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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.: **CD-0005-18**

Federal Agency: **U.S. Army Corps of Engineers**

Location: Federal Navigation Channels in Humboldt Bay and the Humboldt Open Ocean Disposal Site (HOODS), Humboldt County (**Exhibits 1 and 2**)

Project Description: 2019 Maintenance dredging of the Humboldt Bar and Entrance Channel, North Bay and Samoa Interior Channels and Turning Basins, and disposal of dredged sediments at HOODS.

Staff Recommendation: Concurrence

SUMMARY OF STAFF RECOMMENDATION

The U.S. Army Corps of Engineers has submitted a consistency determination for 2019 maintenance dredging of the federal navigation channels at Humboldt Bay and Harbor and disposal of clean dredged sediments at the Humboldt Open Ocean Disposal Site (HOODS). Up to 2.0 million cubic yards of sediment is proposed to be dredged from the Bar and Entrance Channel and the North Bay and Samoa interior channels and turning basins between April 1 and October 15, 2019.

Proposed maintenance dredging of the existing navigation channels in Humboldt Bay is an allowable use under Coastal Act Section 30233(a)(2). There are no feasible alternatives to the dredging of the Humboldt Bay navigation channels, which is required to maintain safe entry to and exit from the bay. The dredged materials are physically and chemically suitable for placement at HOODS, in the nearshore zone, or on area beaches. The Corps examined several alternative disposal sites to HOODS and determined them currently infeasible. However, when sand is dredged from the Bar and Entrance Channel and disposed in deep water at HOODS, it is removed from the Eureka littoral system and no longer able to replenish area beaches. The Commission found in its concurrences with 2017 and 2018 Humboldt Bay maintenance dredging by the Corps (CD-0002-17 and CD-0005-17) that there is a level of uncertainty that must be addressed regarding the significance of erosion on the North Spit arising from placement of dredged sediments outside the littoral cell at HOODS.

In response to this uncertainty, the Corps conducted an evaluation of the criteria used to establish whether observed erosion on the North Spit is “excessive” and a cause for concern. The evaluation was completed in the spring of 2018. As a result, the subject consistency determination includes a commitment by the Corps that the next Humboldt Shoreline Monitoring Program update will use a newly recommended excessive shoreline retreat criteria based on the 1948-1972 shoreline change rate rather than the currently-used 1974-1990 rate. This revised baseline is expected to more accurately determine whether excessive shoreline retreat is persisting along the North Spit, which could potentially lead to future disposal alternatives to reduce the amount of dredged material disposed outside the Eureka littoral zone. Conservation and mitigation measures are incorporated into the 2019 project where necessary to protect coastal resources from adverse effects arising from dredging and disposal activities. With these measures, and with the shoreline erosion analysis commitments made by the Corps, the staff recommends that the Commission find the proposed maintenance dredging project consistent with the allowable use, alternatives, and mitigation tests contained in the dredge, fill, and sand supply policies of Coastal Act Sections 30233(a) and (b).

Dredging and disposal of sediments would generally lead to temporary, localized, and minor adverse effects on marine resources and water quality, primarily due to the short-term nature of the project and the clean sandy composition of the dredged materials. Dredging controls and water quality protection measures will be implemented to minimize and avoid to the extent feasible adverse effects on marine resources and water quality. However, the issue of entrainment of fish species, in particular the state-listed threatened longfin smelt and salmonids, during dredging operations has been an issue of concern to the Commission in connection with the last several annual dredging operations in Humboldt Bay. The Commission found in concurring with previous consistency determinations for Humboldt Bay maintenance dredging (CD-0002-17 and CD-0005-17) that additional quantitative biological information was needed on this topic. To that end, CD-0005-17 included a commitment by the Corps to develop, by the end of 2018, and in cooperation with the National Marine Fisheries Service, California Department of Fish and Wildlife, and Commission staff, a surveying and monitoring plan to determine the extent of entrainment of prey fishery species by Corps dredging operations in Humboldt Bay. The Corps also committed to implementing the plan during the 2019 maintenance dredging project.

In September 2018 the Corps submitted its draft Fish Surveying and Monitoring Plan (FSMP) to Commission, CDFW, and NMFS staff. The draft plan included sections on purpose and objectives, interagency coordination, existing data on longfin smelt in Humboldt Bay, potential species surveying and monitoring approaches, related hopper dredge entrainment risk assessments, potential hypotheses to examine regarding fish species entrainment and the degree of impact on species populations, and scope of work and budget for implementing the FSMP in 2019. The final FSMP will be submitted to agency staffs prior to the start of 2019 maintenance dredging. Given that the FSMP will be implemented during the 2019 maintenance dredging project, and that marine resource and water quality protection measures are incorporated into the project, the staff recommends that the Commission find the proposed project consistent with the marine resource and water quality policies of the Coastal Act (Sections 30230, 30231, and 30232).

Impacts to commercial and recreational fishing and boating from the project will be temporary in nature, limited to the area immediately adjacent to the dredge vessel, and similar to previous annual maintenance dredging in Humboldt Bay. In addition, by removing shoaled areas and returning channels to their design depths, the proposed maintenance dredging would improve navigation safety for all vessels entering and exiting Humboldt Bay. The staff recommends that the Commission find the project consistent with the commercial and recreational fishing and public access and recreation policies of the Coastal Act (Sections 30234.5, 30210, 30211, and 30220). Maintenance dredging is unlikely to adversely affect archaeological and cultural resources. The project includes provisions for suspension of dredging and consultation with the State Historic Preservation Office should previously undiscovered cultural resources be uncovered during maintenance dredging of the navigation channels. The staff recommends that the Commission find the project consistent with the cultural resource policy of the Coastal Act (Section 30244).

The staff recommends that the Commission **concur** with the Corps of Engineers' consistency determination CD-0005-18. The motion and resolution are on Page 5 of this report. The standard of review for this consistency determination is the Chapter 3 policies of the Coastal Act.

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EXHIBITS

- Exhibit 1 – Regional Map
- Exhibit 2 – Project Location Map
- Exhibit 3 – HOODS Site Plan
- Exhibit 4 – HOODS Current Placement Site Plan
- Exhibit 5 – Shoreline Monitoring Stations
- Exhibit 6 – Predicted 2015 Upper Beach Reference Line Based on the Shoreline Retreat Criterion

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The Corps of Engineers has determined the project is consistent with the California Coastal Management Program.

II. MOTION AND RESOLUTION

Motion:

I move that the Commission concur with consistency determination CD-0005-18.

Staff recommends a **YES** vote on the motion. Passage of this motion will result in a concurrence in the determination of consistency and adoption of the following resolution and findings. An affirmative vote by a majority of the Commissioners present is required to pass the motion.

Resolution:

The Commission hereby concurs with consistency determination CD-0005-18 by the Corps of Engineers on the grounds that the project is fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program.

III. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

The Corps proposes to undertake 2019 maintenance dredging of the federal navigation channels in Humboldt Bay and Harbor and dispose the dredged materials at the permanently designated Humboldt Open Ocean Disposal Site (HOODS) located approximately 3.1 miles northwest of the harbor entrance channel in water depths ranging between 160 to 180 feet (**Exhibits 1 and 2**). A maximum of 2.0 million cubic yards of sediment would be dredged from the Bar and Entrance Channel and the North Bay and Samoa channels and turning basins between April 1 and October 15, 2019. The average annual volume of sediment actually dredged from these channels in the 2006-2018 time period is approximately 1.0 million cubic yards. This is due in part to the fact that the Corps does not generally dredge all of these channels as part of its annual dredging; this could be the case again this year. The Corps reports that its highest priority is to dredge the Bar and Entrance Channel in order to remove sediment that has accumulated over the winter and spring at these locations, resulting in dangerous navigation hazards to vessels entering and leaving Humboldt Bay.

The project *Final Environmental Analysis (March 2017)* states that maintenance dredging of Humboldt Bay has occurred since 1881 when the interior channels were constructed to provide safe navigation within the bay. To stabilize the entrance to Humboldt Bay, twin jetties north and south of the Bar and Entrance Channel were constructed between 1889 and 1900. Throughout the 20th century, the Corps constructed periodic improvements and repairs to the navigation channels and the entrance jetties in order to provide safe navigation for ocean-going vessels and

smaller commercial and recreational vessels. In addition, Humboldt Bay is also a harbor of refuge with a U.S. Coast Guard station (located on the bay side of the North Spit), which requires a year-round safe navigation route between the station and the ocean.

