HUMBOLDT BAY
GEOGRAPHIC RESPONSE PLAN

Developed by E.W.Lesh and Linda Broadman
California Department of Fish and Game
Office of Spill Prevention and Response

HUMBOLDT BAY GEOGRAPHIC RESPONSE PLAN

An insert to the Northcoast Area Contingency Plan and a removable field guide to be used during an oil spill response.

CONTENTS:

IMPORTANT INFORMATION - Please complete this page and make a copy for the situation unit before going into the field

Spill Name:_____

Your name:_____Organization_____

phone_____cell_____pager_____radio call sign_____

Your Assignment_____

EMERGENCIES: Highway, sheriff, police, medical.....911

location or person	phone #	cellular #	pager #
your supervisors name			
command center			
operations			
planning			
logistics			
safety officer			

Questions regarding this plan should be referred to E. W. Lesh or Linda Broadman at 707.441.5752 or FAX 707.441.5753

HUMBOLDT BAY GEOGRAPHIC RESPONSE PLAN

INTRODUCTION

General Description: Humboldt Bay is a large tide-driven coastal lagoon with very little freshwater input. The Bay is separated from the ocean by long sand spits with an entrance channel artificially stabilized by concrete dolosse. The Bay consists of three segments: 1) North Bay (Arcata Bay); 2) South Bay; and, 3) Entrance Bay/North Bay Channel. North and South Bays are both characterized by extensive tidal mud flats with more than 1/2 of each exposed at low tides. They are extensively interlaced with drainage channels and have important wildlife and commercial mariculture value. The Entrance Bay/North Bay channel area is a relatively narrow, deeper central area, and is the industrialized portion of the shoreline.

Currents: The circulation of Humboldt Bay water is almost entirely tidally driven. South Bay's water exchange rate amounts to 60% of its Mean High Water (MHW) volume, and North Bay's rate of exchange averages 44% of its MHW volume. Measurements have shown that 75% of the water entering and exiting North Bay passes through the Samoa Channel. Complete water exchange estimates vary, but 14 tidal cycles, or about 7.5 days, seems likely.

These large volume exchange rates result in high-velocity tidal currents. The following data were obtained from Boyd, et al., 1992 and were reported as unpublished data, but seem supportable based upon the experience of mariners on the Bay.

North Bay channel.....3.0kts
entrance to South Bay.....2.0kts
Entrance Channel.....3.3kts
Eureka Inner Reach.....1.0kts

Because 75% of the water entering North Bay does so through the Samoa Channel, it seems likely the currents here approach 3 knots.

Hydrology: Freshwater discharge into the bay represents very little of the daily tidal exchange and probably has only a localized effect (Boyd, et. al.). Surrounding foothills provide a small drainage basin of about 222 sq mi (578 km^2), with 85% of the water draining to either North Bay, or to Entrance Bay/North Bay channel from the Elk River. About 12% falls as precipitation directly on the Bay and the remainder is runoff into South Bay. Salinity transects done following heavy rainfall have shown most freshwater runoff from North Bay streams to be discharging to the center of the Bay via the inner reach from North Bay. Elk River runoff was quickly mixed with Bay water near Elk River. Only minor depressions in salinity could be found in transects done in South Bay and at the location where South Bay meets Entrance Bay.

Humboldt Bay tides are called mixed tides because there is a major low, a minor high, a minor low, and a major high tide (not necessarily in this order) within each approximate 25 hour period. Greatest current velocities occur during changes from major high to major low or vice versa. **All response supervisors should have tidal prediction charts to ensure personnel safety and to aid in response activities.**

RESPONSE: Response to any oil spill on Humboldt Bay must be a coordinated, pre-planned attack to contain and recover the oil as close to the source of the spill as possible. If the source of a spill is in Entrance Bay/North Bay Channel, this may be the only way to protect both North and South Bays. The characteristics described for North and South Bays make spill response operations within these two areas of the Bay almost impossible except for some tidal inlets accessible by highways along the margins of the Bay. Neither North Bay or South Bay has a good location where oil can be collected and recovered and water depths are generally insufficient for on-water collection.

Oranges, used as drogues to gauge the trajectory of oil spilled in Humboldt Bay,
have shown that it is unlikely oil spilled at the beginning of a flood tide in

Entrance Bay, or even at the Chevron bulk fuel plant, would reach North Bay during the first flood tide cycle. It is likely to be carried into South Bay on the first tide cycle if the incident were to occur along the South Jetty. It is likely that it would also enter Elk River on the first flood tide cycle for any incident that occurred at the South Jetty or in Entrance Bay. Spilled oil would not likely reach small stream inlets to North or South Bay until several tide cycles had passed.

On successive tides most oranges became stranded along the western shoreline of the Bay between the Samoa bridge and the USCG boat station. A few stranded in the vicinity of Palco Marsh. If these had been a stranded persistent type oil, they would have been refloated by successive tides and transported towards North Bay.

This geographic response plan recommends a timely and orderly progression of steps that can be taken to contain and recover as much oil as possible within the industrialized portions of the Bay, protect those sensitive wildlife habitats adjoining this part of the Bay, and begin setting-up protective strategies for North and South Bays. These strategies are meant to serve as a guide that will help drive response planning before a spill has occurred and during the early stages of a spill. The strategies should be modified to fit environmental conditions (predicted tide heights, stage of tide, wind, amount of freshwater runoff, etc.) extant at the time of the spill.

This plan does not deal with the most immediate concerns of human health and safety, stopping the spill at its source, and containment at the source. Individual response plans deal with these issues.

The following table describes, in some detail, what can be done once oil is in the water. It sets priorities for response at specific locations, explains the objective for the response, and lists the obvious, but not all, equipment needs. Maps of the Bay showing recommended response locations, and blank maps for responder use, follow. I believe these strategies will help to contain spilled oil within the developed part of the Bay (our primary objective) and help to prevent it’s spread to North (Arcata) and South Bays.

These same strategies and their order of implementation can be effective at any stage of either a flood, or ebb tide, for any incident occurring between the entrance channel and Chevron’s marine terminal, the likely route on which a large incident would occur. Oil spilled at or near the entrance can be expected to reach areas identified with the numeral ‘1' on the first flood tide after the spill. Those areas numbered ‘2' should encounter oil on the second flood tide. Those numbered ‘3' should encounter oil on the 3rd, or subsequent, flood tides.

USEFUL CONTACTS

NAME	PHONE NUMBER	24 HOUR NUMBER
Arcata Police Dept	822-2428	822-2424
Caito Fisheries	443-0550	441-4054(EurekaPD)
California Dept of Fish and Game	(916) 445-0045	(916) 445-0045
California Highway Patrol	822-5981	443-4395
Chevron	444-7850	441-4054(Eureka PD)
City of Arcata	822-6918	822-2424(Arcata PD)
City of Trinidad	677-0223	677-0133
City of Eureka	441-4206 or 4187	441-4054(Eureka PD)
Clean Pacific Alliance	268-0577 444-5184 (pager)	444-5184 (pager) 1-800-593-4272
Coastal Commission	415-904-5245	415-904-5245
Coast Seafood	442-2947	442-3779
Emerald Pacific Seafoods	fax 839-3465	499-0517
Eureka Fisheries	443-1673	441-4054(Eureka PD) 445-7251(Sheriff)
Eureka Police Dept.	441-4060	441-4054
Humboldt Bay Harbor Recreation and Conservation District	443-0801	443-0804
Humboldt County Office of Emergency Services	268-2500	445-7251 (Sheriff)
Humboldt County Environmental Health	445-6215	445-7251 (Sheriff)
Humboldt County Sheriff	445-7251	445-7251
Humboldt Fisherman's Marketing Association	443-0537	--------
Humboldt State Trinidad Marine Lab	826-3671	826-3456
Kuiper Mariculture	822-9057	822-5102

