TECHNICAL NOTE

USDA NATURAL RESOURCES CONSERVATION SERVICE HAWAII

Water Technical Note - No. 10

CONTAMINANTS PRESENT IN THE ORIGINAL WATER QUALITY LIMITED SEGMENTS

This coversheet transmits information about the contaminants present in the fourteen original Water Quality Limited Segments.

The information may be used as a reference to complete Water Quality Technical Note No. 1, Water Quality Risk Assessment or for other assessments.

The information came from the publication entitled : Hawaii's Assessment of Nonpoint Source Pollution Water Quality Problems," completed by the State of Hawaii, Department of Health in November 1990.

These WQLSs are "limited" in that water quality data obtained historically has shown these areas to exceed standards in one or all of the following parameters:

- Total Nitrogen
- Ammonia Nitrogen
- Nitrate and Nitrite
- Total Phosphorus
- Light Extinction
- Chlorophyll-a
- Turbidity.

These parameters are elevated due to nonpoint source pollution (NPSP). Urban and agricultural runoff enter into streams and coastal waters. Some of the components of runoff are dissolved solids, nutrients and bacteria. Natural conditions contribute the major amount of pollutants. Agriculture, industrial and urban activities are also significant contributors.

Ala Wai Canal. The Ala Wai Canal is a two mile long, man-made canal located on the southern coast of the Island of Oahu. It extends southeast by northwest to physically separate Waikiki and its tourist attractions from the rest of urban Honolulu and covers an area of approximately 12 acres.

The canal was built in 1927 as a marsh reclamation project to control mosquitoes. In addition to draining the marsh, however, the canal was also designed to drain runoff from forest reserves and urban areas.

Construction activity in Waikiki and urbanization of the McCully, Manoa Valley, and Palolo Valley Districts contribute sediment input and stormwater runoff into the Ala Wai Canal. Although major construction activities upstream have ceased, nonpoint sources and urban runoff continue to drain into the canal.

The Ala Wai Canal regularly exceeds general water quality standards for nitrogen, phosphorus, and turbidity. Cursory observation of the channel indicates that basic water quality tenets, i.e., there shall be no floatable materials or objectionable deposits, are also commonly violated.

In 1978, the Department of Health conducted a survey of heavy metals, chlorinated pesticides, and PCBs in the Hawaiian environment. The survey indicated significant levels of copper, zinc, chromium, and nickel, and extraordinary levels of lead and chlorinated pesticides in the Ala Wai Canal.

In spite of the water quality and the general condition of the canal, the Ala Wai continues to support recreational uses. Fishing, crabbing, and canoeing are important recreational activities along the Ala Wai.

Hanapepe Bay. Hanapepe Bay is located on the southwest coast of the Island of Kauai, between Hanapepe and Port Allen. Its boundary extends along the 1,000 foot long breakwater on the eastern shore and the 30-foot-depth contour to a point south of Pualo Point to cover an area of 297 acres.

Rivers feeding the Bay begin in forest uplands. From there they travel through pasture and range land, land used to grow sugarcane, and the rural towns of 'Ele'ele, Port Allen, and Hanapepe.

Hydrologic modifications have greatly affected the Bay. Erosion of the western end of the one-half mile long beach at the head of the Bay has occurred as a result of the breakwater. Although this erosion most likely began before the construction of the breakwater, it has greatly accelerated since the completion of the breakwater.

Hanapepe Bay is a class A embayment. According to State water monitoring records, the waters of the Bay regularly exceed State standards for turbidity.

Discoloration of the Bay as a result of flood flow discharges is a common occurrence, but the waters will generally clear quite rapidly.

Along the east banks of the Bay are salt marshes with great wildlife value, and an important Hawaiian salt production area. Some commercial activity occurs at Port Allen in Hanapepe Bay but for the most part, activity in the bay is recreational. Activities include swimming, pole and line fishing, and small boating.

