APPENDIX F

STATE WATER QUALITY STANDARDS

TITLE 11, CHAPTER 54

"HAWAII ADMINISTRATIVE RULES

TITLE 11

DEPARTMENT OF HEALTH

CHAPTER 54

WATER QUALITY STANDARDS

revised 8/04

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§11-54-01 Definitions. As used in this chapter:

"Ambient conditions" means the water quality conditions that would occur in the receiving waters if these waters were not influenced by the proposed new human activity.

"Amphidromous" means aquatic life that migrate to and from the sea, but not specifically for reproductive purposes. Amphidromous aquatic life in Hawai'ian streams are confined to fresh waters as adults, but their larval stages are partially or entirely spent in the ocean as part of the zooplankton.

"Anchialine pools" means coastal bodies of standing waters that have no surface connections to the ocean but display both tidal fluctuations and salinity ranges characteristic of fresh and brackish waters, indicating the presence of subsurface connections to the watertable and ocean. Anchialine pools are located in porous substrata (recent lava or limestone) and often contain a distinctive assemblage of native aquatic life. Deeper anchialine pools may display salinity stratification, and some shallow pools may contain standing water only on the highest tides.

"Aquatic life" means "any type or species of mammal, fish, amphibian, reptile, mollusk, crustacean, arthropod, invertebrate, coral, or other animal that inhabits the freshwater or marine environment and includes any part, product, egg, or offspring thereof; or freshwater or marine plants, including, seeds, roots, products, and other parts thereof" (section 187A-1, HRS).

"Best degree of treatment or control" means that treatment or control which is required by applicable statutes and regulations of the State of Hawai'i and the Federal Water Pollution Control Act, as amended, (33 USC 1251, et seq.) or which is otherwise specified by the director considering technology or management practices currently available in relation to the public interest.

"Brackish waters" means waters with dissolved inorganic ion concentrations (salinity) greater than 0.5 parts per thousand, but less than thirty-two parts per thousand.

"Coastal waters," means "all waters surrounding the islands of the State from the coast of any island to a point three miles seaward from the coast, and, in the case of streams, rivers, and drainage ditches, to a point three miles seaward from their point of discharge into the sea and includes those brackish waters, fresh waters and salt waters that are subject to the ebb and flow of the tide" (section 342D-1, HRS).

"Coastal wetlands" means natural or man-made ponds and marshes having variable salinity, basin limits, and permanence. These wetlands usually adjoin the coastline and may be subject to tidal, seasonal, or perennial flooding. Coastal wetlands are generally maintained by surface and subterranean sources of fresh and salt water. Many natural coastal wetlands have been modified significantly by man and are characterized by

introduced aquatic life. Coastal wetlands include, but are not limited to, salt marshes, open ponds, mudflats, man-made or natural waterbird refuges, isolated seasonal lakes and mangrove flats.

"Department" means department of health, State of Hawai'i.

"Developed estuaries" means volumes of brackish coastal waters in well-defined basins constructed by man or otherwise highly modified from their natural state. Developed estuaries include, but are not limited to, dredged and revetted stream termini.

"Director" means the director of health, State of Hawai'i, or the director's duly authorized agent.

"Ditches and flumes" means fresh waters flowing continuously in artificial channels. They are used mainly for the purpose of irrigation and usually receive water from stream diversions. Ditches and flumes may be inflowing (carry water to reservoirs or user areas) or outflowing (drain water from reservoirs or user areas).

"Drainage basin" or "watershed" means the region or area drained by a stream or river system.

"Elevated wetlands" means natural freshwater wetlands located above 100 m (330 ft) elevation. They are generally found in undisturbed areas, mainly in remote uplands and forest reserves with high rainfall. Elevated wetlands include upland bogs, marshes, swamps, and associated ponds and pools.

"Estuaries" means characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may be either natural or developed.

"Flowing springs and seeps" means perennial, relatively constant fresh water flows not in distinct channels, in which the water emanates from elevated aquifers as wet films or trickles over rock surfaces. They are found typically as natural occurrences along rock faces or banks of deeply incised streams, and artificially along road cuts.

"Flowing waters" means fresh waters flowing unidirectionally down altitudinal gradients. These waters may or may not be confined in distinct channels. Flowing waters include streams, flowing springs and seeps and ditches and flumes.

"Fresh waters" means all waters with a dissolved inorganic ion concentration of less than 0.5 parts per thousand.

"Hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded and develops conditions that favor the growth and regeneration of hydrophytic vegetation.

"Hydrophytic vegetation" or "hydrophytes" means plants adapted to growing in seasonally or permanently flooded conditions.