Louisiana Pacific Corp.	443-7511	443-4569
Marine Spill Response Corp	(510) 215-1833	1-800-259-6772
Northbay Shellfish	839-4723	839-4723
Other Docks	441-4060(Eureka PD) 445-7251(Sheriff)	441-4054(Eureka PD) 445-7251(Sheriff)
Pacific Choice Seafoods	442-2981	441-4054(Eureka PD)
PG&E	444-0700	444-0712
Sierra Pacific Industries	443-3111	445-7251(Sheriff)
Simpson Corporation	443-5300	443-9042 (Fire)
Table Bluff Tribal Council	733-5055	733-5055
US Fish and Wildlife Refuge	733-5406	443-2602
USCG Boat Station	443-2213	443-2213
USCG Air Station	839-6113	839-6113

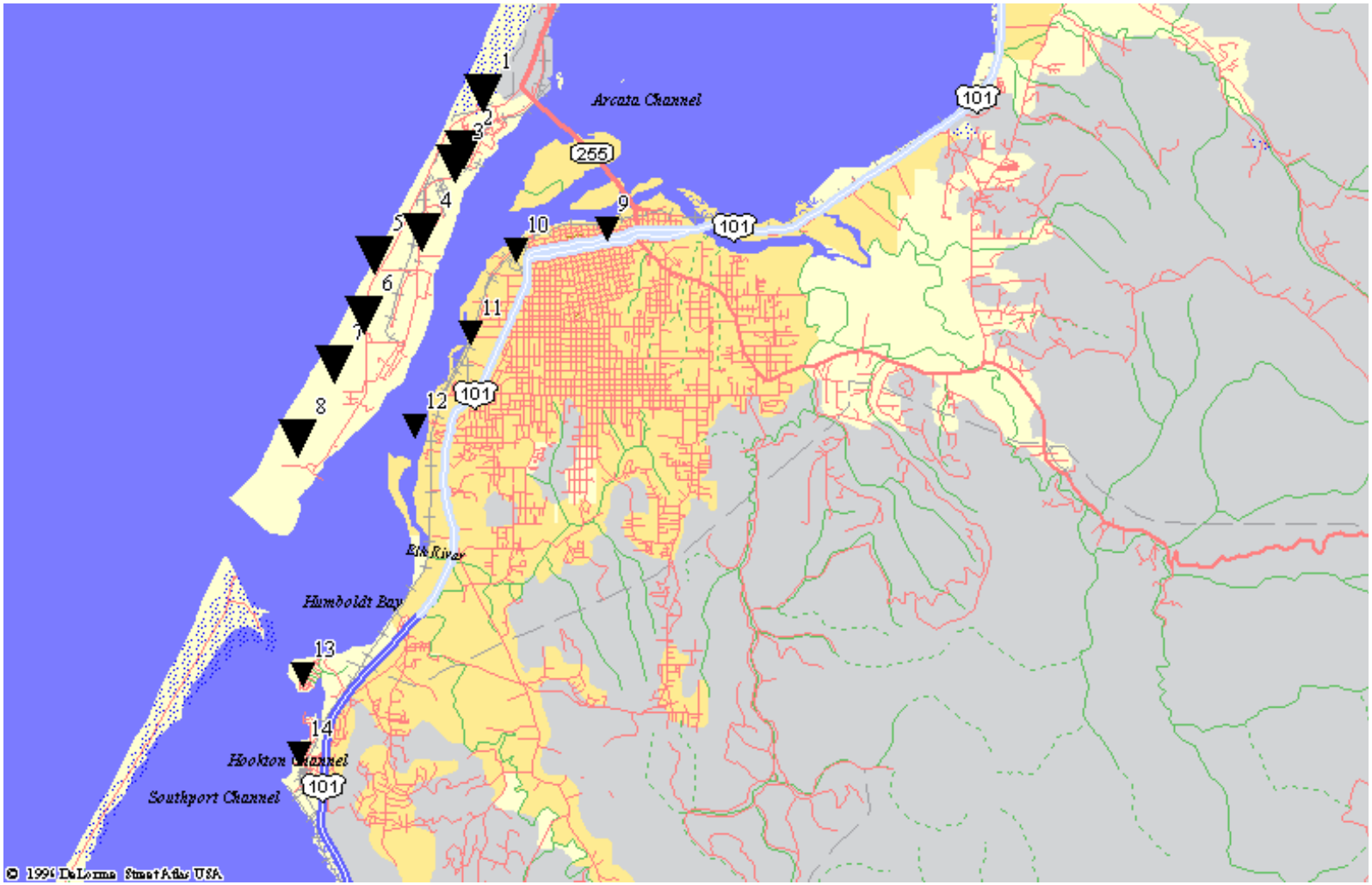
Tabular Response Summaries: Response priority, location, objective, equipment needed.

Priority 1 = first tide cycle; priority 2 = second tide cycle; priority 3 = third tide cycle.

Priority	Response location	objective	Amounts and type
1 - Entrance Bay North Bay Channel South Bay Channel	Palco Marsh (NC-37-A)	Install pre-fitted splash boards into slots in Marsh water control structure. Insure that tide gates at Del Norte Street water structure are not blocked with debris	Splash boards stored at Chevron. Keys to Marsh area gates at Chevron and City of Eureka. shovels, boathook, pry-bar, pitchfork
	Elk River Marsh (NC-38-A)	close drop gates to prevent oil from entering culverts leading to marsh.	Key to chain locks on control wheels available at Chevron and City of Eureka. Route: exit U.S. Hwy 101 at Herrick Ave. About 4 miles S. Of Eureka. Go west to gravel parking area. Follow trail to railroad track. Follow track to Elk River. Turn up-river for about 100 yards
	NATURAL COLLECTION SITES (NC-34-A) Coast Guard Cove, Samoa boat station, Samoa boat ramp area and any other areas where oil collects and can be contained and recovered.	Divert oil to a shoreline area such as a cove where oil and debris tends to collect naturally. Place boom in a way that will contain oil from spreading during tide changes and at slack and that will allow recovery to be done by skimmer or vacuum truck.	Expect to work two locations with two crews. 4 work boats 2000’ hard boom. 2000’ sorbent boom or equal 10 anchors of appropriate type and weight 2 crews of about 6 persons each 2 skimmers and associated equipment or 2 vacuum trucks with appropriate hose end for skimming oil.
	Bay channels (Entrance Bay, North Bay channel, South Bay channel)	recover as much oil as possible to reduce shoreline impacts.	SBS. VOSS
1 - Samoa Channel Note: Current exceeding 3 kts in Samoa channel makes deployment of equipment difficult	Indian Island (NC-35-A) Note: Very high archaeological and biological importance.	Deflect oil away from Indian Island. Lay boom along shoreline of island, parallel with the current, from near southern tip to skimmer near Samoa bridge. Intent is to keep oil from going ashore on Indian Island. Try to keep it within Samoa channel and direct it towards skimmer at Samoa Bridge on flood tide.	3500’ hard boom. 3500’ sorbent boom or equivalent in pads or sweep. 4 work boats 10 workers 10 anchors
	Louisiana Pacific Lumber Dock (NC-35-A)	Recover oil by diverting to shore from Samoa Channel to skimmer at LP dock. Current velocity is high. Exercises have shown that boom segments should not exceed 200 - 400 feet in length. Many anchors will be needed.	2000’ hard boom. 2000’ sorbent boom or equal. 4 work boats 1 skimmer. 10 workers 10 anchors
	Samoa Bridge oil recovery site (NC-35-A)	place boom in V configuration during flood tide. attach boom to bridge pilings about center span. Place skimmer in apex. Tie-in with boom from Indian Island. Change configuration to S. Side of bridge during ebb tide, if appropriate.	1200’ hard boom. 1200’ sorbent boom or equal. 2 work boats. 4 workers 1 skimmer. Note that floating eel grass mats will tend to plug skimmer at this location.
1 - South Bay	Buhne Point to South Bay Boat Works (NC-40-A)	Recover oil by diverting to shore. This may be possible in the area of King Salmon near Humboldt Bay Forest products Wharf or small boat launching ramp. On water recovery with VOSS or SBS in Southport channel may be possible.	1200’ hard boom. 1200’ sorbent boom or equal. 1 skimmer. 5 anchors. 2 work boats. 10 workers SBS or VOSS
2 - Center Bay	Mouth of Elk River (NC-38-A)	Recover oil. Prevent oil from being carried up-river with flood tide. This site may be appropriate as a collection site for spills occurring near the entrance channel or entrance Bay.	1400’ hard boom. 300’ IT boom. 1400’ sorbent boom or equal. 5 anchors. 1 skiff. 1 skimmer. 10 Workers.

