1972.
Bibliography: ß. 249-253.

Call Number: F868.H8 M292
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 M292
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Allen, George H. (George Herbert), 1932.
Other Author(s): Conversano, Guy, Colwell, Bryan.

Title: A pilot fish-pond system for utilization of sewage effluents, Humboldt Bay, Northern California/ by George Allen, Guy Conversano, Bryan Colwell.

Subject(s): Aquaculture.
Sewage sludge as feed.

Publisher: [Arcata, CA: Marine Advisory Extension Service, Sea Grant Program, California State University, Humboldt] 1972.

Description: 25 leaves: ill., maps; 28 cm.

Series: HSU-SG; 3.

Notes: Bibliography: leaf 25.

Call Number: GC1021 C2 H86
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: GC1021 C2 H86
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: GC1021 C2 H86
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Malovos, Andrew J.

Title: Marine disasters off the Humboldt County coastline north and south of Humboldt Bay [by] Andrew J. Malovos.

Subject(s): Shipwrecks--California.
Humboldt County (CA)--History.

Publisher: [Arcata, CA, Humboldt State College, 1971].

Description: 145 ß. illus., map, marine chart.

Series: Barnum competition essays; 1971, 2nd prize.

Notes: Typescript.

On title page: History 250 [Humboldt State College]
Bibliography: ß. 142-145.

Call Number: F868.H8 B37 1971-73
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: F868.H8 B37 1971, 2nd
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Bryan, Charles F.
Crandell, George F.
University of Washington. Department of Oceanography.
Humboldt Bay Ecological Society.

Title: A partial bibliography on Humboldt Bay.

Subject(s): Humboldt State University--Faculty publications.
Humboldt Bay (CA)--Bibliography.

Publisher: [n.p.] Humboldt Bay Ecological Society, 1971.

Description: 2d draft. 1 v. (unpaged).

Notes: Based on Humboldt Bay, California, a literature survey, University of Washington Department of Oceanography, 1955; revisions through June, 1969, by C.F. Bryan; additions and corrections by G.F. Crandell, Oceanography Department, Humboldt State College.

Call Number: GC856 P37
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Main Author: Thompson, Robert Wayne.

Title: Recent sediments of Humboldt Bay, Eureka, California [by] Robert W. Thompson.

Subject(s): Humboldt State University--Faculty publications.
Oceanography--California--Humboldt Bay.
Sedimentation and deposition.
Humboldt Bay (CA).

Publisher: [Arcata, CA, 1971].

Description: 62 p. illus., maps.

Notes: "Final report, P[etroleum] R[esearch] F[und] no. 789-G2."
Bibliography: p. 46.

Call Number: GC856 .T56
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GC856 .T56
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection

Call Number: GC856 T56
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: GC856 T56
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Noble, Ronald M.

Title: Shoreline changes, Humboldt Bay, California/ by R.M. Noble.

Subject(s): Coast changes--California--Humboldt Bay.
Shorelines--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: Berkeley: Hydraulic Engineering Laboratory, College of Engineering, University of California, 1971.

Description: 36 p.: ill., maps.

Series: University of California, Hydraulic Engineering Laboratory, Technical report HEL-24-2.

Notes: Biblioraphy: p. 16-17.

Call Number: GB458.8 N62
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GB458.8 N62
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Slade, Shirley.

Title: Maritime commerce of Humboldt Bay, 1850-1875.

Subject(s): Shipping--California--Humboldt Bay.
Humboldt Bay (CA)--History.

Publisher: [Arcata, CA, 197-?].

Description: 30, ix leaves.

Notes: Typescript.

Term paper, History 196, Humboldt State College.
Bibliography: ß.i-iv.

Call Number: HE554.E8 S62
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: HE554.E8 S62
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Caldwell, John.

Title: Maritime commerce of Humboldt Bay, 1875-1900.

Subject(s): Shipping--California--Humboldt Bay.
Humboldt Bay (CA)--History.

Publisher: [Arcata, CA, 197-?].

Description: [38] leaves.

Notes: Typescript.
Term paper, History 196, Humboldt State College.
Bibliography: [2] ß.

Call Number: HE554.E8 C36
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: HE554.E8 C36
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Humboldt Bay Development Commission.

Title: Final report.

Subject(s): Humboldt Bay Region (CA).
Humboldt Bay (CA).

Publisher: [Eureka, CA] 1969.

Description: 1 v. (unpaged) illus., maps.

Notes: Cover title.