"Intermittent streams" means fresh waters flowing in definite natural channels only during part of the year or season. Intermittent streams include many tributaries of perennial

streams.

"Introduced aquatic life" means those species of aquatic organisms that are not native to a given area or water body and whose populations were established (deliberately or accidentally) by human activity. "Introduced" organisms are also referred to as "alien" or "exotic".

"Low wetlands" means freshwater wetlands located below 100 m (330 ft) elevation that may be natural or artificial in origin and are usually found near coasts or in valley termini. Low wetlands are maintained by either stream, well, or ditch influent water, or by exposure of the natural water table. Low wetlands include, but are not limited to, natural lowland marshes, riparian wetlands, littoral zones of standing waters (including lakes, reservoirs, ponds and fishponds) and agricultural wetlands such as taro lo'i.

"Native aquatic life" means those species or higher taxa of aquatic organisms that occur naturally in a given area or water body and whose populations were not established as a result of human activity.

"Natural estuaries" means volumes of brackish coastal waters in well-defined basins of natural origin, found mainly at the mouths of streams or rivers. Natural estuaries can be either stream-fed (drowned stream mouths fed by perennial stream runoff) or spring-fed (nearshore basins with subterranean fresh water sources). Stream-fed estuaries serve as important migratory pathways for larval and juvenile amphidromous stream fauna.

"Natural freshwater lakes" means standing water that is always fresh, in well-defined natural basins, with a surface area usually greater than 0.1 ha (0.25 acres), and in which rooted emergent hydrophytes, if present, occupy no more than 30% of the surface area. Natural freshwater lakes in Hawai'i occur at high, intermediate, and low elevations. Lowland freshwater lakes characteristically lack a natural oceanic connection (surface or subsurface) of a magnitude sufficient to cause demonstrable tidal fluctuations.

"Perennial streams" means fresh waters flowing year-round in all or part of natural channels, portions of which may be modified by humans. Flow in perennial streams may vary seasonally. Perennial streams may be subdivided into longitudinal zones, based on elevation and gradient: (1) headwater zone (elevation above 800 m [2600 ft] or gradient above 30 per cent or both); (2) mid-zone (elevation between 50-800 m [165-2600 ft], or gradient between 5 and 30 per cent or both); and (3) terminal zone (elevation below 50 m [165 ft] or gradient below 5 per cent or both). Perennial streams may be either continuous or interrupted. Continuous perennial streams discharge continuously to the ocean in their natural state, and contain water in the entire length of the stream channel year-round. Interrupted perennial streams usually flow perennially in their

upper reaches but only seasonally in parts of their middle or lower reaches, due to either downward seepage of surface flow (naturally interrupted) or to man-made water diversions (artificially interrupted).

"Reservoirs" means standing water that is always fresh, in well-defined artificially created impoundments.

"Saline or salt waters" means waters with dissolved inorganic ion concentrations greater than thirty-two parts per thousand.

"Saline lakes" means standing waters of salinities ranging from brackish to hypersaline, located in well-defined natural basins, and lacking a natural surface connection to the ocean. Saline lakes may be present as high-island shoreline or near-shoreline features (e.g. Lake N•milu, Kaua'i; Salt Lake, O'ahu; Lake Ka-uha-k•, Moloka'i) or as low-island closed lagoons (Lake Laysan, Laysan). They are usually, but not always, fed by seawater seepage and may be diluted by rainwater, overland runoff, or ground water, or concentrated by evaporation.

"Springs and seeps" means small, perennial, relatively constant freshwater flow not in distinct channels, such as wet films or trickles over rock surfaces, in which the water emanates from elevated aquifers. Springs and seeps may be either stream associated, occurring in deeply cut valleys and contributing to stream flow; or coastal, occurring on coastal cliffs and usually flowing into the ocean.

"Standing waters" refers to waters of variable size, depth, and salinity, that have little or no flow and that are usually contained in well-defined basins. Standing water bodies include natural freshwater lakes, reservoirs or impoundments, saline lakes, and anchialine pools.

"State waters", as defined by section 342D-1, HRS, "means all waters, fresh, brackish, or salt around and within the State, including, but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes; provided that drainage ditches, ponds, and reservoirs required as part of a water pollution control system are excluded." This chapter applies to all State waters, including wetlands, and excluding the following: groundwater; and ditches, flumes, ponds, and reservoirs required for water pollution control or used solely for irrigation, so long as they do not discharge into any other State waters. The State of Hawai'i has those boundaries stated in Hawai'i Constitution, art. XV, §1.