Priority	Response location	objective	Amounts and type
2 - islands and Inner reach	Southern tip of Indian Island to Woodley Island (NC-35-A).	Deflect oil from tip of Indian Island to skimmer at Southern tip of Woodley Island. Deflect oil from Eureka side of inner reach to skimmer at Woodley island	1200’ hard boom. 1200’ sorbent boom or equal. 1 skimmer 5 anchors. 10 workers 1 ski£f
3- North Bay	Mad River Slough (NC-36-A)	Prevent oil from being carried into slough.	1200’ hard boom. 1200’ sorbent boom or equal. 100 ft IT boom 6 workers hand tools to incl sledge hammer, stakes, shovels
	Jacoby Creek (NC-35-A)	Prevent oil from being carried into creek.	500’ hard boom 100’ IT boom 500’ ft sorbent boom or equivalent 6 workers hand tools to incl sledge hammer, stakes, shovels
	Gannon Slough (NC-35-A)	Prevent oil from being carried into creek	500’ hard boom 100’IT boom 500’ sorbent boom or equivalent 6 workers hand tools to incl sledge hammer, stakes, shovels
	Butcher Slough (NC-35-A)	Prevent oil from being carried into creek	300’ hard boom 50’ IT boom 300’ sorbent boom or equivalent 6 Workers hand tools to incl sledge hammer, takes, shovels
	Mcdonald Slough (NC-35-A)	Prevent oil from being carried into creek	150’ hard boom, 50’ IT boom, 150’ sorbent boom or equivalent, 6 workers hand tools to incl sledge hammer, stakes, shovels
	Eureka Slough (NC-35-A)	Prevent oil from being carried into slough. Possible location for oil recovery	1000’ hard boom, 200’ IT boom, 1000’ sorbent boom or equivalent, 10 workers hand tools to incl sledge hammer, stakes, shovels
3 - South Bay	White Slough and Salmon Creek (NC-40-A). oil Impacts are unlikely at these locations. Bird nesting sites at Salmon Crk. Are at risk from oiling should oil reach this far into S. Humboldt Bay	Prevent oil from being carried into creek or slough.	Use helo deliverable boom as drilled by USCG. 400’ hard boom

Access to Bay - See next page for key



Waterfront Access for Spill Response(numbers refer to map on previous page)

1. Louisiana Pacific Corp. Samoa Wharf. Take L-P Drive off New Navy Base Rd.
2. Louisiana Pacific Corp., Samoa chip Wharf. Take L-P Drive off New Navy Base Rd.
3. Louisiana Pacific Corp., chip wharf (formerly North Coast Export Co.). Take L-P Drive off New Navy Base Rd.
4. South Bay Marina, Samoa division, marine ways. Bay St. off New Navy Base Rd.
5. Simpson Paper Co., wharf. Plant is currently closed. 2nd right turn off Bay St., off New Navy Base Rd. leads to 24 hour gate with guard.

   Clean Pacific Alliance barge and tug located at this wharf. Good staging area with easy access from town of Fairhaven. See gate guard. Fire Dept. at Fairhaven also has key to staging area.
6. Road access to beach. Left turn onto Lincoln Avenue off New Navy Base Road at town of Fairhaven, about 4 miles S. of state hwy 255 (Samoa Bridge). Turn right on Duprey Street and continue to beach.
7. Humboldt County public launching ramp. Left turn off New Navy Base road about 4.5 miles S. of state hwy 255 (Samoa Bridge).
8. USCG boat station. Pier. About 5 miles S. of state hwy 255 (Samoa Bridge) on New Navy Base Road.
9. City of Eureka launching ramp. Off Waterfront Drive under Samoa bridge.

   City of Eureka, K Street Pier.

   City of Eureka, J Street Pier.

   Nor-Cal Seafoods, I Street wharf.

   Fishermans Cooperative Wharf. Foot of D and F Streets extended.

   Humboldt Bay Harbor Cruise dock. Foot of C Streets extended.

   Coast Oyster pier. Foot of A and D Streets extended.

   Eureka Ice and Cold Storage Wharf. Foot of A Street extended.
10. City of Eureka, Commercial Street wharf. Foot of Commercial Street.

    City of Eureka, Small craft harbor and launching ramp.

    City of Eureka, Humboldt Dock B. Foot of Washington Street extended north.

    Pacific Affiliates Dock. Foot of Washington Street extended south.

    Unocal Eureka Wharf. Foot of 14th street extended north.

    Eureka Forest Products wharf. Foot of 14th street.
11. City of Eureka, Del Norte Street public fishing pier. Foot of Del Norte Street.
12. Chevron USA, Eureka wharf. Foot of Truesdale Street.
13. King Salmon. Private launching facilities. Shoreline access. King Salmon exit from US Hwy 101 about 2 miles S. of Eureka.
14. Humboldt Bay Forest Products wharf. G Street, Fields Landing.