Hilo Bay. Hilo Bay is located on the northeast coast of the Island of Hawaii. It is bounded by the 30-foot-depth contour, from the tip of the 10,079-foot-long breakwater to Paukaa Point, and covers an area of 1,788 acres. Included in the segment is the Waiakea Pond and Wailoa River.

Five natural discharges enter into the Hilo Bay segment: Wailoa River, Wailuku River, Pukihae Stream, Pohakaunanaka (intermittent stream), and Maili Stream. These rivers and their tributaries originate on the slopes of Mauna Kea and Mauna Loa, and drain forests, pasture and range land, agricultural fields, and urban areas. In the higher elevations, eucalyptus trees are raised for biomass fuel to generate electricity. Cattle graze the Puu O'o area above the forest reserve and the mauka fringe of the city of Hilo. Sugar, the principal crop grown on the Island, is grown in the Hilo Bay watershed along the rural areas north of Hilo along the Belt Highway. A major agricultural change is the conversion of 8,000 acres of sugarcane land to macadamia nut orchard. Cattle, hogs, poultry, vegetables, flowers and landscaping plants are also grown in the area surrounding Hilo. Urban areas which drain into the bay include Hilo's parks, business and residential zones, infrastructure, and harbor.

The Wailuku (300 mgd) and Wailoa Rivers (100 mgd to 300 mgd), compose the major discharges or water and sediment to the Bay. It is estimated that in 1979, the Wailuku River discharged over 36,900 tons of suspended sediment.

Large surface and subsurface flows enter the bay and form a fresh water layer on the surface of the Bay. The vertical stratification which is maintained by the prevailing shoreward trade winds of the area prolongs the residence time of water in the Bay and encourages the growth of phytoplankton in its upper fresh water layer. In addition, the slow seaward movement of the Bay's lower waters are generally insufficient to flush out suspended silts from the Bay. Silt and mud which accumulate contribute to the Bay's turbidity.

Nutrient rich waters increase the growth of microscopic life and algae which enter as both surface and subsurface flows, contributing to the turbidity of the bay. Nutrient rich flows include the surface flows of the Wailoa River as well as subsurface flows from sources near Reeds Bay, Coconut Island, and the Keaukaha area. Subsurface flows contribute flow volumes as high as 200 mgd.

Hilo Bay is a Class A embayment. State monitoring of water for Hilo Bay show frequent exceedence of water quality standards for nitrogen, phosphorus, and turbidity. Violations of other water quality parameters are suspected to have occurred in the past, when bagasse and sewage were discharged into the Bay.

In 1978, Hilo Bay was included as a survey site for a Department of Health study on the occurrance of heavy metals, chlorinated pesticides, and PCB's in the Hawaiian environment. The study found exceptionally high levels of arsenic in sediments in Hilo Bay and, in particular, from Waiakea Pond. Other contaminants found in Hilo Bay included lead, zinc, chromium, chlordane residues, and PCB's (e.g., Aroclor 1254).

The high levels of arsenic in the Bay and in Waiakea Pond have resulted from waste discharges containing arsenic trioxide, a compound used to treat fiber boards to prevent termite damage at the former Hawaiian Cane Products plant. Sediment core samples taken in Waiakea Pond, at the former site of the plant, have been found to contain the highest levels of arsenic. Hilo Bay sediments, however, show considerably lower arsenic levels from the entrance of the Wailoa River to the outer parts of the harbor.

Hilo Bay, particularly the Waiakea Pond, has a history of water quality problems. Records of the Hawaii District Health Office list complaints of odor, fish kills, and other problems from 1935 to 1960.

In spite of the turbid nature of the Bay, and the findings of the Department of Health's study, Hilo Bay and Waiakea Pond are important wildlife and fishery areas. Hilo Bay, in addition, is highly visible to residents and tourists and supports a fair amount of recreational boating.