Call Number: F868.H8 H78
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 H78
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 H78
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Koebig & Koebig.
Other Author(s): Humboldt Bay Development Commission.

Title: Humboldt Bay Development Commission program of work.

Subject(s): Humboldt Bay (CA).
Humboldt Bay Region (CA).

Publisher: Los Angeles, 1969.

Description: [2], 19 ß. table.

Notes: Cover title.
Includes cover letter from Koebig and Koebig to the Humboldt Bay Development Commission.
Table of Contents: Phase II, District formation study. Phase III, Comprehensive plan for Bay development. Program time schedule.

Call Number: F868.H8 K6
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers.

Title: Humboldt Harbor and Bay, California: letter from the Secretary of the Army transmitting a letter from the Chief of Engineers, Department of the Army, dated May 1, 1968, submitting a report, together with accompanying papers and an illustration, on a review of the reports on Humboldt Harbor and Bay, California.../ U.S. Army Corps of Engineers.

Subject(s): Harbors--California--Eureka.
Humboldt Bay (CA).

Publisher: Washington, DC: U.S., Committee on Public Works, 1968.

Description: 116 p.: ill., maps; 27 cm.

Series: House document no. 330-90/2.

Call Number: TC425.H8 U52 1968
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: California. Bureau of Sanitary Engineering.
Other Author(s): Ward, Paul C., Foster, H. B.

Title: Humboldt Bay investigation: January 1967/ prepared by Bureau of Sanitary Engineering, California State Department of Public Health, H.B. Foster, Jr., Chief, H.J. Ongerth, Assistant Chief; the study was conducted under the supervision of Paul C. Ward. by William F. Jopling...[et al.].

Subject(s): Shellfish--Microbiology.
Sewage disposal--California--Humboldt Bay.
Water quality--California--Humboldt Bay.

Publisher: [Sacramento]: The Department, 1967.

Description: 25 leaves.: ill., maps.

Call Number: QR118 C24 1967
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QR118 C24 1967
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: California Regional Water Quality Control Board—North Coast Region.

Title: Water quality control policy for Humboldt Bay: preliminary report/ North Coastal Regional Water Quality Control Board.

Subject(s): Water quality management--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: Santa Rosa: The Board, 1967.

Description: 1 v. in various pagings: map.

Call Number: TD224.C3 C25 1967
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Lewis, Oscar, 1893.

Title: The quest for Qual-a-wa-loo, Humboldt Bay; a collection of diaries and historical notes pertaining to the early discoveries of the area now known as Humboldt County, California. Edited and published from manuscripts furnished by Clarence E. Pearsall, George D. Murray, A.C. Tibbetts and Harry L. Neall.

Subject(s): Humboldt County (CA).
Humboldt Bay (CA).

Publisher: Oakland, CA, Holmes Book Co., 1966.

Description: 190 p. illus., maps, ports. 24 cm.

Notes: First published 1943.

Call Number: F868.H8 L4 1966
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Bagshaw, T. Fred.
California. Division of Highways.

Title: Report of a public hearing in Humboldt County: for location of state highway between Route 101 in Eureka across Humboldt Bay to the Samoa Peninsula 01-HUM-255/ conducted by T. Fred Bagshaw, Assistant Director of PublicWorks.

Subject(s): Highway planning--California--Eureka.

Publisher: Eureka, CA: [s.n.], 1966.

Description: 1 vol. in various pagings.: ill.

Notes: Transcript submitted by Sam Helwer, District Engineer. Held at the Division of Highways auditorium in Eureka on March 9, 1966.

Call Number: TE25.E8 R48
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers.

Title: Review of reports on Humboldt Harbor and Bay, California for navigation/ U.S. Army Corps of Engineers.

Subject(s): Harbors--California--Eureka.
Humboldt Bay (CA).

Publisher: San Francisco: U.S. Army Corps of Engineers, 1966.

Description: Rev. ed., 1 v. (various pagings): ill.; 27 cm.

Notes: Cover title.
First published June 15, 1963.

Call Number: TC225.H8 U52 1966
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: TC225.H8 U52 1966
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Other Author(s): Humboldt State University. Center for Community Development.
Conference Name: Symposium on Humboldt Bay (1966: Humboldt State College).

Title: Symposium on Humboldt Bay [papers. Arcata, CA]. Sponsored by the Center for Community Development, Humboldt State College and University of California Extension.

Subject(s): Humboldt Bay (CA).

Publisher: [Arcata, CA, 1966].

Description: 81 l. illus.