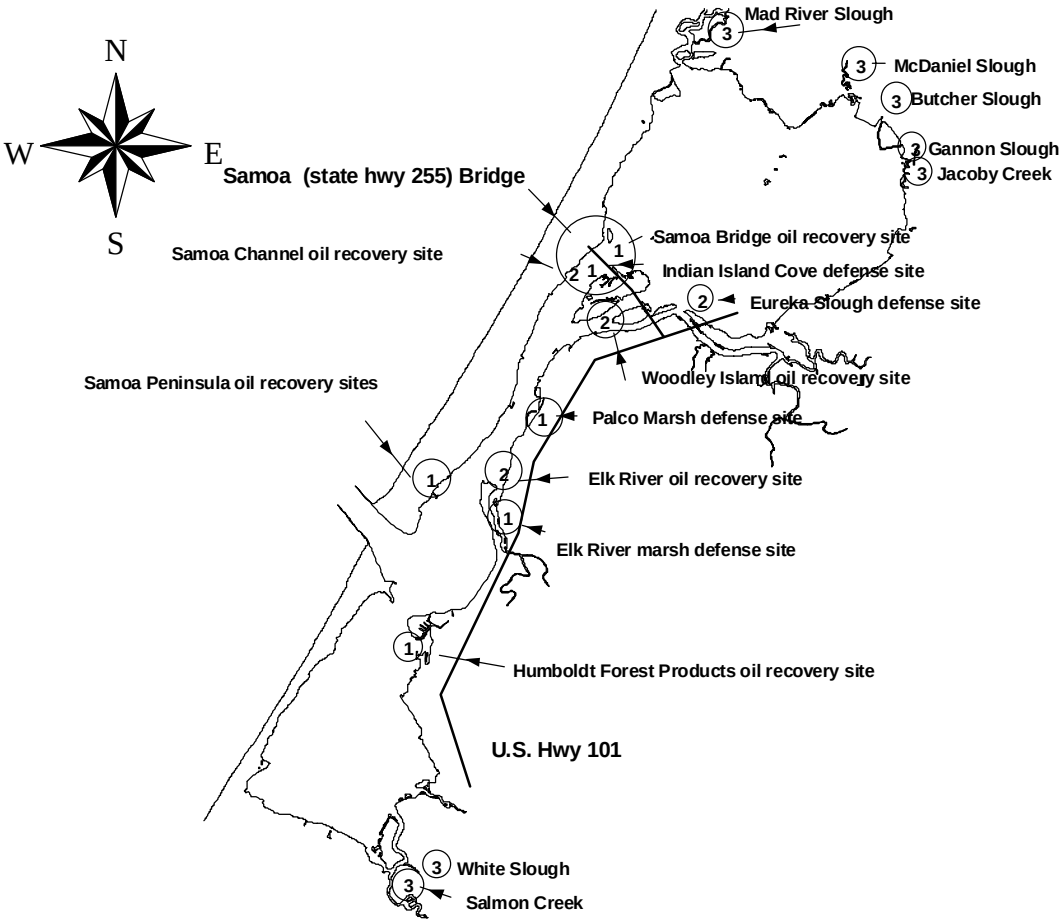
    South Bay Marina Fields Landing Pier.

    Eureka fisheries wharf G Street, Fields Landing.

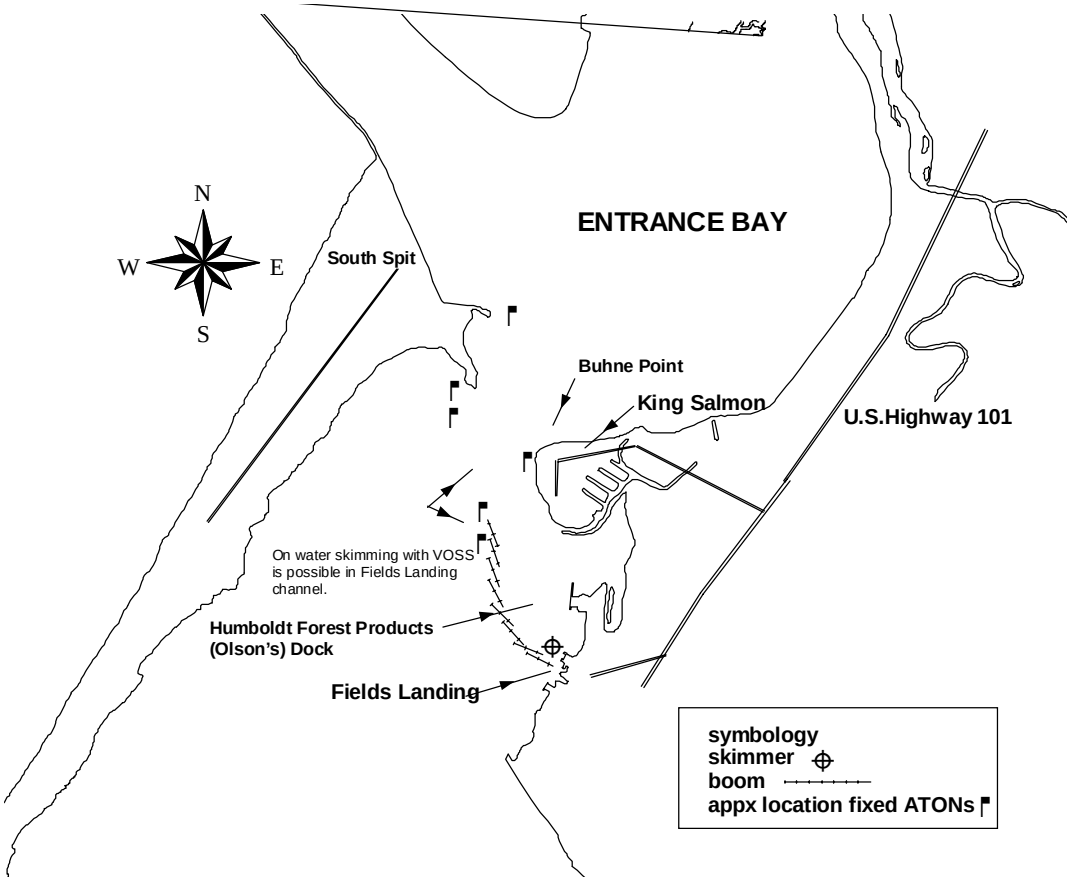
    Public Launching ramp. Railroad Ave, Fields Landing.

    Humboldt Marine Services wharf. Depot Road, Fields Landing.

Response Locations and Priorities (1,2,3)



Response Strategy
Buhne Pt/King Salmon
Humboldt Forest Products Dock
Priority 1

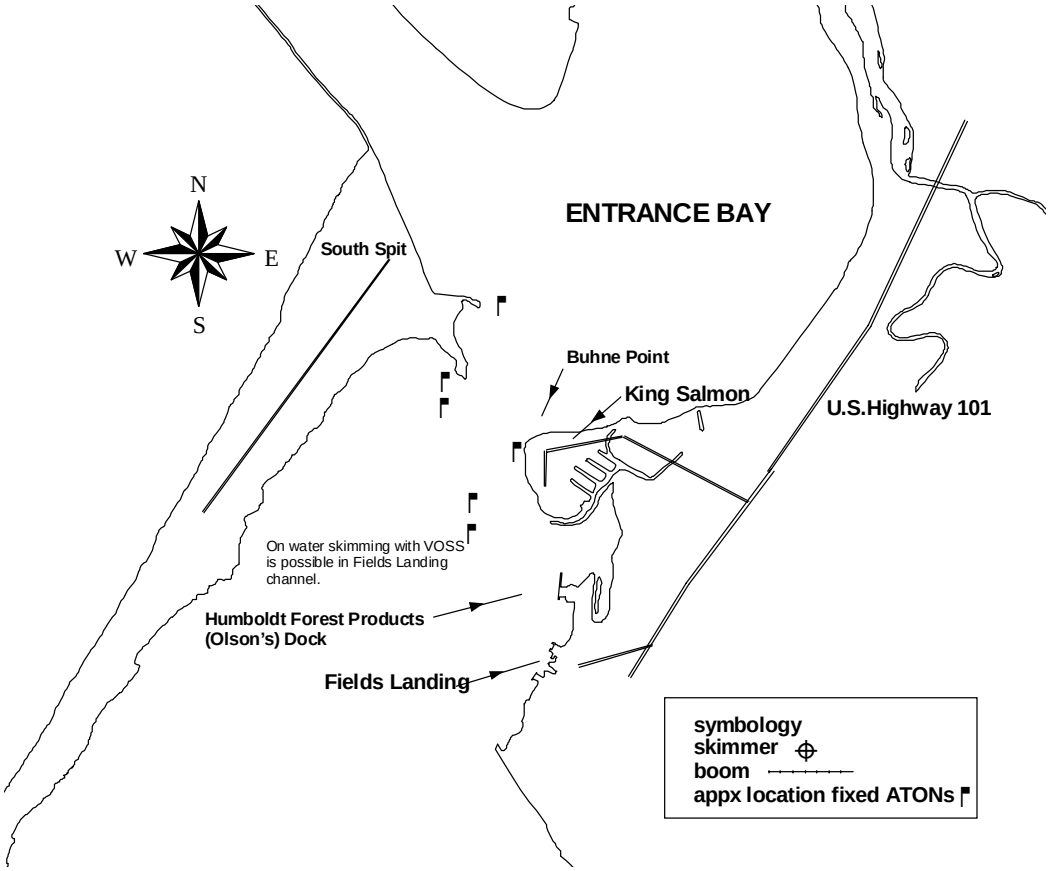


Route to South Spit:
Contact Humboldt County Sheriff's Dept. for the key to gated access. Fr US hwy 101, about 5 mi S of Eureka, turn W on Hookton Rd. Continue to beach. Follow rd to end of spit.