The consistency determination describes the proposed 2019 dredging and disposal operations. For the Bar and Entrance Channel, the Corps states that:

Annual maintenance dredging of the Bar and Entrance Channel is performed by the USACE's hopper dredge, the Essayons, or a contracted hopper dredge with similar specifications. In 2019, an Essayons-class contracted hopper dredge will dredge the Bar and Entrance Channel. To maintain the congressionally-authorized depth of 48 feet MLLW, up to 2,400,000 cubic yards can be dredged from this channel annually. The sediments of the Bar and Entrance Channel are primarily composed of sand; the latest analytical results revealed that the sediment composition was 0-4 percent gravel, 86-97 percent sand, 1.1-10 percent silt, and 1.0-3.8 percent clay (Kinnetic, 2016).

For the North Bay and Samoa interior channels and turning basins the Corps states that:

Annual maintenance dredging of the North Bay, Eureka, Samoa, and Fields Landing Channels is conducted by the USACE's hopper dredges, the Yaquina or the Essayons, or a contracted hopper dredge with similar specifications. In 2019, the Yaquina is scheduled to dredge the North Bay and Samoa Channels starting as early as April 1. To maintain the Congressionally-authorized depths of 26 to 38 feet MLLW of the Interior Channels, up to 800,000 cubic yards of sand and sandy-silt material are dredged annually (Table 2). Generally, the Interior Channels require longer pumping times than the Bar and Entrance. This is primarily because of the increased sandy-silts, silts, and fines that comprise the sediments of the Interior Channels.

Disposal operations at HOODS are described as follows:

The HOODS occupies an area of approximately three square kilometers with depths ranging from 160 to 180 feet. It is divided into four quadrants (Quads), each containing nine cells. The placement of dredged material from Humboldt Bay navigation channels involves alternating the placement within the various cells, while preventing excessive mounding. Annual bathymetry surveys allow for USACE, in consultation with the United States Environmental Protection Agency (USEPA), to determine where mounding occurs and limit placement of dredged material within mounding cells.

Historically, in order to form a buffer zone, sediment was not placed in the 20 perimeter cells of HOODS (Figure 3)[Exhibit 3]. Figure 3 presents an illustration of the typical placement quads. However, starting in May 2015, only certain disposal cells within the overall HOODS site may be used for disposal (especially for sand) due to mounding of previously-disposed materials. Currently, all disposal

must take place over the northwest and northeast slopes of the existing mound. Figure 4 [Exhibit 4] shows the new, more restrictive placement requirements since May 2015, including portions of some buffer cells.

In addition, USEPA is considering proposing to expand HOODS in the future. Should this occur, a new placement routine will be established. The USACE anticipates that the current placement constraints will remain in effect until HOODS is expanded.

The Corps concludes with a description of dredging episodes and cycles:

Historically, it has taken from 20 to 30 days to dredge the Bar and Entrance and North Bay Channels, and another 2 to 5 days for the Samoa Channel during a 30- to 35-day dredging cycle. Depending on the volume of material shoaled in each channel, it can take up to 9 weeks to complete a full dredging episode (including mob and demob).

The Corps will undertake maintenance dredging at Humboldt Bay between April 1 and Oct 15, 2019 due to shoaling that annually builds up in the Bar and Entrance Channel (and to a lesser degree in the interior channels) during the winter and spring and the need to maintain safe navigation for Coast Guard, commercial, and recreational vessels.

B. PRIOR HUMBOLDT BAY DREDGING APPROVED BY THE COASTAL COMMISSION

The Coastal Commission and its Executive Director have concurred with 21 consistency determinations and 20 negative determinations submitted by the Corps of Engineers since 1985 for maintenance dredging of federal navigation channels at Humboldt Bay. These concurrences were for determinations that also included disposal of clean sandy dredged sediments at several disposal locations in the Pacific Ocean. Prior to 1988 dredged sediment was placed in nearshore waters off the South Jetty at SF-3, but disposal at this location was discontinued due to the navigation hazard that developed at the site. In 1988 and 1989 material was placed at a nearshore disposal site off the South Spit; this was also discontinued due to concerns over impacts to navigation and fisheries. Since 1990 dredged sediments are placed at HOODS, approximately three miles northwest of the bar and entrance channel, in water depths ranging between 160 and 180 feet, and outside the Eureka littoral zone. In 1995 the Commission concurred with CD-072-95 from the U.S. Environmental Protection Agency for the permanent designation of HOODS as a Section 102 disposal site under the provisions of the federal Marine Protection, Research and Sanctuary Act.

The *Environmental Analysis (March 2017)* and the subsequent 2017 and 2018 dredge volumes provide the following summary of dredging volumes at Humboldt Bay:

Recent Dredging Volumes: Humboldt Harbor

Fiscal Year	Bar and Entrance Channel (CY)	Interior Channels (CY)	Total Volume (CY)
2006	978,274	197,310	1,175,584
2007	1,101,125	173,697	1,274,822
2008	1,094,392	217,266	1,311,658
2009	955,224	107,512	1,062,737
2010	553,278	--	553,278
2011	1,165,398	154,881	1,320,279
2012	1,182,620	--	1,182,620
2013	610,956	--	610,956
2014	432,490	--	432,490
2015	715,296	--	715,296
2016	1,609,682	--	1,609,682
2017	1,120,000	--	1,120,000
2018	500,000	--	500,000
Annual Average	924,518	170,133 (based on 5 yrs)	989,954

The Corps states that in 2019 it will maintenance dredge the Bar and Entrance Channel, and the North Bay and Samoa interior channels and turning basins.

In April 2016 the Commission's Executive Director concurred with negative determination ND-0007-16 submitted by the Corps for the 2016 maintenance dredging project at Humboldt Bay. That concurrence included: (a) an examination of shoreline erosion along the North Spit potentially arising from the removal of dredged sand from the littoral cell and deposition at HOODS; (b) the need to revisit the 1995 "excessive shoreline retreat criterion" (a methodology agreed to by the Corps and the Commission and used to determine if shoreline change measured in a given year has exceeded a pre-established criteria for excessive shoreline retreat in the measured area); and (c) ongoing concerns about whether maintenance dredging is entraining the State-listed long fin smelt. The concurrence concluded that, given the potential significance of these issues, the 2017 maintenance dredging project would need to be reviewed by the Commission through submittal of a consistency determination by the Corps. To that end, the Corps submitted and the Commission concurred in June 2017 with CD-0002-17 for 2017 maintenance dredging at Humboldt Bay. Given that the Corps' separate studies of shoreline erosion and entrainment issues at Humboldt Bay were yet to be completed, the Corps submitted another single-year consistency determination for 2018 maintenance dredging (CD-0005-17), rather than a negative determination or a multi-year consistency determination. A multi-year review option could be considered once erosion and entrainment studies are completed, potential effects on coastal resources are better understood, and any necessary project modifications and/or mitigation measures are incorporated into the maintenance dredging program. While significant progress has been made on the shoreline erosion and entrainment studies, they are not yet complete and the Corps has again submitted a consistency determination solely for the 2019 maintenance dredging program.

C. OTHER GOVERNMENTAL APPROVALS AND CONSULTATIONS

NATIONAL MARINE FISHERIES SERVICE

The Corps received in April 2016 the NMFS Biological Opinion and Essential Fish Habitat Response for Humboldt Harbor and Bay Maintenance Dredging Operations for the 2016-2020 time period. Recommendations and conservation measures put forth by the NMFS will be adhered to by the Corps in an effort to minimize any potential impacts to listed species.

U.S. FISH AND WILDLIFE SERVICE

In September 2017 the Corps entered into informal consultation with the USFWS for Humboldt Harbor and Bay Maintenance Dredging Operations for the 2017-2020 time period. In October 2017 the Corps received concurrence that the proposed project may affect, but is not likely to adversely affect listed species.

U. S. ENVIRONMENTAL PROTECTION AGENCY

The Corps will incorporate and adhere to restrictions relating to critical areas on the use of EPA's designated Humboldt Open Ocean Disposal Site (HOODS) pursuant to Section 102(c) of the Marine Protection, Research and Sanctuaries Act.