Call Number: F868.H8 S9
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 S9
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 S9
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: California. Bureau of Sanitary Engineering.

Title: Waste characteristics survey of Humboldt Bay: June 1966/ prepared by Bureau of Sanitary Engineering, California State Department of Public Health.

Subject(s): Sewage--Microbiology.
Sewage disposal--California--Humboldt Bay.
Humboldt Bay (CA).

Publisher: [Sacramento]: The Department, 1966.

Description: 56 p.: maps (part fold.).

Call Number: TD524.C2 C35 1966
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: CalDocsP1750.W30h
Location: California Government Documents, 3rd floor, north.

Call Number: TD524.C2 C35 1966
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: California. Division of Bay Toll Crossings.

Title: Feasibility report on a bridge across Humboldt Bay./ State of California, Highway Transportation Agency, Department of Public Works, Division of Bay Toll Crossings.

Subject(s): Bridges--California--Humboldt Bay.
Humboldt Bay Bridge.

Publisher: [San Francisco]: The Division, 1965.

Description: 1 v. in various pagings.: ill.

Call Number: HE376.H8 C35
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Marchioni, Warren.

Title: Benthonic marine algae of Humboldt Bay, California.

Subject(s): Humboldt State College--Theses.
Humboldt State College--Theses--Biology.
Marine algae--California--Humboldt Bay.

Publisher: [Arcata, CA] 1964.
Thesis (M.A.)--Humboldt State University, 1964.

Description: [vii], 140 ß. 40 plates.

Notes: "Literature cited": ß. [122]-135.
Thesis (M.A.)--Humboldt State University, 1964.

Call Number: QK571 M32
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QK571 M32
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Gast, James A.
Other Author(s): Skeesick, Delbert G.
Title: The circulation, water quality, and sedimentation of Humboldt Bay, California. Comp. by James A. Gast and Delbert G. Skeesick.

Subject(s): Oceanography--California--Humboldt Bay.

Publisher: [Arcata, CA] 1964.

Description: 51 ß. maps.

Series: Humboldt State College. Department of Oceanography. Special report no. 2.

Notes: "Literature cited": ß. 49-51.

Call Number: GC1 H8

Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: GC1 .H8 no.2
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Hurley, John Stephen, 1925.

Title: Harbor improvements at Humboldt Bay, California, by John Hurley.

Subject(s): Humboldt Bay (CA).

Publisher: [Arcata, CA] 1964.

Description: 42 ß. illus., col. maps.

Notes: Includes map of Port of Humboldt, Eureka, CA Published by Humboldt County Board of Trade. Submitted in partial fulfillment of the course requirements of History 196, Humboldt State College, 1964.

Call Number: F868.H8 H9
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: F868.H8 H9
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Keller, Mathew.

Title: The growth and distribution of eelgrass (Zostera marina L.) in Humboldt Bay, California.

Subject(s): Humboldt State College--Theses.
Humboldt State College--Theses--Game Management.
Zostera marina.
Marine plants--California--Humboldt Bay.

Publisher: [Arcata, CA] 1963.
Thesis (M.A.)--Humboldt State University, 1963.

Description: [5], 53 ß. [2] illus.

Notes: Title on spine: Growth and distribution of eelgrass, Humboldt Bay.
"References": ß. [54-55].
Thesis (M.A.)--Humboldt State University, 1963.

Call Number: QK105 K4
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: QK105 K4
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Skeesick, Delbert G.

Title: A study of some physical-chemical characteristics of Humboldt Bay.

Variant Title: Physical-chemical characteristics of Humboldt Bay.

Subject(s): Humboldt State College--Theses.
Humboldt State College--Theses--Fisheries.
Oceanography--California--Humboldt Bay.

Publisher: [Arcata, CA] 1963.
Thesis (M.S.)--Humboldt State University, 1963.

Description: v, 148 ß. illus.

Notes: Title on spine: Physical-chemical characteristics of Humboldt Bay.
"Literature cited": ß. [65]-68.
Thesis (M.S.)--Humboldt State University, 1963.

Call Number: GC856 S56
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GC856 S56
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: Humboldt State College. Department of Oceanography.
Other Author(s): Gast, James A.

Title: An oceanographic survey of the Humboldt Bay system; physical and chemical data. Comp. by James A. Gast.

Subject(s): Oceanography--California--Humboldt Bay.

Publisher: Arcata [CA, Humboldt State University] 1962.

Description: 73 ß. illus.