Honolulu Harbor. Honolulu Harbor is located on the south shore of the Island of Oahu. Historically, the Harbor fronted Nuuanu Stream. The freshwater flow of Nuuanu Stream formed a natural channel in the reef leading out into Mamala Bay. The channel was expanded and deepened through dredging. Later, Kapalama Basin was added to the harbor. Today, Honolulu Harbor is bounded by the drawbridge which leads to Sand Island, and the Honolulu Channel. The segment lies within this boundary and extends to the 30-foot-depth contour to cover an area of 1,775 acres.

Honolulu Harbor receives runoff from the highly industrial areas adjacent to it. The Harbor is within the Mamala Bay and is classified as a Class A embayment by the State's water quality standards. The condition of the Harbor's waters are generally unfavorable. Described as stagnant and polluted, the harbor likely suffers from poor tidal and stream flow circulation and flushing. Although harbor modifications have been conducted and have improved the Harbor's circulation, Harbor water residence time remains long enough to show the effects of water pollution from drainage canals and streams in the surrounding areas.

Studies of the Harbor indicate that coliform bacteria, nitrogen, phosphorus, and turbidity levels in the water regularly exceed State water quality standards. In 1978 and subsequent Department of Health samplings for heavy metals, chlorinated pesticides, and PCB's, significant levels of copper, zinc, chromium, nickel, and lead have been identified as being present in Harbor waters. Significant levels of chlordane and dieldrin also have been identified. (DOH, 1978)

Honolulu Harbor is one of two commercial deep-draft harbors on Oahu. Due to its location in the Pacific, Honolulu Harbor has become an important port of call. Besides the normal port services and businesses, Honolulu Harbor is a Foreign Trade Zone, Headquarters for the 14th Coast Guard District, and home for the University of Hawaii's Marine Center. Many types of goods ranging from pineapple, cattle, and automobiles to petroleum products enter and exit the State through this Harbor. Generally, these harbor activities go on, unaffected by the quality of harbor water. Moreover, harbor activities contribute to the degraded condition of the harbor waters.

Kahana Bay. Kahana Bay is located on the northeast coast of the Island of Oahu. Its boundary is the 30-foot-depth contour from Mahie Point to where the 30-foot and 18-foot contours converge. One mile of Kahana Stream is also included. The Bay has a total area of 294 acres.

Kahana Bay is a very good example of a water body where nature's activities have a more profound effect on its water quality than man's activities. Kahana Valley is, for all essential purposes, as pristine a valley as one can find on Oahu. Currently, the entire valley is a state park. Only the lower end of the valley is developed. These developments which include farms, pasture lands, a beachpark, and several homes have minimal impact on the environment of the bay.

Lush vegetative growth in the valley and estuary generate high levels of nitrogen and phosphorus which is transported by overland flows in solution, attached to sediment, or as products of biological decay of organic matter. In the river estuary, flow velocities slow and allow nutrient rich solids to settle and concentrate.

Kahana Bay is a Class AA embayment. Water quality in the Bay, however, regularly exceeds water quality parameters for nitrogen, phosphorus, and turbidity. High levels of suspended solids and turbidity in the Bay show special correlation to periods of heavy rainfall. During such periods of heavy rainfall,

organic matter and sediment is discharged from the estuary into the Bay and give it a discolored look which will generally persist for days.

Kahana Bay's protected waters make it an ideal place for recreational fishing, swimming, canoe paddling, and small boating. The Kahana Stream also has value as a fish and wildlife habitat.

Kahului Bay. Kahului Bay is located on the north coast of the Island of Maui between the slopes of two volcanoes, Haleakala and West Maui. It covers an area of 242 acres and is bounded by the breakwaters which extend from the west and east shores at about right angles to each other. Kahului Harbor is located on the southern portion of the Bay.

Drainage into Kahului Bay is largely in the form of runoff from the urban centers of Wailuku and Kahului. In addition, ship and barge traffic, the Kahului airport, lands used for sugarcane cultivation, and east portions of the West Maui mountains (forest land) contribute pollutants. No streams or springs enter Kahului Bay, however, a lens of less saline water resides on the surface of the Bay. The presence of this lens suggests extrusion from basal groundwater sources (Department of Health, 1986).