Route to Fields Landing and King Salmon:

From US hwy 101, about 2.5 mi S of Eureka, take Fields Landing exit and turn rt onto G St. Continue to Bay. Exit at King Salmon Exit and turn rt to access bayfront areas.

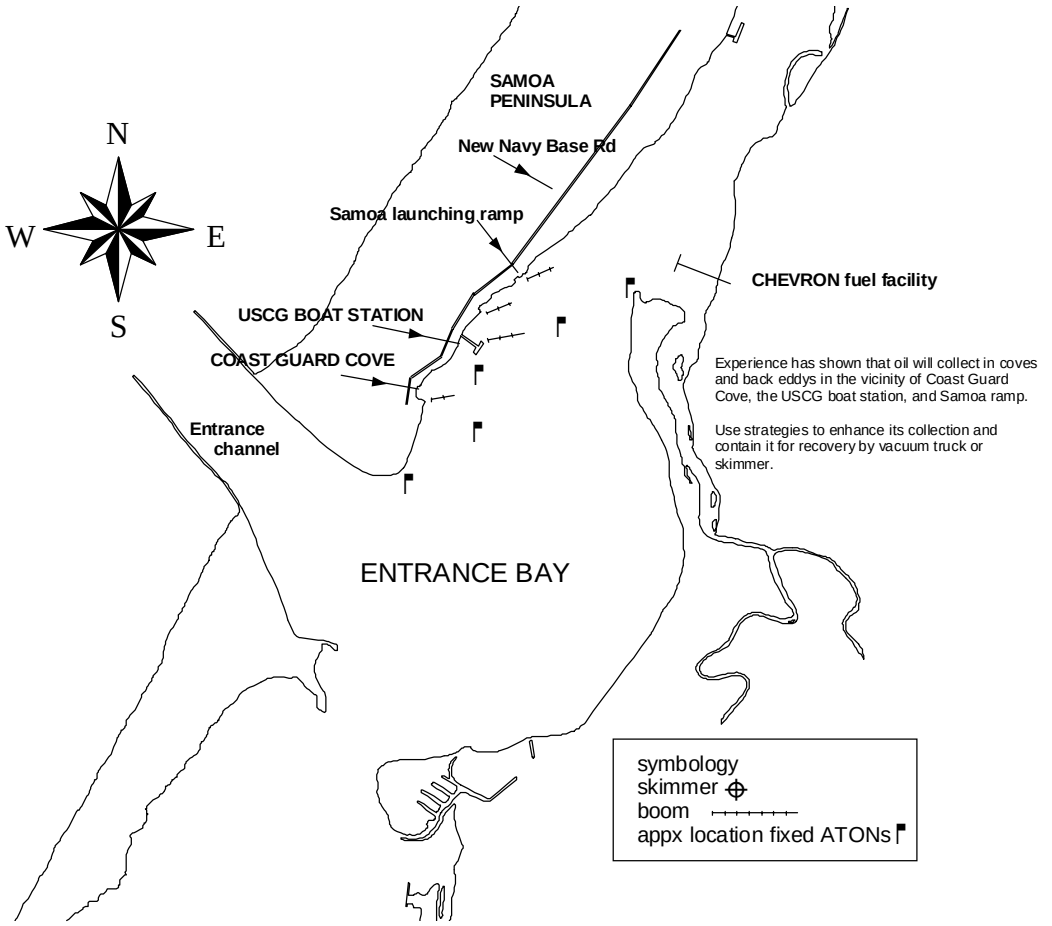
Response Worksheet
Buhne Pt/King Salmon
Humboldt Forest Products Dock
Priority 1



Route to South Spit:
Contact Humboldt County Sheriff's Dept. for the key to gated access. Fr US hwy 101, about 5 mi S of Eureka, turn W on Hookton Rd. Continue to beach. Follow rd to end of spit.

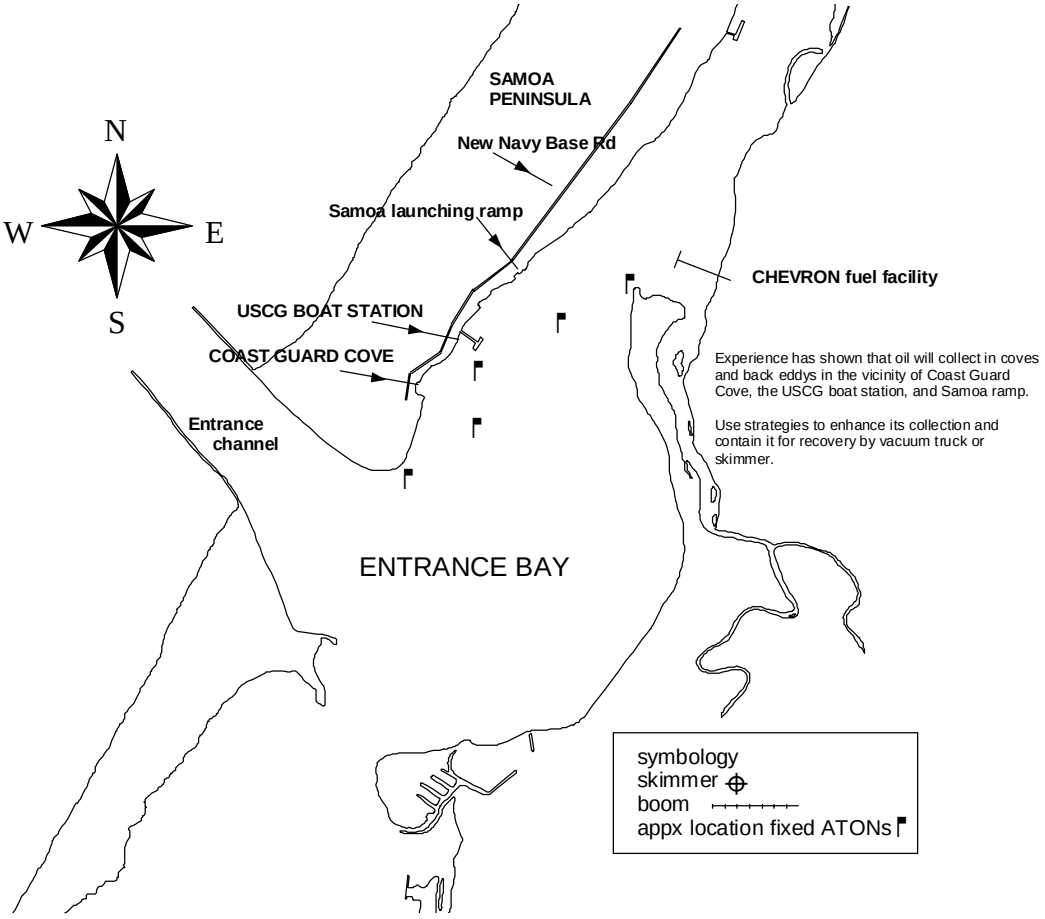
Route to Fields Landing and King Salmon:
From US hwy 101, about 2.5 mi S of Eureka, take Fields Landing exit and turn rt onto G St. Continue to Bay. Exit at King Salmon Exit and turn rt to access bayfront areas.