CALIFORNIA STATE HISTORIC PRESERVATION OFFICE

The Corps will consult with the SHPO if previously unknown cultural or archaeological resources are encountered within the project area.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The Corps has consulted with the Department regarding potential project impacts on State fish and wildlife resources. Notwithstanding the Department's support of timely maintenance of Humboldt Bay navigation channels, differences remain between the Corps and the Department on project timing and impacts on salmonids and longfin smelt, and consultation remains ongoing.

D. DREDGING AND PLACEMENT OF FILL IN COASTAL WATERS

Section 30233(a) of the Coastal Act states:

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

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

and boat launching ramps.

- (3) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (4) *Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (5) *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (6) *Restoration purposes.*
- (7) *Nature study, aquaculture, or similar resource dependent activities.*

Section 30233(b) of the Coastal Act states:

Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

The proposed project involves dredging and filling within coastal waters and therefore triggers the three-part test of Section 30233(a): (1) the project must be one of the seven enumerated allowable uses; (2) the project must be the least environmentally damaging feasible alternative; and (3) the project must include feasible mitigation measures to minimize adverse environmental impacts. Regarding the first test, the maintenance dredging of the existing navigation channels in Humboldt Bay is an allowable use under Section 30233(a)(2).

Regarding the second test, there is no feasible alternative to the proposed dredging of the Humboldt Bay navigation channels. Without annual maintenance dredging of the Bar and Entrance Channel, safe entry to and exit from the bay would be jeopardized and the channels would eventually be impassable. Without periodic dredging of the inner harbor channels, vessel navigation in these areas would be constricted over time.

However, the Corps does acknowledge that there are potential alternatives for placement of sediments dredged from these navigation channels: Humboldt Open Ocean Disposal Site (HOODS), the beaches on the North and South Spits, and nearshore ocean waters off both spits. HOODS is an EPA-approved ocean disposal site and has been used by the Corps since 1990 for placement of clean dredged sediments from Humboldt Bay. The Corps proposes to place the 2019 dredged sediments at HOODS, finding that this site remains the least environmentally damaging feasible alternative for disposal of the clean, sandy sediments.

To support this finding, the Corps first examined the physical and chemical sediment testing results for the proposed dredged areas to determine if the project sediments are suitable for open ocean disposal. The *Humboldt Harbor and Bay O&M Dredging Grain Size Verification and Tier III Evaluation Sampling and Analysis Results (April 2016)* describes the current sediment testing schedule for Humboldt Bay:

A testing schedule for Humboldt Bay was developed by the USACE, USEPA, North Coast Regional Water Quality Control Board (NCRWQCB), and California Coastal Commission (CCC) in 1996. According to that schedule, physical testing only is conducted every five years for those channels that have historically contained sediments consisting predominantly of sand to confirm that the sand and gravel content is greater than 80%. Full Tier III testing is conducted on the remaining channels every ten years. Both the confirmatory physical testing and full Tier III testing were conducted for this 2015 sampling and testing episode.

The 2016 sediment grain size test results for the Bar and Entrance Channel, North Bay Channel, and portions of the Samoa Channel documented that, as in previous testing episodes, the sand and gravel content from these channels is greater than 80 percent. As such, these sediments are suitable for placement at HOODS and are exempt from Tier II and III testing. Tier III testing of the finer-grain sediments from the interior navigation channels found that these sediments are also suitable for unconfined aquatic placement, as there was no appreciable benthic toxicity to amphipods and polychaete worms, and water quality test objectives were achieved. The sediments to be dredged during the 2019 maintenance dredging project are covered by the 2016 sediment testing results and no additional testing is required.

Next, the Corps examined the feasibility of the potential disposal sites. The project *Environmental Assessment (March 2017)* reviews the history and use of HOODS:

The site designation became effective on October 30, 1995 for a period of 50 years. Pursuant to § 228.5(a) of the MPRSA regulations, HOODS was designated as an open-ocean placement site because it is located in deep water away from productive fishery areas and in an area that was already being used for sediment placement from the annual maintenance dredging of Humboldt Bay. The placement of dredged material from Humboldt Bay navigation channels involves alternating the placement within the various cells, while preventing excessive mounding. Annual bathymetry surveys allow for USACE, in consultation with the EPA, to determine where mounding occurs and limit placement of dredged material within mounding cells.

As noted previously in this report, HOODS has been in use since 1990. However, starting in May 2015, only certain disposal cells within the overall HOODS site may be used for disposal (especially for sand) due to mounding of previously-disposed materials. Currently, all disposal must take place over the northwest and northeast slopes of the existing mound. The USACE anticipates that the current placement constraints will remain in effect until HOODS is expanded.

In addition to HOODS, the Corps examined several other alternative disposal sites (**Exhibit 2**) in the *Environmental Assessment*:

- Disposal at a nearshore placement site was eliminated from further analysis because there currently is not an EPA-designated nearshore placement site in the region. This alternative will be reconsidered if a nearshore site is designated in the future.
- Disposal at a beneficial upland reuse site or area beaches was eliminated from further analysis because Corps dredges currently do not have the capability to pump dredged material to upland or beach sites. However, if Corps dredges are retrofitted with “direct pump-off” equipment in the future, reuse and beach sites could become a feasible placement alternative.
- The SF-3 Ocean Disposal Site was used as a placement site for Humboldt Bay dredged materials beginning in the 1940s. However, the average water depth at the site decreased to approximately 40 ft MLLW and became susceptible to navigation hazards for commercial fishing and recreational boats because of breaking waves in the area. Because of the mounding of dredged material at SF-3 and ongoing concerns about the navigational safety at the site, SF-3 is not a feasible alternative.
- The Nearshore Disposal Site (NDS) located off the South Spit was used by the Corps in 1988 and 1989 for placement of sand from the Bar and Entrance Channel and North Bay channels. The intent of placing sand at the NDS was to alleviate the navigation problems associated with SF-3 and to keep the material in the littoral cell. However, concerns were raised regarding navigational hazards and impacts to commercial fisheries arising from sediment placement at the NDS. This site is not a feasible alternative.

At a May 2, 2017, multi-agency meeting to discuss the proposed project, EPA confirmed that the agency cannot allow HOODS to become any shallower, due to navigation risks, that disposal at the site will be actively managed to avoid additional mounding, that planning is underway to expand the footprint of the site one mile to the north and one mile to the west, and that the HOODS expansion plan would also include designating a nearshore disposal demonstration site. Should this latter element be successful, it could provide a feasible alternative to disposal of sand at HOODS and the retention of sand in the littoral system.

When sand is dredged from the Bar and Entrance Channel and disposed in deep water at HOODS, it is removed from the Eureka littoral system and no longer able to replenish area beaches. The primary source of sand for this coastal region is the Eel River, whose mouth is seven miles south of the entrance to Humboldt Bay. While sand transport direction in the Eureka littoral system varies, when sand from the Eel River does move in a south-to-north direction and meets the two harbor jetties, sand accumulates in the Bar and Entrance Channel and along the South Spit, leaving the North Spit to receive less sand than it would if the jetties did not exist.

The Corps has long acknowledged that disposal at HOODS could affect the Humboldt shoreline and that shoreline monitoring would be necessary to gauge potential impacts from sediment

disposal at HOODS. The subject consistency determination addresses this issue and cites the Commission's concurrence with the 1995 permanent designation of HOODS (CD-072-95, EPA):

In further compliance with Section 30233 (b), as part of the Consistency Determination issued by the CCC for Section 102 designation of HOODS (CD-72-95), USACE agreed to monitor the Humboldt shoreline under the Humboldt Shoreline Monitoring Program (HSMP) to monitor the effects (erosion or accretion) of removing sandy material from the littoral cell and placing it at the HOODS. The HSMP is located within the Eureka Cell and extends approximately seven miles south of the South Jetty and seven miles north of the North Jetty. Monitoring includes aerial flyover photography of the shoreline and subsequent analysis of the photographs. In order to ensure consistency, all analyses of monitoring data have utilized the same reference stations and baselines, which were established as part of the original HSMP shoreline mapping analysis (Moffatt and Nichol Engineers, 1991). There were seven reference stations for the South Spit, nine reference stations for the North Spit, and separate baselines for each spit (Figure 5)[Exhibit 5].