Kahului Bay is a Class A embayment. State monitoring of Kahului Bay indicates that water quality standards for nitrogen, phosphorus, and turbidity are regularly exceeded. Incidents of bacterial contamination which result from cruise ship spills and storm drain outputs have been reported. For the most part, the waters of the bay are generally poor in quality.

The powerful longshore current, which sweeps around the north tip of East Maui, likely affects the residence time of pollution in Kahului Bay. Waters at the mouth of the harbor are generally turbid, and underwater visibility is generally poor due to strong winds which keep waters turbulent and murky.

A number of activities occur in Kahului Bay. Kahului Harbor is the Island's main port. An estimated 98.9 percent of all goods coming into Maui are transported through Kahului Harbor. Harbor activities include ship operation and maintenance, oil handling and bunkering, warehousing, trucking, storage, stevedoring, marine repair, and limited drydocking.

In addition, a cluster of hotels, beaches, the Kahului Breakwater Park, and a public boat ramp border the Bay. The Bay's shoreline access is excellent. People fish along the piers, breakwaters, and the coast between the harbor and Nehe Point. Large surf breaks in the Harbor during periods of North Pacific swells.

Kaneohe Bay. Kaneohe Bay is located on the east coast of the Island of Oahu. It covers an area of 11,939 acres, is bounded by the 18-foot-depth contour from Pyramid Rock (Mokapu) to Chinaman's Hat (Mokoli'i) and Kualoa Point, and is the largest embayment in the State.

Historically, the bay teemed with marine life. Fish were raised in the numerous fish ponds along the shoreline. Edible seaweeds were plentiful. Fish and crustaceans could be caught on the numerous reef flats of the bay.

In 1960, the completion of the Pali and Likelike Highways precipitated intensive urbanization of the Kaneohe area. Construction activity increased runoff and erosion that resulted in the rapid deterioration of the quality of water and marine life in the bay.

Studies were conducted to determine ways to halt and correct the damage to the bay. State monitoring of the bay during its degradation showed that water quality standards for nitrogen, phosphorus, turbidity, and fecal coliform were exceeded. This was due to construction activity and the discharge of sewage into the bay.

The relocation of sewage discharges out of the bay and better management of construction activities have resulted in the reproduction of some species of coral, and other organisms. Urban runoff continues to be major source of pollution to the bay.

Throughout its degradation and its rebirth, Kaneohe Bay has continued to be an important source of nehu (tuna baitfish) and wildlife habitat. Kaneohe Bay also supports abundant recreation.

The University of Hawaii Institute of Marine Biology (HIMB), with laboratory facilities on Coconut Island in Kaneohe Bay, has studied coral growth from pre-pollution, pollution, and post-pollution periods. Perhaps, as improvements in water quality are documented, Kaneohe Bay will be removed from Hawaii's WQLS list in the near future.

Keehi Lagoon. Keehi Lagoon is located on the southern coast of the Island of Oahu. It extends from the airport reef runway to the bascule bridge which leads to Sand Island, is bounded by the 30-foot-depth contour, is the largest lagoon in the State, and covers an area of 3,550 acres.

Keehi Lagoon's shoreline is nearly all man made. Two perennial streams enter into Keehi Lagoon at its northern end—Moanalua Stream and Kalihi Stream. Nonpoint source runoff from these streams contributes considerably to the pollution of Keehi Lagoon. Both streams receive runoff from the Mapunapuna Industrial area, the Army's Fort Shafter and Tripler Army Medical Center, residential Kalihi Valley, major highways, and the airport industrial area.

Keehi Lagoon is a Class A embayment. Although its circulation, in spite of the location of the airport's reef runway, is good, Keehi Lagoon regularly experiences violations of water quality parameters for phosphorus and turbidity.

The currents in Oahu's southern coastal waters, which move from Honolulu Harbor into Keehi Lagoon, may transport the polluted waters of Honolulu Harbor into Keehi Lagoon and recirculate suspended matter within the Lagoon.