Response Strategy
natural collection sites for oil
vicinity Samoa launching ramp and
USCG boat station
Priority 1



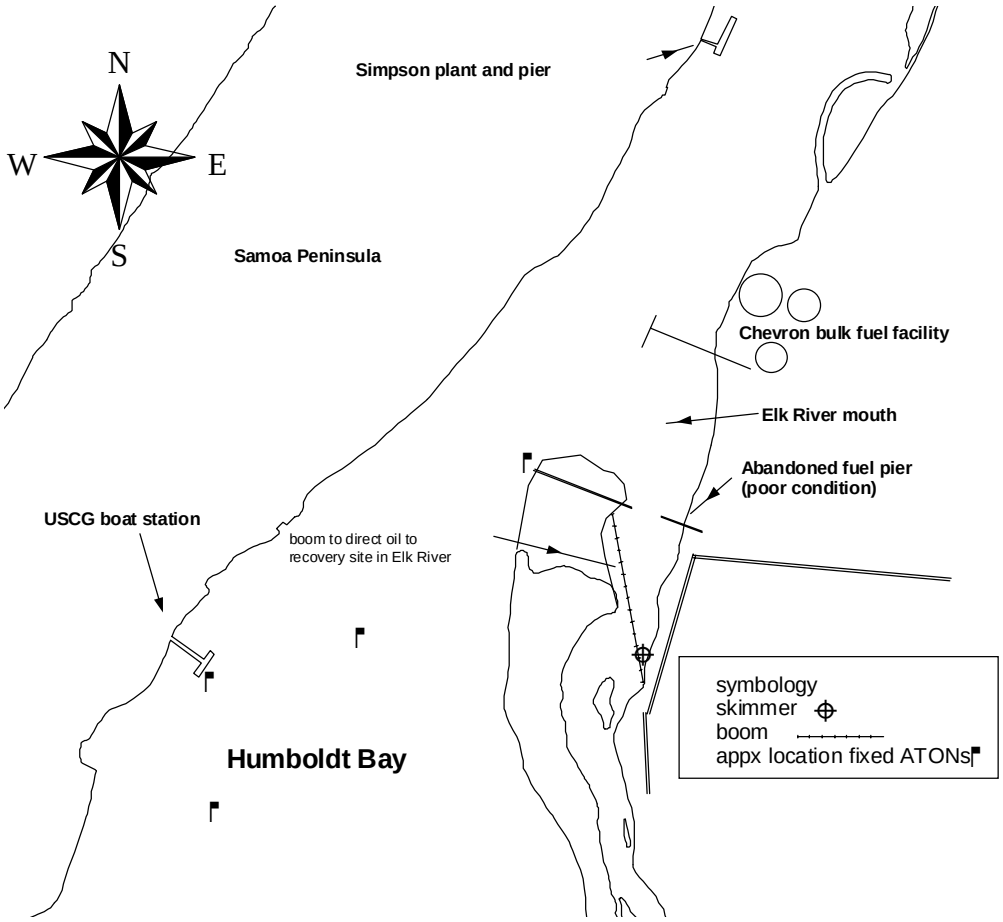
Route to Samoa ramp and USCG boat station:
from US hwy 101, take state hwy 255 (R St) W across the Bay to New Navy Base Rd. Go left about 3 miles.

Response Worksheet
natural collection sites for oil
vicinity Samoa launching ramp and
USCG boat station
Priority 1



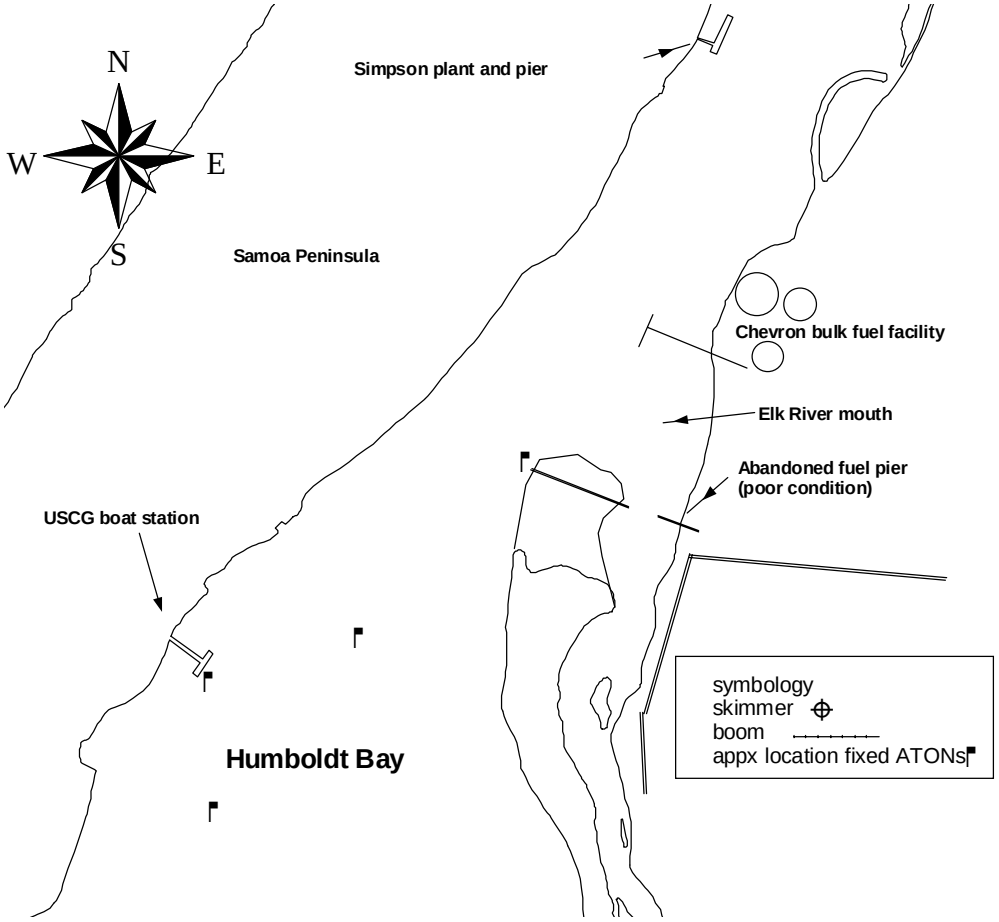
Route to Samoa ramp and USCG boat station:
from US hwy 101, take state hwy 255 (R St) W across the Bay to New Navy Base Rd. Go left about 3 miles.

Response Strategy
Elk River Location
Priority 2



Route to Elk River mouth:
Mouth is at the end of Hilfiker St. Hilfiker St. is west off US hwy 101 just S of Eureka. Hilfiker Pipe Co. marks the E end of the street.