At the same time, the Corps and the Commission entered into a Memorandum of Understanding in 1995 regarding the potential loss of sand from the Eureka littoral cell and the resulting effect on beach width and shoreline retreat. The MOU stated in part that:

. . . the Corps and the Commission have established a criteria for determining critical erosion of the shoreline . . . [and] that criteria are any shoreline position, as measured by aerial photography by zoom transfer scope on predetermined transects, described in Moffat & Nichol 1991, up to 6 miles north and 6 miles south of the Humboldt Jetties, which has moved more than 120 feet landward of the corresponding extrapolated trend line, Moffat & Nichol 1991.

The subject consistency determination reviewed the shoreline monitoring efforts undertaken since 1990. The Corps-funded monitoring of the Humboldt shoreline began in the fall of 1990 and recurred in the fall of 1992, 1995, 1998, 2001, 2005, 2011, and 2015. Analyses using 2005, 2011, and 2015 data were completed in 2007, 2014 and 2016, respectively, using the same methodology. The Corps summarized the 2011 and 2015 surveys as follows:

Results from the 2011 HSMP overflights suggested a general trend of shoreward movement (erosion) of the upper beach reference line for the North Spit, with more variability in the movement of the upper beach reference line for the South Spit. At that time, there appeared to be a trend of seaward movement (accretion) of the upper beach reference line along southern reference stations 5S and 6S of the South Spit, with a no apparent trend for the other sections of the South Spit (USACE, 2014).

The results of the 2015 HSMP overflights show that the trend of shoreward movement of the upper beach reference line and erosion has reversed for the North Spit from 2011 to 2015[Exhibit 6]. The upper beach reference line also

experienced considerable seaward movement (accretion) throughout the South Spit from 2011 to 2015. There are a number of factors (e.g., variability in sediment supply and wave climate) that could account for this short-term period of beach growth, but an investigation of the causes of this growth is beyond the scope of the analysis.

The subject consistency determination further states that:

The Memorandum of Understanding between the CCC and USACE stated that the results of the [shoreline] surveys would be compared against an erosion criterion based on the historic trends analysis (as presented in the Shoreline Mapping, Pacific Coast Near Entrance to Humboldt Bay, California, Moffat & Nichol for USACE, August 1, 1991). The objectives of the Humboldt shoreline monitoring program are to (1) monitor the surrounding shoreline for excessive shoreline retreat, (2) determine the cause of any excessive shoreline retreat, and (3) recommend corrective action should sediment disposal at HOODS be the cause. Objectives (2) and (3) are only initiated if the survey results identify excessive shoreline retreat. Since the 2015 survey results fall within the acceptable limits established by the excessive shoreline retreat criterion, no work has been done to date to identify the cause(s) of erosion of the North Spit. Therefore, no immediate corrective action is recommended at this time. The 2016 and 2014 updates of the Humboldt Shoreline Monitoring Data Analysis, completed in March 2016 and February 2014 respectively, are included with this CD in Appendix E.

...

At present, no conclusive connection between USACE's dredging and subsequent placement activities at HOODS and shoreline erosion has been identified, nor has the criteria been exceeded. Despite this, USACE continues to put forth its best effort to monitor the shoreline according to the MOU. Moreover, USACE has requested funds to investigate and complete the coordination and environmental compliance effort required to establish a nearshore dredged material beneficial reuse demonstration project within the area perceived to be experiencing shoreline erosion.

However, notwithstanding the above conclusion by the Corps that the survey results fall within the acceptable limits established by the excessive shoreline retreat criterion, as described above, both the 2014 and 2016 survey results cited above also ask if the acceptable limits established by the existing excessive shoreline retreat criterion will remain applicable as shoreline retreat progresses over time. The 2014 report states that:

*For example, the upper beach reference line would have needed to retreat an additional 437 feet at reference station 1N to exceed the criterion (Figure 3). This additional 437 feet of retreat would put the upper beach reference line well into the vegetated dune backing the beach, and raises the question of whether this is actually an acceptable amount of shoreline retreat. **Therefore, it is recommended***

that the Corps and CCC revisit the excessive shoreline retreat criterion before the next monitoring analysis, particularly along the North Spit. [emphasis added]

The 2016 report similarly states that:

*For example, the upper beach reference line would have needed to retreat an additional 634 feet at reference station 1N to exceed the criterion in 2015 (Figure 6). This additional 634 feet of retreat would put the upper beach reference line well into the vegetated dune backing the beach, and raises the question of whether this is actually an acceptable amount of shoreline retreat. **Therefore, it is recommended that the Corps and CCC revisit the excessive shoreline retreat criterion before the next monitoring analysis, particularly along the North Spit.*** [emphasis added]

Regarding this topic, the Corps received comments in 2017 on the project *Environmental Analysis* from the California Department of Fish and Wildlife and the Sediment Working Group of the Humboldt Bay Initiative. While the Department stated that it "supports the timely maintenance of navigation channels in order to enhance safety for the boating public," it also noted that it "remains concerned the [2017 maintenance dredging] Project will have potentially significant impacts on sediment retention in the Eureka Littoral Zone." The Working Group stated that while it supports navigational safety through dredging and had no objection to the 2017 maintenance dredging project, it also had significant concerns regarding continued disposal of dredged sands at HOODS. In summary, the Working Group stated that:

. . . the Corps has failed to adequately justify the use of its excessive erosion criterion as a basis for concluding a lack of significant impacts from dredging and as a rationale for continued use of HOODS, particularly in light of accelerated sea level rise and climate-changed induced extreme events . . . the use of HOODS and continued removal of sediment (primarily sand) from the littoral cell poses a significant risk to the local shoreline.

This topic was discussed at the May 2, 2017, interagency meeting, in particular the justification of the baseline condition to evaluate shoreline erosion and the efforts that would be needed to re-evaluate the excessive shoreline retreat criteria, as recommended in the 2014 and 2016 monitoring reports. As a result, the Corps committed to work with staff from the Commission, NOAA Fisheries, and the California Department of Fish and Wildlife to re-evaluate the "excessive shoreline retreat criteria," with a goal of completing that work such that the results would be an element of the Corps' consistency determination for the 2018 Humboldt Bay maintenance dredging project.

Staff from the Corps and the Commission conducted teleconferences on June 21 and August 2, 2017, to discuss the re-evaluation of the excessive shoreline retreat criteria. In the subject consistency determination the Corps reports on the progress made to date and the anticipated schedule for completion of the re-evaluation:

1. *The initial task included background research, compilation of relevant reports and datasets, and coordination with representatives from the CCC and USEPA.*
2. *The next task will involve utilizing contour-based shoreline positions from 1992 to 2016 to determine shoreline change rates along pre-selected transects, as discussed with CCC, EPA, and USACE staff on August 2, 2017. It is anticipated that the analysis will be completed using the USGS Digital Shoreline Analysis System. The shoreline change rates from 1992 to 2016 will then be compared against previously determined rates from 1948 to 1990 to determine if there has been a substantial change in shoreline response following the designation of HOODS (in 1990).*
3. *The report will include sections describing (a) background, (b) data, (c) methods, (d) results, and (e) conclusions and recommendations. The report will include recommendations regarding if any changes to the excessive shoreline retreat criteria (established using data from 1974 to 1990) are necessary. At least one figure showing past shoreline change (1948 to 2016) will be prepared to provide context for the findings regarding changes in shoreline response over the time period.*
4. *Response to reviewer comments and final revisions to the report are scheduled for the first 2 weeks in November [2017].*

The Corps committed to provide the Commission staff with the final written report on the re-evaluation of the excessive shoreline retreat criteria. While the Corps submitted its consistency determination for 2018 maintenance dredging (CD-0005-17) prior to the completion of the shoreline erosion study, and thus did not meet the time commitment it made to the Commission as a part of CD-0002-17, the Corps expected to complete the study prior to the actual start of 2018 maintenance dredging. Given the long-term nature of this shoreline erosion planning effort, this short-term delay did not raise significant concerns for the Commission in its concurrence with CD-0005-17.