Light industries, businesses, parks, and harbor facilities line the lagoon's shoreline. On the northeast shore of the Lagoon is small boat harbor, a marina and drydock, and a number of light industrial baseyards. The northwest shore is primarily open filled area. A park is located on the extreme northern portion of this shore.

Keehi Lagoon is valuable for its fishery and wildlife resources and is presently used for bait fishing, crabbing, and to some extent, recreational fishing. The Lagoon is extensively used for boating. The two public boat ramps of the Keehi Small Boat Harbor are heavily used during weekends and holidays.

Kewalo Basin. Kewalo Basin is located on the southern coast of the Island of Oahu. It extends from the Honolulu Channel to the east end of Kewalo Basin, and is bounded by the 30-foot-depth contour.

Two major storm drains discharge into Kewalo Basin. These storm drains collect runoff from extensive areas of commercial, light industrial, park, and residential areas. One of the storm drains serves the Ala Moana Park and Shopping Center and the residential and commercial areas to the north. The other storm drain serves the Ward Avenue-Kakaako District, a district consisting of mostly light industrial and commercial businesses. All areas are surrounded and affected by heavy vehicular traffic.

Kewalo Basin's design hinders circulation of water in the basin. As a result, the urban pollutants that collect in the basin remain concentrated for extended periods. Kewalo Basin is an example of how nonpoint source discharges can influence the water quality of dredged basins.

Kewalo Basin is a Class A embayment. Although the State conducted only limited monitoring of Kewalo Basin, it has received complaints of various spills of oil and paint into the basin from storm drains. Based on a special study and observations of the Basin, the Department of Health has determined that storm water runoff into the Basin causes exceedence of water quality standards for nitrogen, phosphorus, and turbidity. Such being the case, Kewalo Basin has been included in the State's list of WQLSs.

Kewalo Basin is the principal commercial fishing port in Hawaii. The Basin also provides a port for various leisure vessels which serve the tourist industry, supports drydock and mooring facilities, the University of Hawaii's Kewalo Marine Lab and the U. S. Fish and Wildlife Service's facilities.

Nawiliwili Bay. Nawiliwili Bay is located on the southeast coast of the Island of Kauai, two miles from Lihue. It is bounded by an imaginary line from the breakwater to Kukii Point and covers an area of 333 acres.

The bay, a well-developed embayment, was formed by the confluence of the Hule'ia, Pu'ali, and Nawiliwili Streams. Pu'ali and Nawiliwili Stream enter Nawiliwili Bay to the north of Hule'ia Stream. Of the three streams, Hule'ia Stream provides the largest flow into Nawiliwili Bay.

The headwaters of Hule'ia Stream are in the extremely rugged Waialeale-Kawaikini mass of central Kauai. From these slopes, the Hule'ia Stream winds it way through forest, agricultural, pasture, and other lands. The Nawiliwili and Pu'ali Streams, although draining flatter, less erosive lands, also contribute nonpoint source pollutants. A rock quarry located on the Nawiliwili Stream is a major contributor of sediment to the Bay.

In its lower reach, the Hule'ia Stream is lined with a dense overgrowth of hau and American (red) mangrove. The lower part of the Hule'ia Stream is a significant estuary where tidal influence extends beyond flat pasture lands to the upstream

edge of the Hule'ia National Wildlife Refuge, which is upstream of the well known Menehune Fishpond.

Nawiliwili Bay is a Class A embayment. State monitoring of Nawiliwili Bay shows that water quality standards for nitrogen and turbidity are regularly exceeded.

Historically, sugarcane trash and washings discharged into Nawiliwili Stream would end up in the bay. These discharges, which at one time were blamed for the high nitrogen and turbidity levels in the Bay, have been stopped.

Current levels of nutrients and turbidity in the Bay are now suspected to be the product of the vegetative growth along the river and seasonal input from storm water sources. Dense growths of mangrove and other vegetation which line the shores of the Hule'ia Stream, decompose and introduce considerable amounts of organic material to the bay. In addition, heavy rains transport silt and nutrients from sugarcane land into the bay and give it, at times, a brown color. Sediment discharges from the Hule'ia and Nawiliwili Streams occur principally after intense rainfall.