Series: Humboldt State College, Department of Oceanography. Special report no. 1.

Call Number: GC1 H8
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: GC1 .H8 no.1
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Bernath, Stuart L.

Title: Shipwrecks of the Humboldt Bay region.

Subject(s): Shipwrecks--California.
Humboldt Bay Region (CA).

Publisher: [Arcata, CA, 1962].

Description: 117 p. fold map.

Series: Barnum competition essays; 1963, 2nd prize.

Notes: Thermo-fax copy. A paper prepared in partial fulfillment of requirements for History 288A, Humboldt State College, Fall 1962.
Bibliography: ß. 110-117.

Call Number: F868.H8 B37 1961-63
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: F868.H8 B37 1963, 2nd
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Humboldt State University. Department of Natural Resources.
Other Author(s): Gast, James A.

Title: Periodic status report; work performed under contract no. AT (04-3)-395 of the Atomic Energy Commission.

Subject(s): Humboldt State University--Faculty publications.
Oceanography--Research--California--Humboldt Bay.

Publisher: Arcata, 1961-63.

Description: 6 nos.
Irregular.
No. 1-6, June/Aug. 1961-Jan./Mar. 1963.

Notes: "Detailed survey of the circulation and water quality of Humboldt Bay ... Dr. James A. Gast supervis[or]."

Call Number: GC856 H8
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Call Number: GC856 H8
Location: Archives, 3rd floor north, Humboldt Room (Non-Circulating).

Main Author: University of Washington. Department of Oceanography.
Other Author(s): United States. Hydrographic Office.

Title: Humboldt Bay, California: a literature survey.

Subject(s): Humboldt Bay (CA).
Humboldt Bay (CA)--Bibliography.

Publisher: Seattle, 1955.

Description: xi, 144 ß. tables. + atlas.

Notes: "Only two reports complete with all enclosures (drawings and original data), were assembled." This copy lacks enclosures.
"Work performed under Contract No. N62306s-303 of the U.S. Navy Hydrographic Office."

Call Number: GC856 .W35
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: GC856 W35
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: GC856 W35
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers.

Title: Survey report on Humboldt Bay, California.

Subject(s): Humboldt Bay Region (CA).
Humboldt Bay (CA).

Publisher: [San Francisco] 1950.

Description: 1 v. (various pagings) illus., maps.

Notes: Report with inclosures 1 & 2, appendices I, II, & III.

Call Number: F868.H8 U54
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Lewis, Oscar, 1893.

Title: The quest for Qual-a-wa-loo [Humboldt Bay]; a collection of diaries and historical notes pertaining to the early discoveries of the area now known as Humboldt County, California. Edited and published from manuscripts furnished by Clarence E. Pearsall, George D. Murray, A.C. Tibbetts and Harry L. Neall.

Subject(s): Humboldt County (CA)--History.
Humboldt Bay (CA).

Publisher: San Francisco, 1943.

Description: 190 p. illus., maps, ports. 24 cm.

Call Number: F868.H8 L4
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 L4
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 L4
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868.H8 L4
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 L4
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Wood, Lewis Keysor, 1819-1874.

Title: The discovery of Humboldt Bay: a narrative/ by L.K. Wood.

Other Title: [Humboldt times (Eureka, CA)].

Subject(s): Wood, Lewis Keysor, 1819-1874.
Explorers--California--Humboldt County.
Humboldt Bay (CA).
Humboldt County (CA)--History.

Publisher: San Francisco: [s.n.] ; 1932.

Description: 22 p. ; 19 cm.

Notes: Cover title. Originally in the Humboldt Times, beginning on April 26, 1856, from which it was subsequently reprinted by the author's sons in a paper covered pamphlet. This pamphlet was later reprinted by the Society of California Pioneers in its quarterly dated March 1932. In addition, 100 copies have been reissued in this pamphlet form.

Call Number: F868.H8 W6
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 W6
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Coy, Owen Cochran, 1884-1952.
Other Author(s): California State Historical Association.

Title: The Humboldt Bay region, 1850-1875; a study in the American colonization of California.

Subject(s): Humboldt Bay Region (CA).
California--History.

Publisher: Los Angeles, California State Historical Association, 1929, [c1930].

Description: 346 p. illus., maps.

Notes: Bibliography: p. [313]-325.

Call Number: F868 H8 C88
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868 H8 C88
Location: A-M 2nd Floor; N-Z 3rd Floor--Main Collection.

Call Number: F868 H8 C88
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868 H8 C88
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868 H8 C88
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Cutten, Charles Pryde, 1875.