To that end, in March 2018 the Corps submitted to the Commission staff the *Draft Humboldt Shoreline Monitoring Program: Evaluation of Excessive Shoreline Retreat Criteria*. This report concluded that:

The analysis of past and recent shoreline change strongly suggests that increased shoreline change rates from 1974 to 1990 represent a response to the rehabilitation of the Humboldt Harbor jetties in the early 1970s. This rehabilitation fortified the barrier to the vast majority of alongshore sediment transport between the North and South Spits, which resulted in a significant increase in erosion in the North Spit. As a result, the very high erosion rates observed along the North Spit are not representative of natural background conditions, and should not serve as a baseline against which to compare post-HOODS shoreline change.

Given the impacts of jetty rehabilitation on observed shoreline changes from 1974 to 1990, it is recommended that the excessive shoreline retreat criteria should be based on the 1948 to 1974 shoreline rates, as this best represents pre-HOODS baseline conditions. As such, the criteria based on the 1948 to 1974 rates indicates

that there has been excessive shoreline retreat at several reference stations along the North Spit since the designation of HOODS. As a result, it is recommended that USACE evaluate the feasibility of placement of dredged sand on North Spit beaches or in the adjacent nearshore to mitigate for the effects of removal of sand from the littoral zone.

The Commission staff reviewed the March 2018 report and agreed with the Corps' analyses and conclusion that the excessive shoreline retreat criteria should be based on the 1948 to 1974 shoreline rates, rather than the currently used 1974 to 1990 rates. Regarding implementation of its recommendations, the Corps stated that:

. . . the next step is to utilize the recommended (1948 to 1972) shoreline change rate in the next shoreline monitoring update to determine if excessive shoreline retreat has persisted along the North Spit. This update will be completed following the next round of aerial photographic surveys, which we (USACE) typically conduct every two to four years.

If the next monitoring report finds that shoreline retreat rates along the North Spit have continued to exceed the criteria, then USACE should start the process of evaluating the feasibility of placing sand (dredged from the Bar and Entrance Channel) either directly on or just offshore of the North Spit beaches. However, there are likely to be a number of potential technical and programmatic challenges associated with sand placement on the North Spit

In the subject consistency determination the Corps summarized the above conclusions and recommendations and also provided the following update to the Humboldt Shoreline Monitoring Plan:

The USACE San Francisco District has continued to monitor the potential impacts of maintenance dredging activities, including placement of dredged material at HOODS, per the requirements of the Humboldt Shoreline Monitoring Program (HSMP). The primary HSMP monitoring activity involves the ongoing analysis of beach and nearshore topographic data to determine if there has been excessive shoreline retreat along the spits adjacent to the entrance to Humboldt Bay. These analyses are conducted as new topographic data is made available by the USACE Joint Airborne Lidar Technical Center of Expertise (JALBTCX), USGS, and other agencies. The last analysis was conducted in 2017 and utilized topographic data collected in the spring of 2016, following an exceptionally strong El Niño event. The next analysis will be completed when new topographic data becomes available.

In response to concerns from the CCC, USACE also conducted an evaluation of the criteria (e.g., historic erosion rates) used to establish if observed erosion is "excessive" and a cause for concern. This evaluation was completed in the spring of 2018 and recommended that the excessive shoreline retreat criteria should be based on shoreline change rates from the period of time before an extensive jetty rehabilitation project in the 1970s. As a result, the next HSMP update will utilize

the newly recommended excessive shoreline retreat criteria, and USACE will work with the CCC to formulate a course of action if the next analysis indicates excessive shoreline retreat. [emphasis added]

As previously stated in its concurrences with CD-0002-17 and CD-0005-17, the Commission agrees with the Corps that there is now and will continue to be an ongoing need to annually dredge the Bar and Entrance Channel in order to maintain safe navigation for all vessel types entering and existing Humboldt Bay. At the same time, after 25 years of dredged material disposal at HOODS, the absence of a nearshore disposal site that would retain in the littoral system clean dredged sands from Humboldt Bay, the clear need to examine the significance of shoreline erosion on the North Spit, and the effects of sea level rise on shoreline processes and the South and North Spits, the Commission continues to find that simply continuing to authorize dredged material disposal at HOODS is unlikely in the long term to remain consistent with the Coastal Act issues that are raised by these topics. Framed in terms of the standard of review provided by Sections 30233(a) and (b), it is necessary to re-evaluate alternatives in order to be able to ensure that the aspect of the project involving the disposal at HOODS is the least environmentally damaging feasible alternative and that the project as a whole includes feasible mitigation measures to minimize adverse environmental impact.

The Commission acknowledges that the 2019 dredging project and disposal at HOODS is necessary to maintain safe conditions for vessel navigation at Humboldt Bay. The Commission also notes the aforementioned commitments by the Corps that will provide needed information on the significance of shoreline erosion in the area, which could potentially lead to disposal alternatives that will reduce the amount of dredged material disposed outside the Eureka littoral zone. Therefore, the Commission finds that: (1) the 2019 maintenance dredging project will generate dredged materials physically and chemically suitable for placement on beaches or in longshore currents; (2) there remains a level of uncertainty regarding the significance of erosion on the North Spit arising from placement of dredged sediments outside the littoral cell at HOODS; (3) the use of the recommended 1948 to 1972 shoreline change rate (rather than the currently-used 1974-1990 rate) in the next shoreline monitoring update is expected to determine if excessive shoreline retreat has persisted along the North Spit; and (4) for the 2019 project there are no feasible alternative methods or locations for sediment placement. As a result, the Commission finds that the disposal at HOODS of sediments dredged from Humboldt Bay during the 2019 maintenance dredging project remains the least environmentally damaging feasible alternative for the immediate future.

As discussed in the following sections of this report, conservation and mitigation measures are incorporated into the 2019 project where necessary to protect coastal resources from adverse effects arising from dredging and disposal activities. With these measures, and with the shoreline erosion analysis commitments made by the Corps, the Commission finds the proposed maintenance dredging project consistent with the allowable use, alternatives, and mitigation tests contained in the dredge, fill, and sand supply policies of Coastal Act Sections 30233(a) and (b).

E. MARINE RESOURCES AND WATER QUALITY

Section 30230 of the Coastal Act states:

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

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30232 of the Coastal Act states:

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

The project area is located within the federal navigation channels approaching and within Humboldt Bay and in the Pacific Ocean at HOODS, approximately 3.1 miles northwest of the entrance channel. The waters and wetlands of Humboldt Bay provide habitat in the form of roosting, breeding, and foraging grounds for numerous species of birds, mammals, fish, benthos, planktons, and plants.

Proposed maintenance dredging would take place in navigation channels that have been dredged routinely since the 1880s, and dredged material disposal would occur at HOODS which has been used since 1990. The Corps states in its consistency determination that the project would maintain the status quo of the marine environment at and adjacent to the navigation channels and HOODS and that effects on marine resources and water quality would be localized and temporary:

Dredging and placement operations could degrade water quality on a localized and temporary basis but not bay-wide or over the long-term. Dissolved oxygen (DO) levels would be temporarily reduced during overflow; however, reduction in DO would be confined to the immediate area of dredging and would be temporary in nature (persisting for a few minutes to two hours, conservatively). This

potential reduction of DO is not expected to degrade water quality to the extent that aquatic resources would be significantly affected. Ambient conditions are shortly regained following settlement of the suspended sediment.

The consistency determination next states that benthic infauna within the navigation channels are subjected to frequent disturbance, both anthropogenic and natural, including annual dredging, deep-draft shipping activity, and large-scale sediment movement. Increased turbidity may interfere with the respiratory mechanisms of both planktonic and zooplankton communities. Based on the temporary nature and relatively small dredging footprint, as well as the annual nature of the maintenance dredging over the past 125 years, potential effects to benthic species resulting from the maintenance dredging of the Bay's navigation channels and the disposal of dredged material at HOODS, the Corps expects that project impacts would be less than significant.

In addition to potential impacts on water quality from increases in turbidity, the project also holds the potential to affect water quality through the accidental release or spills of petroleum products associated with the dredge or support vessels. The consistency determination states that:

Although petroleum product spills are not expected as part of the proposed maintenance dredging project, USACE realizes that this is a possibility (i.e. Stuyvesant Oil Spill 1999). Any onboard petroleum products would be located within secondary containment and if a petroleum product spill occurs, dredging operations would cease, appropriate agencies would be consulted, and clean-up efforts would begin prior to initiating further dredging operations. Appendix D outlines the Best Management Practices that will be implemented in order to further comply with Section 30232 of this Article.