The Menehune Fishpond, which lies in a natural basin formed by walling off a portion of Hule'ia Stream, was used historically for mullet production. Today, the fishpond's shoreline is overgrown with mangrove and hau, and its rock walls are in disrepair. Furthermore, the fishpond has in recent years experienced increased siltation due to winter floods that overtop the fishpond wall and deposit sediment. Mangrove seedlings have encroached into shallow water, particularly in the eastern end of the pond.

Nawiliwili Bay supports a deep draft commercial harbor and a small boat harbor with charter fishing operations. Periodic dredging is required to maintain navigable depths in the Harbor, whose depths range from 70 to 100 feet, and whose bottom consists of fine sand and silt.

Recreational activities include fishing and crabbing in the bay and adjoining Hule'ia River, and surfing and canoe paddling in the water fronting Kalapaki Beach on the north shore of the bay.

Pearl Harbor. Pearl Harbor is located on the south coast of the Island of Oahu. The Harbor consists of four lochs and an island and has a total water surface area of about 5,100 acres. Included in the segment are West Loch, Middle Loch, East Lock, Southeast Loch, and Ford Island.

By its geological origin, Pearl Harbor has been the "sink" of the southern coastal plain of Oahu. Its three lochs represent the drowned valleys of three major stream systems. These "valleys" have been altered in shape by marine erosion and sediment. The most drastic changes to the harbor, however, are those which occurred during and after World War II.

Eight streams enter into Pearl Harbor. Honouliuli and Waikele Streams enter into West Loch, Waiawa Stream into Middle Loch, and Waiau, Waimalu, Kalanao, Aiea, and Halawa Streams enter into East Loch. Although the Pearl Harbor area receives only 20-30 inches of rain per year, the rainfall at the heads of the various rivers which drain into Pearl Harbor range upwards to 250 inches per year. This abundance of rainfall in the higher areas has profound effects on the entire Pearl Harbor basin. From these high rainfall, upland areas, runoff is produced which transports to the harbor pollutants from forest, agricultural (primarily sugarcane and pineapple), commercial, industrial, military, and residential lands.

Pearl Harbor is a Class A embayment. Among the numerous studies done of Pearl Harbor is an intensive Department of Health survey of Pearl Harbor's Middle Loch. This study lists, as do others, violations of water quality criteria for nitrogen, phosphorus, turbidity, and fecal coliform.

Pearl Harbor is the largest harbor in the State. It is used primarily as a naval facility (shipyard) but, in addition to being headquarters for the 14th Naval District, Pearl Harbor is the major source of bait fish (nehu) for the State's tuna fleet, a popular tourist attraction (the Arizona Memorial), an important wildlife area, is used for recreation, supports public and private park facilities, and contains more than 12 miles of dock space.

South Molokai. South Molokai, as its name suggests, is located off the Island of Molokai. Bounded by the 18-foot-depth contour from Laau Point eastward to Pohakuloa, it covers an area of 11,417 acres.

The area which drains into South Molokai extends from Laau Point to Mauna Loa, then to Kualapuu, and ends just west of Kaunakakai. Streams within this area are perennial in their upper reaches and intermittent or non-existent at the coastline. During heavy rains, however, these streams will fill with water, overflow their banks, and flood the entire southern coastline with turbid runoff. Runoff transported by these streams are generated from abandoned pineapple fields, cropland, pasture, a state highway system, a network of dirt roads, and the town of Kaunakakai. Of particular concern are the dirt pineapple field roads and poorly managed pasture land.

On Molokai, drought conditions and incessant strong winds reduce soil moisture which prevents the growth of adequate cover. When rains do occur, they often bring intense and heavy rainfall which create immense amounts of runoff which can transport sediments and pollutants. Flows into South Molokai are heaviest into the Palaau coastal plains located just west of Kaunakakai.