Response Worksheet
Elk River Location
Priority 2



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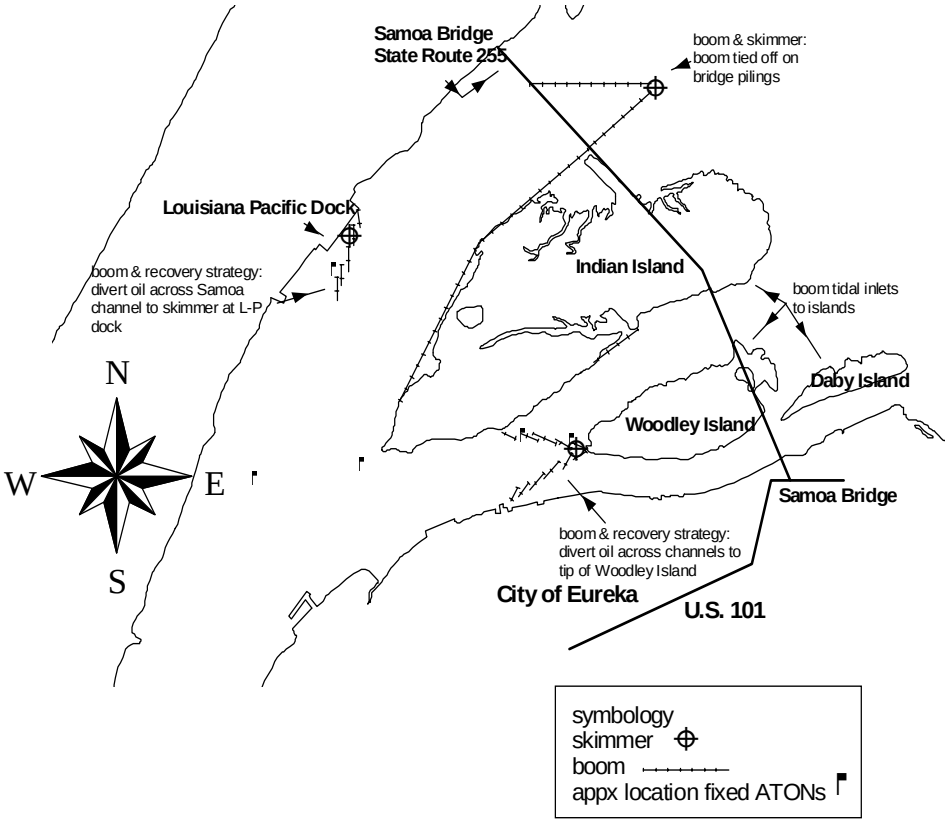
Mouth is at the end of Hilfiker St. Hilfiker St. is west off US hwy 101 just S of Eureka. Hilfiker Pipe Co. marks the E end of the street.

Response Strategy
L.P. Dock/Samoa Channel
Indian Island/Samoa Channel
Indian Island to Woodley Diversion
Woodley Island to Mainland
Priority 1

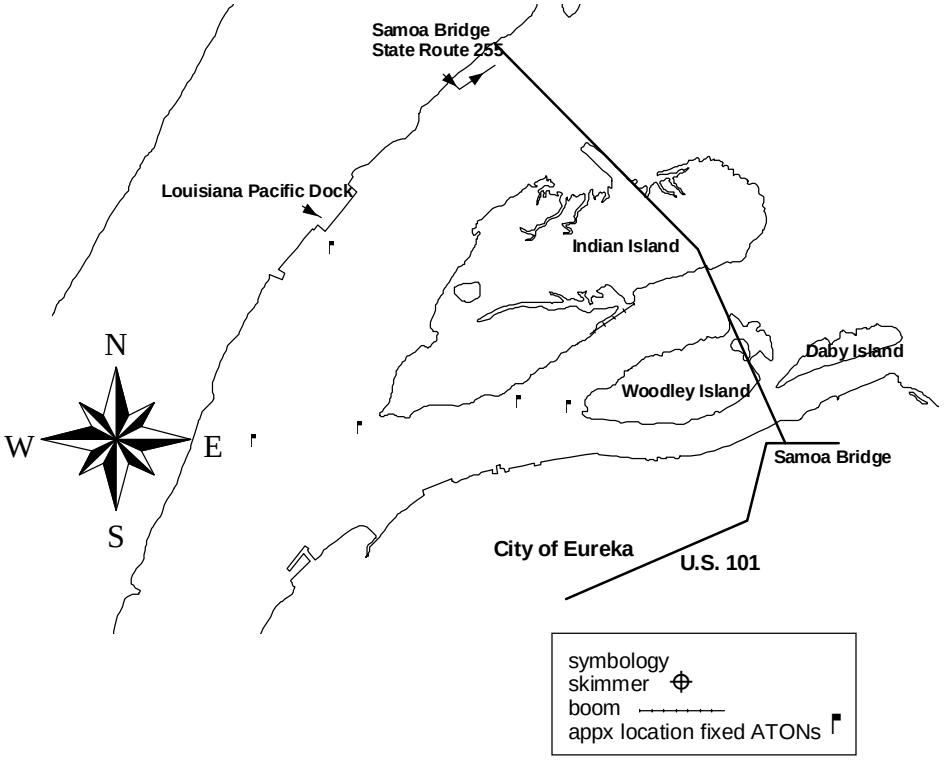


Route to L.P. Dock:

From US hwy 101, take state hwy 255 (R St) W across Bay to New Navy Base Rd. Turn S to L.P. Dr. Go E into L.P. mill.

Route to Woodley Island:
From US hwy 101, take state hwy 255 (R St) W. Exit at Woodley Island Marina.

Response Worksheet
L.P. Dock/Samoa Channel
Indian Island/Samoa Channel
Indian Island to Woodley Diversion
Woodley Island to Mainland
Priority 1



Route to L.P. Dock:
From US hwy 101, take state hwy 255 (R St) W across Bay to New Navy Base Rd. Turn S to L.P. Dr. Go E into L.P. mill.

Route to Woodley Island:
From US hwy 101, take state hwy 255 (R St) W. Exit at Woodley Island Marina.

SITE INFORMATION AND SPILL RESPONSE STRATEGY

SITE NAME/NO. NC-034-A, Humboldt Bay Inlet and Samoa Peninsula

RESPONSE OBJECTIVE: Contain and recover oil.

RESPONSE PROCEDURE: See Humboldt Bay Geographic Response Plan.

It is important to begin response immediately because of the large tidal prism of Humboldt Bay. Nearshore water can intrude into North Humboldt Bay (Arcata Bay) with a single tidal change of six (6) feet, and, depending upon wind and weather, could carry oil with it. Response to oil intruding into Humboldt Bay should be staged as follows.

1. The vessel/facility plan should be implemented immediately. Containment of spilled products at the source should begin immediately because they will not be recoverable once they have dispersed into the 1 - 3 knot currents existing in Humboldt bay channels.

2. Alert PGE to boom the cooling water inlet to the power plant at King Salmon (Health and safety issue)

3. Close manually controlled gates to Elk River marsh. Both Chevron International and the city of Eureka have keys to the chain locks.

4. Place pre-fitted splash boards into slots in water control structure at Palco marsh. Boards are stored at Chevron and personnel here know the location for their deployment.

5. On-water skimming and recovery should begin as soon as possible. MSRC has a fully assembled and operational shuttle barge system on the Bay. Clean Pacific Alliance (CPA) has skimmers, boom, and a workboat on board the barge C. P. Sacramento.

6. Establish shoreside deflection/collection/recovery sites immediately. These are places along the Samoa peninsula, and at Elk River where oil will probably collect due to bay water circulation patterns. These include:

    a. Coast Guard cove

    b. U. S. Coast Guard boat station

    c. Samoa boat launching ramp

    d. Elk River mouth

6. Deploy harbor boom and skimming systems in South Bay channels (Fields Landing channel and Hookton channel) to recover oil before it is allowed to intrude further into the mud flats and eel grass meadows of South Bay. Oil may also be diverted to shoreside collection sites at Humboldt Bay Forest Products and at the Fields Landing launching ramp.