The best management practices cited above include measures regarding maintenance, inspection, and repair of project equipment, fueling operations, adequate and appropriate supplies of oil and hazardous spill response materials, and spill response and reporting guidelines.

Fish species present in the dredging and disposal areas could also be temporarily disturbed by increased turbidity in the water column. However, many of the fish species are highly mobile and adept in avoiding localized and temporary plumes of sediment. While fish species are sometimes entrained by the dragheads along with the sediment slurry during dredging activities, the Corps reports that many fish species are equipped with sensory apparatus that can detect and avoid dredge dragheads, thereby reducing this potential impact from dredging operations. The Corps has long concluded that based on the localized and temporary nature of both direct (i.e., entrainment) and indirect (i.e., effects resulting from increased turbidity) impacts to fish species, as well as the ability of many fish species to avoid dredging activities, potential effects on fish species resulting from annual maintenance dredging of Humboldt Bay is expected to be less than significant under its annual maintenance dredging program.

Notwithstanding this conclusion made by the Corps, the issue of entrainment of fish species, in particular the state-listed threatened longfin smelt, during dredging operations has been an issue of concern to the Commission over the last several annual dredging operations in Humboldt Bay.

The Executive Director's April 2016 concurrence with ND-0007-16 for the Corps' 2016 maintenance dredging project in Humboldt Bay included the following statements:

- In the three most recent negative determination concurrences, the Commission staff urged the Corps to work proactively to address concerns raised by the California Department of Fish and Wildlife (CDFW) over protection of this species, including the potential need for longfin smelt monitoring and mitigation efforts in Humboldt Bay.
- The Commission staff believes that more information is needed to resolve this difference of opinion over dredging effects to this species in Humboldt Bay. The Commission staff has previously stated that the Corps should conduct further studies, such as trawl studies, to determine the presence or absence of longfin smelt in the time period and location of areas proposed for dredging, particularly since the Corps knows in advance when, where, and how often such dredging is necessary, and has the ability to build these efforts into its planning and budgeting processes.
- The Commission staff has previously informed the Corps that if longfin smelt trawl or comparable studies are not adequately undertaken to refute CDFW's assertion that the species is present in Humboldt Bay and adjacent offshore waters, we will assume that the longfin smelt is present in these areas and expect that future Corps dredging operations avoid or minimize to the extent practicable any adverse effects to longfin smelt. The upcoming consistency determination should address this issue, including the possibility of including trawl or comparable studies as an element of the essential fish habitat monitoring plan.

The Corps incorporated into its 2015, 2016, 2017, and 2018 Humboldt Bay hydraulic dredging projects several measures it uses in its San Francisco Bay dredging operations to minimize entrainment and adverse effects on fisheries, including: (1) lowering the draghead to at least 3 feet from the bottom of the channel prior to turning on the dredging pumps; and (2) keeping the draghead water intake doors closed to the maximum extent practicable. These measures are also included in the proposed 2019 maintenance dredging project. The Corps believes that using other types of dredges (e.g., mechanical dredge) that avoid or minimize entrainment impacts is not safe or appropriate given the wave and tidal conditions in offshore waters and in the Bar and Entrance Channel at Humboldt Bay.

Notwithstanding the above factors and given the ongoing uncertainty surrounding the longfin smelt issue in Humboldt Bay, the Corps agreed (in its negative determination for 2016 maintenance dredging) to the Commission staff's request that the Corps' consistency determination for 2017 Humboldt Bay maintenance dredging operations would include measures to assist in evaluating potential dredging effects on the longfin smelt. The Commission concurred with this consistency determination in June 2017 (CD-0002-17). The primary measure is contained in the April 18, 2016, National Marine Fisheries Service *Final Biological Opinion and Essential Fish Habitat Consultation (BO/EFH)* pertaining to the Corps' 2016 Humboldt Bay maintenance dredging project. The *BO/EFH* states in part that:

In order to avoid, minimize, and/or offset the adverse effects to EFH, NMFS submits the following EFH conservation recommendations:

...

4. The Corps should work with NMFS to develop a surveying and monitoring plan by the end of 2017, using methodology developed for such determinations in other estuaries of the Pacific Northwest, to determine the extent of entrainment of prey species (e.g. Dungeness crab, Northern anchovy, Pacific sardine, Pacific herring) by the Yaquina and Essayons [Corps dredging vessels] in Humboldt Bay, and implement the plan prior to the end of 2018. If the results of the monitoring demonstrate a potential high level of entrainment, the Corps should develop a mitigation plan to minimize and mitigate for the loss of prey species, and work with NMFS to develop a schedule for implementation of the plan prior to 2019 dredging episode.

The Corps informed the Commission staff in its 2016 negative determination submittal that it believed implementation of this conservation measure would (as a byproduct) likely generate useful entrainment data for longfin smelt, and that it was committed to funding and implementing this EFH conservation measure. In its subsequent consistency determination CD-0002-17 for 2017 maintenance dredging, the Corps stated that it “will work with NMFS to implement the conservation recommendations in an effort to minimize any potential impacts to EFH.”

The California Department of Fish and Wildlife re-stated its concerns over Humboldt Bay maintenance dredging impacts on longfin smelt and salmonids in its March 17, 2017, comment letter on the project *Environmental Analysis*:

The Department remains concerned that lethal entrainment of CESA [California Endangered Species Act] listed species and California SSC [species of special concern] may be occurring during Project activities. The EA does not adequately assess the potential for entrainment to these species. For example, entrainment monitoring in San Francisco Bay has shown that ACOE dredging equipment entrains both Longfin Smelt and Chinook Salmon. The impacts associated with this Project with regard to entrainment of listed and vulnerable species are potentially significant.

The Department recommends entrainment monitoring occur during active hydraulic dredging events in Humboldt Bay. Without monitoring, there is no way to tell if minimization measures are successful. In addition, monitoring can help pinpoint areas of the dredge cycle when fish are most vulnerable to entrainment and further refine measures that would minimize take. This data will also help estimate levels of take, and ensure avoidance, minimization and mitigation measures are adequate to protect listed and vulnerable species. Effective and potentially feasible measures to avoid “take” of these fish species should be determined in consultation with CDFW and the appropriate state and federal

permitting agencies. All take of listed species should be fully mitigated, once adequate avoidance and minimizations measures are implemented.

Nevertheless, the Corps continued to stand by its determination that the risk to longfin smelt from maintenance dredging in Humboldt Bay is minimal, particularly in the deeper and more dynamic wave and tidal environment of the Bar and Entrance Channel.

During the May 2, 2017, interagency meeting on the 2017 Humboldt Bay maintenance dredging project, Commission and California DFW staff again articulated concerns over dredging effects on longfin smelt and salmonids, particularly if dredging occurs outside the Department's July 1 - October 15 work window for Humboldt Bay dredging operations. The Corps stated at that meeting that it remained committed to developing the surveying and monitoring plan called for in the April 18, 2016, National Marine Fisheries Service *Final Biological Opinion and Essential Fish Habitat Consultation (BO/EFH)*, and committed in CD-002-17 to working with Commission and DFW staff in developing the plan by the end of 2017.

However, the Corps stated in its consistency determination for 2018 maintenance dredging (CD-0005-17) that:

. . . development of [the surveying and monitoring] plan has been delayed due to a staffing shortage. We intend to have a completed plan to accompany the USACE Consistency Determination submittal for the 2019 Humboldt Harbor and Bay maintenance dredging.

While the Commission was disappointed in this delay, given the Corps' good faith effort to continue to implement the commitment, the Commission did not believe it warranted an objection to the 2018 maintenance dredging project at Humboldt Bay, which is an annual event and necessary to maintain safe navigation at the entrance to Humboldt Bay. The Commission found that dredging and disposal of sediments would generally lead to temporary, localized, and minor adverse effects on marine resources and water quality, primarily due to the short-term nature of the project and the clean sandy composition of the dredged materials. The Commission noted that dredging controls and water quality protection measures would be implemented to minimize and avoid to the extent feasible adverse effects on marine resources and water quality.