The waters of South Molokai are Class A open coastal waters from the west to Kelealona point and Class AA open coastal waters to the east. State monitoring of South Molokai shows significant violations of water quality standards for suspended solids and nutrients (especially ortho-phosphate). Suspended solids have been noted to exceed the standard by 100 times over.

Mudflats predominate the Island's south coast where there were once a large number of fishponds. Dense stands of mangroves limit off-shore activity. Today, although in-water activity of the southern coast is minimal, it does retain value as an important wildlife area and supports park facilities.

Waialua-Kaiaka Bay. Waialua-Kaiaka Bay is located on the northwest coast of the Island of Oahu. The bays are bounded by the 60-foot-depth contour from Puaena Point to past Kaiaka Bay and covers an area of 1,208 acres.

Freshwater flows into the bays are supplied by the Kiikii and Paukauila Streams, for Kaiaka Bay, and the Anahulu River, for Waialua Bay. Waialua Bay also has fresh water flowing into it from Loko Ea, a fishpond fed by springs from the Ukoa pond and swamp to the north.

The three streams, Kaukonahua (Kiikii), Paukauila and Ananulu, which empty into Kaiaka and Waialua Bay carry large amounts of silt during heavy rains. They derive most of their pollutant loading from forest, pineapple, and sugarcane lands and cause the high pollutant loads in the bays.

Currents in Waialua Bay are predominantly wave induced and are most significant during heavy surf conditions. During winter months, currents can clear turbid waters caused by storm runoff in ten days. In summer months Waialua Bay can remain turbid for periods up to two weeks.

Waialua Bay is a Class A embayment and Kaiaka Bays is a Class AA embayment. State monitoring of the bays shows that water quality standards for turbidity and phosphorus are exceeded.

Within Waialua Bay is the Haleiwa Small Boat Harbor where recreational and some commercial bait fishing is conducted. While there is some fishing activity in Kaiaka Bay, crabbing is the most frequent activity.

Waimea Bay. Waimea Bay is located on the southeast coast of the Island of Kauai. It is bounded by the 18-foot contour from Oomano Point to Koki Point, includes the Waimea River and Kikiaola Boat Harbor and covers an area of 1,214 acres.

The Waimea River, which flows into Waimea Bay, has an estuarine lower course reaching nearly two miles upstream. The upper end of the estuary has two arms, the western one being the Waimea River itself and the eastern Makaweli River, its major tributary. Below the confluence, the flood plain has a width of about 2,000 feet.

The town of Waimea occupies the flood plain of the lower Waimea River and the adjacent coastal plain. A flood-control dike has been erected on the western bank of the river to protect the town.

Waimea Bay is a Class A embayment. There are presently no water quality monitoring stations in the area. However, the inshore waters off Kekaha Beach are often observed to be turbid.

Historically, three sugar mills discharged cane trash and waste waters into the southern coast of Kauai—Kekaha Sugar Mill located just east of Oomano Point, Olokele Mill at Kaumakani, and McBryde Sugar Mill at Numila. These discharges contained silt and bagasse that were carried by ocean currents to Waimea Bay. Today, only irrigation tailwater discharges occur and are regulated under the National Pollutant Discharge Elimination System (NPDES).

Bagasse is used as a fuel source and mill waste water is returned to sugarcane fields for irrigation. Today, the redistribution of mud discharged to the ocean through the Waimea River estuary during flood seasons perpetuates the muddy conditions of Waimea Bay. A bottom sediment sample dredged at a depth of 180 feet offshore of the Waimea River mouth indicated thick mud deposits. If the muddy condition of Waimea Bay is primarily due to resuspension of sediments, removal of the Bay as a WQLS may be in order.

The Kikiaola light draft vessel harbor, constructed by the state in 1959, includes a launching ramp, a marginal wharf, and a number of breakwaters. Uses which surround the harbor include pole and line fishing, throw netting, board surfing, canoe paddling, limu gathering, gill netting, and torching. Although the bay includes a long, wide beach located just to the west of the Boat Harbor, the beach is not used much due to its location.