SITE INFORMATION AND SPILL RESPONSE STRATEGY (continued)

SITE NAME/NO. NC-034-A, Humboldt Bay Inlet and Samoa Peninsula

RECOMMENDED RESOURCES:

harbor boom (2,000'), sorbent boom (2,000') or equivalent in pads or sweep, anchors (10), work boats (4), workers (12), skimmers (2), vacuum truck (2) with appropriate hose end for recovery of oil.

STAGING AREA:

Pacific Affiliates at 'A' St. dock, Parking lot S. end Woodley I. Marina, Murray Airport, LP Corporation in Samoa, PG&E power plant at King Salmon, Humboldt Forest Products dock, any of the shoreside areas identified for deflection/collection.

An SBS is stationed by MSRC, under contract to Chevron Corporation, in the water at the Chevron bulk fuel facility for incidents that might happen at that location.

Additional SBS or VOSS deployment can be done by crane from Humboldt Forest Products dock and at Humboldt Bay Marine Services in Fields Landing.

HAZARDS:

Swift tidal currents, waves that sometimes reach inside the Bay, soft sediments, mats of algae or eelgrass that can entangle and stall outboard motors, and plug skimmers.

POTENTIAL PHYSICAL (not biological) IMPACTS FROM OIL:

Oiling of man-made structures within the Bay; oiling of riprap and dolosse that stabilize the entrance channel.

CLEAN-UP STRATEGY:

Strategy should be appropriate for the geomorphology of the site and the biological plants and organisms extant at that location. See the NOAA Shoreline Countermeasures Manual. The appropriate method will be recommended by the planning section to the Unified Command following assessment by the shoreline cleanup assessment team.

COMMUNICATIONS: cellular phones and radios work throughout the area.

SITE INFORMATION AND SPILL RESPONSE STRATEGY

SITE NAME/NO. NC-035-A, North Humboldt Bay

RESPONSE OBJECTIVE: Prevent the intrusion of oil into north Humboldt Bay (Arcata Bay) through on-water recovery and exclusionary booming at Samoa Bridge and at additional sites south of the Samoa bridge. Once oil has passed under the Samoa bridge and into North Humboldt Bay, response and clean-up will be almost impossible because of the bays shallow depths.

RESPONSE PROCEDURE: The response strategy for this area is designed to take advantage of Humboldt Bay currents and circulation on the flood tide. The faster currents and the greatest volume of water flow through the Samoa channel.

See Humboldt Bay Geographic Response Plan. Boom placement is designed to keep oil in main channels and away from shoreline impacts until it can be deflected to recovery locations at Samoa bridge, in Samoa channel, and at the tip of Woodley Island.

1) Deploy boom in 'V' configuration during flood tide from Samoa Bridge pilings. Place skimmer in apex. 'Tie-in' with boom from Indian Island. Change configuration to south side of bridge during ebb tide, if appropriate.

2) Deflect oil away from Indian Island. Lay boom along west shoreline of island, parallel with the current, from near southern tip to skimmer at Samoa bridge.

3) A skimmer should be placed near the tip of Woodley Island with it's east wing (boom) extended across the Inner Reach to near Coast Oyster Company. The west wing consists of boom extended in cascading, 'herring bone,' configuration across Eureka Channel to near the tip of Indian Island.

4) Do additional skimming in the Samoa Channel from the 'hook' of one or more deflection booms angled South into the Samoa Channel in 'J' configuration (Do not do this instead of #3, but in addition to it). The skimmers and booms should be located in the vicinity of the LP Corporation docks for recovery by vacuum trucks.

5) Short lengths of harbor or intertidal boom should be used to keep oil from entering the channels that intrude into the east side of Indian Island, and into Woodley Island and Daby Island.

6) Harbor boom, backed by sorbent boom, should be extended across Eureka Slough from the N. abutment of the Railroad bridge to the S. abutment of the Highway 101 bridge.

7)Be prepared to deploy harbor and intertidal boom across Jacoby Creek, Butcher Slough, Gannon Slough, and McDonald Slough.

SITE INFORMATION AND SPILL RESPONSE STRATEGY

SITE NAME/NO. NC-035-A, North Humboldt Bay (excluding Mad River Slough)

RECOMMENDED RESOURCES:

10,350’ hard boom, 10,350’ sorbent boom or equivalent in sorbent pads or sweep, 500’ intertidal boom, 3 skimmers, 11 workboats or skiffs, anchors of appropriate type and weight (25), persons (68 - sum of all persons indicated for all locations in NC-35-A), miscellaneous hand tool such as sledge hammers and stakes for anchoring boom.

STAGING AREA:

Staging areas: Pacific Affiliates at ’A’ St. dock, Parking lot S. end Woodley I. Marina, Murray Airport, City of Arcata Corporation yard, Sierra Pacific Industries, LP Corporation in Samoa, Simpson Corporation in Fairhaven (plant that has been closed).

SBS deployment can be done by crane from Humboldt Forest Products dock at Fields Landing. Humboldt Bay Marine Services in Fields Landing can also launch SBS barges and provide dock space for assembly. Use of the Eureka City dock at the foot of Commercial Street should also be investigated.

HAZARDS:

Traffic hazards and limited parking along some highways. Soft sediments and shallow depths within much of North Humboldt Bay. The flight path for Murray Airport is over North Humboldt Bay. Over head power lines parallel Highway 255 across the North end of North (Arcata) Bay.

POTENTIAL PHYSICAL (not biological) IMPACTS FROM OIL:

Penetration of light oils into invertebrate burrows. Oiling of Marsh vegetation and manmade structures associated with mariculture. Possible intrusion of oil into some Arcata oxidation ponds that are tidal.

CLEAN-UP STRATEGY:

None in marsh areas. Use sorbents wherever possible. Refer to the OSPR’s ‘Biological supplemental report’ prepared after the Humboldt Bay oil spill incident by the vessel ‘Kure’ in November 1997 before considering marsh treatments.

COMMUNICATIONS: cellular phone and radios operate throughout the bay area.

SITE INFORMATION AND SPILL RESPONSE STRATEGY

SITE NAME/NO. NC-036-A, Mad River Slough

RESPONSE OBJECTIVE:

Prevent oil from being carried by the flood tide into the extensive marsh complex within the slough. Use exclusionary boom techniques.

RESPONSE PROCEDURE: See Humboldt Bay Geographic Response Plan

Working from the land, deploy boom across the mouth of the Slough. Use intertidal boom on the exposed mud flats on either side of the slough channel. Join these to harbor boom crossing the deeper channel of the slough. Use sorbent boom behind the intertidal and harbor boom to contain entrained oil. If volume of oil is of sufficient quantity use skimmer and/or vacuum truck to collect oil in apex of hard boom.

RECOMMENDED RESOURCES: See Humboldt Bay Geographic Response Plan

Harbor boom (1200’), intertidal boom (100’), Sorbent boom or equivalent (1200’), workers (6)

STAGING AREA:

Sierra Pacific Industries at the mouth of Mad River Slough. Boom can be deployed from Sierra Pacific and towed into place, or deployed from the state Hwy 255 bridge crossing of the Slough.

HAZARDS:

Soft sediments in the Bay and around the mouth of the slough will hamper operations. Heavy traffic on state Hwy 255 is a hazard. Traffic control should be done.

COMMUNICATIONS: Cell phone and radio communications available at this site.