However, the Commission also concluded that the issue of entrainment of longfin smelt and salmonids during dredging operations, and the nature of impacts to these species, remained unresolved. While the Corps concluded in its previous consistency determinations for maintenance dredging that this activity would not adversely affect these species, and while the evidence in the record did not compel the Commission to reach a contrary conclusion or demonstrate that the project would be inconsistent with the Coastal Act sections cited above, the Commission found in CD-0005-17 that additional quantitative biological information was needed on this topic in order to provide greater certainty.

To that end, and in order to address the Commission's concerns, CD-0005-17 included a commitment by the Corps to develop by the end of 2018 (one year later than its previous commitment in CD-0002-17), and in cooperation with the National Marine Fisheries Service,

California Department of Fish and Wildlife, and Commission staff, a surveying and monitoring plan to determine the extent of entrainment of prey fishery species by Corps dredging operations in Humboldt Bay. This plan would accompany the Corps' consistency determination for the 2019 Humboldt Bay maintenance dredging project and would be implemented by the Corps prior to the end of 2019. While the Corps stated that it would request funds to implement the entrainment surveying and monitoring plan in 2019, actual implementation would be contingent on actually receiving those funds. Based on the strength of comments provided by the NMFS, CDFW, and the Commission regarding the need to accurately determine the geographical extent and level of impact of dredging on entrainment of fisheries in Humboldt Bay, the Commission stated in its findings for CD-0005-17 that it expected the Corps to meet its commitment and undertake maximum efforts to complete development of the surveying and monitoring plan by the end of 2018 and to secure funding for implementation of that plan prior to the end of 2019.

The subject consistency determination for proposed 2019 maintenance dredging summarizes the steps taken by the Corps to develop the fish surveying and monitoring plan referenced in CD-0005-17. In February 2018 the Corps provided the Commission staff an outline for the proposed Humboldt Harbor and Bay Fish Surveying and Monitoring Plan (FSMP), which included objectives to complete the FSMP (including an initial scope of work) by September 2018 and to begin implementation of the FSMP in 2019. The outline stated that the overall purpose of the FSMP would be to improve the Corps' ability to avoid or minimize maintenance dredging impacts to species of interest in Humboldt Bay. The Corps stated that it would coordinate with staff from the Commission, California Department of Fish and Wildlife (CDFW), and the National Marine Fisheries Service (NMFS) during development of the FSMP. Subsequent coordination indicated that there was agreement among agency staff that the initial focus of the FSMP should address the question as to whether there are species of interest (e.g., longfin smelt or prey species considered a component of Essential Fish Habitat) in the Humboldt Bay federal channels when the Corps is dredging those channels. Agency staff suggested trawling as a potential initial sampling method but that on-vessel entrainment monitoring should also be considered by the Corps.

In September 2018 the Corps submitted its draft FSMP to Commission, CDFW, and NMFS staff. The draft plan included sections on purpose and objectives, interagency coordination, existing data on longfin smelt in Humboldt Bay, potential species surveying and monitoring approaches, related hopper dredge entrainment risk assessments, potential hypotheses to examine regarding fish species entrainment and the degree of impact on species populations, and a potential scope of work and budget for implementing the FSMP. In October 2018 the Commission staff informed the Corps that it supported the draft FSMP, pending input from NMFS and CDFW. On October 15, 2018, the CDFW provided comments on the draft FSMP and NMFS concurred with those comments. The CDFW restated its historic support for conducting entrainment monitoring concurrent with collecting trawl data, and encouraged the Corps to reassess this option again for feasibility even on a limited basis during implementation of the FSMP. The final FSMP will be submitted to agency staff prior to the start of 2019 maintenance dredging.

The Corps is also completing a scope of work (SOW) and related sampling plan guidance for a contractor to trawl twice per month in the federal channels from March through October 2019. The draft SOW will be submitted to the Commission, NMFS, and CDFW for review in early

2019 but is expected to be similar to the SOW outline included in the September 2018 draft FSMP. Results and analysis from the 2019 survey and monitoring effort will be submitted as a draft report to agency staffs by December 31, 2019. In January 2020 the final report will be submitted and discussions held regarding next steps and/or necessary modifications to the FSMP. Concurrently, the Corps will continue to investigate the potential for entrainment monitoring aboard the hopper dredges *Essayons* and *Yaquina*, but it does not anticipate undertaking such work in Humboldt Bay during the 2019 maintenance dredging.

As previously noted, the Corps is on track to complete and submit to the Commission staff the final Humboldt Harbor and Bay Fish Surveying and Monitoring Plan (FSMP), and the Scope of Work for associated trawling operations, prior to the start of 2019 maintenance dredging project. Given the FSMP progress made by the Corps since Commission concurrence in November 2017 with CD-0005-17 for 2018 maintenance dredging, given that the FSMP will be implemented during the 2019 maintenance dredging project, and given the marine resource and water quality protection measures incorporated into the 2019 maintenance dredging project, the Commission finds the proposed project consistent with the marine resource and water quality policies of the Coastal Act (Sections 30230, 30231, and 30232).

F. COMMERCIAL AND RECREATIONAL FISHING

Section 30234.5 of the Coastal Act states:

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

Commercial and recreational fishing is an important component of the regional economy in Humboldt County. The waters in Humboldt Bay and adjacent to HOODS support commercial and recreational fishing for a variety of species, including salmon, Dungeness crab, albacore, California halibut, surf perch, Pacific herring, leopard shark, rockfish, and clams. Boat launching facilities are located at several locations on Humboldt Bay and numerous fishing sites along the bay shoreline are accessible to the general public.

As in previous annual maintenance dredging projects, proposed 2019 maintenance dredging of Humboldt Bay navigation channels and disposal of dredged material at HOODS may temporarily affect commercial and recreational fishing in the channels and at HOODS. Fishing would be precluded in the area immediate adjacent to the dredge vessel during dredging and disposal operations. However, given the vast area available for commercial and recreational fishing in Humboldt Bay and the ocean waters surrounding HOODS when compared to the small area occupied by the dredge vessel at any one time, the Corps anticipates only minor and temporary effects to fishing.

In conclusion, commercial and recreational fishing in Humboldt Bay and in the ocean waters surrounding HOODS will not be adversely affected by the proposed 2019 maintenance dredging of the bay's navigation channels and ocean disposal of dredged materials at HOODS. Project-related impacts to commercial and recreational fishing will be temporary in nature and limited to the area immediately adjacent to the dredge vessel. In addition, by removing shoaled areas and

returning channels to their design depths, the proposed maintenance dredging would improve navigation safety for all fishing vessels entering and exiting Humboldt Bay and for fishing vessels transiting the interior channels of the bay. Annual maintenance dredging of the navigation channels at Humboldt Bay is essential for the continued operation of the commercial and recreational fishing fleet. The proposed project and its temporary impacts are similar to previous annual maintenance dredging in Humboldt Bay. Therefore, the Commission finds the project consistent with the commercial and recreational fishing policy of the Coastal Act (Section 30234.5).

G. PUBLIC ACCESS AND RECREATION

Section 30210 of the Coastal Act states:

In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30220 of the Coastal Act states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

The proposed project involves maintenance dredging of existing federal navigation channels within Humboldt Bay and the Bar and Entrance channels connecting the bay with the Pacific Ocean, and disposal of dredged sediments at HOODS. The project would improve and maintain public access and recreation, in particular recreational boating activity. The Corps' consistency determination summarizes the existing public access and recreation features in the project area as follows:

Humboldt Harbor and Bay is surrounded by coastal redwood forests, rocky coastlines, sandy beaches, and fish and wildlife rich estuaries typical of the northern California coast. The pristine aesthetics of the Humboldt Harbor and Bay area are paramount to many of the recreational opportunities of the area because the majority of the area's recreational uses center on fish, wildlife, and aesthetics. Humboldt Bay's recreational opportunities include: hiking, wildlife viewing, boating and kayaking, windsurfing, fishing and sport fishing, waterfowl hunting, and clamming.