Title: [The discovery of Humboldt Bay].

Subject(s): Humboldt County (CA)--History.
Humboldt Bay (CA)--History.

Publisher: San Francisco. 192-?].

Description: 47 ß.

Notes: Typewritten notes, with manuscript additions, on the Gregg party and other explorers and settlers of the Humboldt Bay region, apparently for a speech. Part of this material was published in the Quarterly of the

Society of California Pioneers, Vol. 9, No. 1, March 1932.

Call Number: F868.H8 C92
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 C92
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Title: [Journal].

Subject(s): Harbors--California--Humboldt Bay--History--Sources.
Jetties.
Humboldt Bay (CA)--History--Sources.

Publisher: 1917.

Description: 304 p.

Notes: Handwritten ms. Daily record (Jan. 1-Oct. 31, 1917) by unknown persons of deliveries of stone by barge and train to north and south jetties, Humboldt Bay, CA; crane operation records (hours, minutes and tons); accidents, fatalities, and other notable incidents; wind and weather conditions briefly noted.
Copy 2: photocopy.

Call Number: TC225.H8 A2 1917
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: TC225.H8 A2 1917
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: U.S. Army Corps of Engineers.
Other Author(s): Strong, W. K.

Title: In the matter of the application of Frank W. Beckwith (R.W. Bull assignee) to construct a dike on Humboldt Bay. Reported by W.K. Strong.

Subject(s): Beckwith, Frank W.
Humboldt Bay (CA).

Publisher: [Eureka, CA, 1914?].

Description: 135 ß.

Notes: Recording of the testimony given before the District Engineer at Eureka, California, December 1914.

Call Number: TC337 U5
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Davidson, George, 1825-1911.

Title: The discovery of Humboldt Bay [by] George Davidson.

Subject(s): Humboldt Bay (CA)--History.
Humboldt County (CA)--History.

Publisher: [San Francisco, CA, 1891].

Description: [16] leaves, 4 leaves of maps.

Notes: Excerpt from Proceedings of the Geographical Society of the Pacific, San Francisco, 1891.
Photocopy. Includes bibliographical references.

Call Number: F868.H8 D38
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Call Number: F868.H8 D38
Location: Humboldt County Coll, 3rd floor-Humboldt Room (Non-Circulating).

Main Author: Eureka (CA). Board of Harbor Commissioners.

Title: Minutes Board of Harbor Commissioners for Humboldt Bay.

Physical Description: Microform.

Subject(s): Humboldt Bay (CA)--History—Sources.
Eureka (CA)--History—Sources.

Publisher: [Eureka, CA: The Board, 1887-1927].

Description: v.
Monthly (irregular).
Dec. 6, 1887-Aug. 1, 1927.

Notes: Includes text of the Board's biennial reports for 1906/1908 and 1908/1910. Includes the Marbor Master's report to the Board, Sept. 6, 1909-Aug. 1, 1927; earlier reports were incorporated in the minutes.
Handwritten, Dec. 6, 1887-Aug. 26, 1901; typescript, Sept. 3, 1901-Aug. 1, 1927.
Microfilm. 3 microfilm reels; 35 mm.
Library has: 1887-1927.

Call Number: Film MF986
Location: Microform Collection, 2nd floor, north.

Appendix G
List of Contacts

This listing provides contact information for persons and agencies either contacted as part of this data review and database locations and contact information.

Abbreviation	Name	Address	Phone/FAX/email	Notes
DPW	Humboldt County Department of Public Works, Natural Resources Division, Database	1102 Second Street, Eureka CA 95501	707-445-7741	Database open by advance appointment only on Thursday afternoons 1PM to 5PM (excluding holidays) Fee for access is $50/hr; copies by arrangement
USACE-SPN-EK	US Army Corps of Engineers, Eureka Field Office, Staffed by David Ammerman and Kelly Reid	601 Startare Drive, (Woodley Island) Eureka, CA; P.O. Box 4863, Eureka, CA 95502	707-443-0855	By advance appointment during working hours.
HBHRCD	Humboldt Bay Harbor Recreation and Conservation District, David Hull, Executive Director; Jeff Robinson, GIS-Conservation Specialist	601 Startare Drive, (Woodley Island) Eureka, CA P.O. Box 1030, Eureka, CA 95502-1030	707-443-0801 FAX: 707-443-0800 dhull@portofhumboldtbay.org jrobinson@portofhumboldtbay.org	Preparing Humboldt Bay Master Plan employing new Humboldt Bay GIS co-sponser with Federal and state agencies (See Appendix D.2)
NOAA/NOS	Jerry Wheaton, Monterey, CA			Preparing digital file for updated Humboldt Bay Chart No. 18622
HB-GIS	Humboldt Bay GIS		www.humboldtbay.org	
TeraMar	TeraMar; Jim Nichols		209-754-3536	Conducted 1997 aerial photo flight for Humboldt Bay under OSPER, oil spill response; photo base for Humboldt Bay GIS 1997 image
Radman	Radman Aerials			Conducted 2000 aerial photo flight for Humboldt Bay GIS under contract to CDFG,
	Chuck Nelson, Director GIS Systems, Chico State University		530-898-5969	Geo-registered 2000 aerial photo flight that is photo base for Humboldt Bay GIS