The Corps next examines the potential project impacts to public access and recreation:

Dredging of Humboldt Harbor and Bay's navigation channels has the potential to briefly disrupt some recreation activities, including wildlife and viewshed viewing, boating and kayaking, surfing and windsurfing, and fishing and sport fishing. Dredge equipment has the potential to briefly disrupt those enjoying the wildlife viewing and the viewshed during times when the dredge is working in the Bay or traveling to HOODS; however, deep-draft, ocean-going wood pulp and fishing vessels are a common sight in the Humboldt Bay region, and dredging equipment would most likely not be discernable to recreationists enjoying wildlife viewing and the viewshed. Furthermore, dredging would only occur for a maximum of eight weeks any time between April and the middle of October in 2019; thus, providing ample opportunity for recreationists to enjoy the viewsheds and wildlife of the Humboldt Bay region outside of the dredging schedule. Recreationists who prefer viewing activities away from active dredging would have to seek other areas surrounding Humboldt Harbor and Bay.

Dredging activities may also affect recreationists utilizing the bay for boating, kayaking, surfing, windsurfing, and fishing; however, the immediate area of impact would be quite small compared to the areas of the Bay that could be used for such recreation. Moreover, the temporary nature of dredging activities would not place the dredge equipment in any one area for more than approximately two hours.

Corps maintenance dredging of Humboldt Bay navigation channels, and dredged material disposal at HOODS, occurs on an annual basis and is a required and routine activity in the region. As noted earlier in this report, the Commission has concurred with consistency and negative determinations for maintenance dredging in Humboldt Bay and disposal at HOODS for over 30 years. In those reviews the Commission determined that channel dredging and disposal at HOODS did not adversely affect public access and recreation. The proposed project is similar to those previous maintenance dredging projects undertaken by the Corps. The project would generate only minor adverse effects on public access and recreational boating, primarily from temporary restrictions on vessel movement in navigation channels immediately adjacent to the dredge vessels and at HOODS during disposal operations. However, these effects are insignificant when compared to the benefits from removing the shoaling hazards in the navigation channels and returning the channels to their design depths. The proposed maintenance dredging would improve navigation safety for all vessels entering and existing Humboldt Bay and for vessels transiting the interior channels of the bay.

In conclusion, public access to and recreational activities on Humboldt Bay and in the ocean waters surrounding HOODS will not be adversely affected by the proposed 2019 maintenance dredging of the bay's navigation channels and ocean disposal of dredged materials at HOODS. The Commission finds that project-related impacts to public access and recreation will be temporary and less than significant, that the project will improve the safety of recreational boating on Humboldt Bay and within the Bar and Entrance channel, and that the proposed

dredging and disposal activities are consistent with the public access and recreation policies of the Coastal Act (Sections 30210, 30211, and 30220).

H. CULTURAL RESOURCES

Section 30244 of the Coastal Act states:

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Cultural resources are places or objects that possess cultural, archaeological, or paleontological significance and include sites, structures, or objects significantly associated with, or representative of, earlier people, cultures, and human activities. Project-related activities have the potential to disturb or damage Native American artifacts and shipwrecks of potential cultural resources value. The Humboldt Bay region area has a diverse and lengthy history of human occupation. The Corps' March 2017 *Final Environmental Analysis and FONSI for Humboldt Harbor and Bay Operations and Maintenance Dredging* states that:

Prior to modern day inhabitants, the Wiyot Indians occupied the areas within and surrounding the Bay. Humboldt Bay has historically been used for fishing, recreational and shipping activities. Humboldt Bay and Harbor have undergone deepening and regular maintenance activities since 1881, when improvements to the interior channels began to provide safe navigation in the Bay

The proposed project will occur within previously dredged navigation channels and the designated ocean disposal site, and as a result the Corps does not anticipate that the proposed dredging and disposal will affect cultural or archaeological resources in or adjacent to those locations. The *Final Environmental Analysis* states that:

Currently available information from the marine archaeology survey of the Bay's navigation channels indicates that the western end of the Bar and Entrance contains a magnetic anomaly that may represent the remains of a shipwreck, discarded objects from a vessel, or debris lost from the construction of the North Jetty. Additionally, there may be shipwreck remains located in the vicinity of the HOODS. However, no adverse effects have resulted to this magnetic anomaly or the potential shipwreck at the HOODS during years of maintenance dredging and are not expected to occur in the future. As such, potential effects to historic and cultural resources are expected to be less than significant under the proposed action. However, in the event that such resources are uncovered, work activities will cease until the State Historic Preservation Office (SHPO) determines its significance and National Register of Historic Places (NRHP) eligibility.

In conclusion, the Commission agrees with the Corps that the proposed maintenance dredging and disposal is unlikely to adversely affect archaeological and cultural resources. The project includes provisions for suspension of dredging and consultation with the State Historic

Preservation Office should previously undiscovered cultural resources be uncovered during maintenance dredging of the navigation channels. Therefore, the Commission finds the project consistent with the cultural resource policy of the Coastal Act (Section 30244).

SUBSTANTIVE FILE DOCUMENTS

1. CD-0005-18 (U.S. Army Corps of Engineers, Calendar Year 2019 Maintenance Dredging of Federal Navigation Channels, Humboldt Harbor and Bay) and accompanying technical appendices, consisting of: (1) National Marine Fisheries Service Biological Opinion and Essential Fish Habitat Conservation Recommendations for 2016 through 2020, April 18, 2016; (2) U.S. Fish and Wildlife Service Informal Consultation Concurrence Letter for 2017-2020; (3) Corps of Engineers Position Memo on Longfin Smelt, May 2015; (4) Best Management Practices; (5) Humboldt Shoreline Monitoring Program: Evaluation of Excessive Shoreline Retreat Criteria, February 2018; (6) Draft Humboldt Harbor and Bay Fish Surveying and Monitoring Plan, September 2018; and (7) Humboldt Harbor and Bay 2016 Sampling and Analysis Report, April 2016.
2. CD-0005-17 (U.S. Army Corps of Engineers, Calendar Year 2018 Maintenance Dredging of Federal Navigation Channels, Humboldt Harbor and Bay), and accompanying technical reports, consisting of: (1) Final Environmental Analysis and FONSI, Humboldt Harbor and Bay Operations and Maintenance Dredging, March 2017; (2) National Marine Fisheries Service Biological Opinion and Essential Fish Habitat Conservation Recommendations for 2016 through 2020, April 18, 2016; (3) U.S. Fish and Wildlife Service Informal Consultation Concurrence Letter for 2012-2016, February 2, 2012; (4) Corps of Engineers Position on Longfin Smelt, May 2015; (5) Best Management Practices; (6) Humboldt Shoreline Analysis – 2014 and 2016 Updates; and (7) Humboldt Harbor and Bay 2016 Sampling and Analysis Report, April 2016.
3. CD-072-95 (U.S. Environmental Protection Agency, Permanent Designation of Humboldt Open Ocean Disposal Site).
4. 1995 Memorandum of Understanding between U.S. Army Corps of Engineers and California Coastal Commission regarding Shoreline Monitoring and Erosion north and south of the Humboldt Bay Jetties.
5. Negative and Consistency Determinations for disposal at HOODS: CD-0002-17, ND-0007-16, ND-0019-15, ND-004-14, ND-022-13, ND-002-12, ND-007-07, CD-017-06 (a 4-Year authorization), ND-016-06, ND-035-05, ND-029-05, CD-005-04, ND-043-04, CD-045-98 (a 5-Year authorization), ND-024-98, ND-021-98, ND-128-97, ND-017-97, ND-091-96, ND-017-96, ND-061-95, ND-010-95, CD-064-94, CD-005-94, CD-048-93, CD-001-93, CD-089-92, ND-077-92, ND-018-92, CD-021-91, CD-001-91, and CD-031-90.
6. Consistency Determinations for disposal at SF-3 and/or a nearshore site: CD-003-90 (SF-3), CD-026-89 (nearshore, south spit), CD-045-88 (nearshore, south spit), CD-031-

CD-0005-18 (Corps of Engineers)

88 (SF-3), CD-019-88 (SF-3), CD-021-87 (SF-3), CD-005-87 (SF-3), and CD-018-85 (SF-3).

7. March 10, 2017, letter from Sediment Management Working Group of the Humboldt Bay Initiative to U.S. Army Corps of Engineers, regarding EA and Draft FONSI for Humboldt Bay Dredging Plan.
8. March 17, 2017, letter from California Department of Fish and Wildlife to U.S. Army Corps of Engineers, regarding Environmental Assessment and Draft FONSI for Humboldt Harbor Operations and Maintenance Dredging (FY 2017-2020).