Abbreviation	Name	Address	Phone/FAX/email	Notes
CDFG	Jim Nelson, California Department of Fish and Game, Northern California Resources	North Coast Region Information Services Branch, 601 Locust Street, Redding CA. 96001	530-225-2315 FAX: 530-225-2381 JRNelson@dfg.ca.gov	
CDFG-Eureka	Karen Kovacs; Linda Miller, GIS Specialist; California Department of Fish and Game	619 Second Street Eureka, CA 95501	707-445-6664 FAX: 707-445-6664 KKovacs@dfg.ca.gov lmiller@dfg.ca.gov 707-441-2091	
WAC	WAC Corporation	520 Conger Street, Eugene, OR 97402-2795	1-800-845-8088 or 541-342-5169 FAX: 503-485-1258	Conducted black and white 2000 aerial survey of entire Humboldt County
USFWS	Greg Goldsmith, GIS Specialist	1655 Heindon Rd, Arcata, CA 95521	707-822-7201 Greg_Goldsmith@FWS.GOV	
Federal Archives	Federal Archives and Record Center	1000 Commodore Drive, San Bruno, CA 94066		
	Orville Magoon	Guenoc Winery Middleton, CA		Involved in the design and implementation of the present day jetty structures

REPORT DOCUMENTATION PAGE

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6. AUTHOR(S)
Steven L. Costa, Karen A. Glatzel

5d. PROJECT NUMBER

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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
GDC
P.O. Box 1238
Trinidad, CA 95570-1238;

U.S. Army Engineer Research and Development Center
Coastal and Hydraulics Laboratory
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

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13. SUPPLEMENTARY NOTES

14. ABSTRACT

This data review for Humboldt Bay, CA, was conducted by GDC, LLC, Trinidad, CA, for the U.S. Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL), Vicksburg, MS. The report was prepared by Dr. Steven L. Costa and Dr. Karen A. Glatzel, GDC, under the general direction of Dr. Adele Militello, Coastal Hydrodynamics Branch (CHB), CHL. Work was performed under the Inlet Modeling System (IMS) Work Unit of the Coastal Inlets Research Program (CIRP), Headquarters, U.S. Army Corps of Engineers (HQUSACE).

CHL is conducting a study of the entrance to Humboldt Bay, CA, as a part of CIRP. This data review provides a supplementary inventory and review of available data to support the study. The data review includes historical and recent physical processes and engineering data describing Humboldt Bay and the adjacent littoral cell. The focus is on data and data sources related to physical oceanography (tides, wind, waves, currents, hydrographic structure, bathymetry), coastal processes, tidal inlet and beach dynamics, sand supply and budgets, structural modifications controlling the inlet, and dredging.

(Continued)

15. SUBJECT TERMS

Aerial photography	Coastal processes	Inlet evolution	Structural modifications
Bathymetry	Currents	Physical oceanography	Tides
Humboldt Bay	Dredging	Physical processes	Winds
California	Inlet dynamics	Sediment budget	Waves

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER *(include area code)*
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14. ABSTRACT (Concluded)

The purpose of the data review, in support of the inlet study of Humboldt Bay, is to locate, identify, and catalog as large a portion of the available data as practicable. The intent is to identify a database that will provide substantial information and knowledge needed to facilitate a successful and complete study of the inlet. Historic data and data sources are needed for the evaluation of the evolution of the inlet and anthropogenic influences during the past 150 years. Recent physical processes data, and data sources, are also needed for framing and simulating the existing physical dynamic attributes of the inlet. Only when both the past evolution and the existing properties of the inlet are understood, can possible approaches to improvements be investigated and identified.