"Streams" means seasonal or continuous water flowing unidirectionally down altitudinal gradients in all or part of natural or modified channels as a result of either surface water runoff or ground water influx, or both. Streams may be either perennial or intermittent and include all natural or modified watercourses.

"Stream channel" means a natural or modified watercourse with a definite bed and banks which periodically or continuously

contains flowing water.

"Stream system", means the aggregate of water features comprising or associated with a stream, including the stream itself and its tributaries, headwaters, ponds, wetlands, and estuary. A stream system is geographically delimited by the boundaries of its drainage basin or watershed.

"Surface water" means both contained surface water (that is, water upon the surface of the earth in well-defined basins created naturally or artificially including, but not limited to, streams, other watercourses, lakes, and reservoirs) and diffused surface water (that is, water occurring upon the surface of the ground other than in contained basins). Water from natural springs and seeps is surface water when it exits from the spring onto the earth's surface.

"Wetlands" means land that is transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface or the land is covered by shallow water. A wetland shall have one or more of the following attributes: 1) at least periodically the land supports predominantly hydrophytic vegetation; 2) the substratum is predominantly undrained hydric soil; or 3) the substratum is nonsoil (gravel or rocks) and is at least periodically saturated with water or covered by shallow water. Wetlands may be fresh, brackish, or saline and generally include swamps, marshes, bogs, and associated ponds and pools, mud flats, isolated seasonal ponds, littoral zones of standing water bodies, and alluvial floodplains. For the purpose of applying for water quality certifications under Clean Water Act Section 401, and for National Pollutant Discharge Elimination System (NPDES) permit purposes, the identification and delineation of wetland boundaries shall be done following the procedures described in the U.S. Army Corps of Engineers' Wetlands Delineation Manual (USACE 1987). [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §187A-1, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-01.1 General policy of water quality antidegradation. Waters whose quality are higher than established water quality standards shall not be lowered in quality unless it has been affirmatively demonstrated to the director that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently in, those waters. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-02 Classification of state waters. (a) State waters are classified as either inland waters or marine waters.

(b) Inland waters may be fresh, brackish, or saline.

(1) All inland fresh waters are classified as follows, based on their ecological characteristics and other natural criteria:

(A) Flowing waters.

(i) Streams (perennial and intermittent);

(ii) Flowing springs and seeps; and

(iii) Ditches and flumes that discharge into any other waters of the State;

(B) Standing waters.

(i) Natural freshwater lakes; and

(ii) Reservoirs (impoundments);

(C) Wetlands.

(i) Elevated wetlands (bogs, marshes, swamps, and associated ponds); and

(ii) Low wetlands (marshes, swamps, and associated ponds).

(2) All inland brackish or saline waters are classified as follows, based on their ecological characteristics and other natural criteria:

(A) Standing waters.

(I) Anchialine pools; and

(ii) Saline lakes.

(B) Wetlands.

(i) Coastal wetlands (marshes, swamps, and associated ponds).

(C) Estuaries.

(i) Natural estuaries (stream-fed estuaries and spring-fed estuaries); and

(ii) Developed estuaries.

(c) Marine waters.

(1) All marine waters are either embayments, open coastal, or oceanic waters;

(2) All marine waters which are embayments or open coastal waters are also classified according to the following bottom subtypes:

(A) Sand beaches;

(B) Lava rock shorelines and solution benches;

(C) Marine pools and protected coves;

(D) Artificial basins;

(E) Reef flats; and

(F) Soft bottoms. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5)(Imp:HRS §§342D-4, 342D-5)

§11-54-03 Classification of water uses. (a) The following use categories classify inland and marine waters for purposes of applying the standards set forth in this chapter, and for the selection or definition of appropriate quality parameters and uses to be protected in these waters. Storm water discharge into State waters shall be allowed provided it meets the requirements specified in this section and the basic water quality criteria specified in section 11-54-04.

(b) Inland waters.

(1) Class 1.

It is the objective of class 1 waters that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any conduct which results in a demonstrable increase in levels of point or nonpoint source contamination in class 1 waters is prohibited.

(A) Class 1.a.

The uses to be protected in class 1.a waters are scientific and educational purposes, protection of native breeding stock, baseline references from which human-caused changes can be measured, compatible recreation, aesthetic enjoyment, and other nondegrading uses which are compatible with the protection of the ecosystems associated with waters of this class;

(B) Class 1.b.

The uses to be protected in class 1.b waters are domestic water supplies, food processing, protection of native breeding stock, the support and propagation of aquatic life, baseline references from which human-caused changes can be measured, scientific and educational purposes, compatible recreation, and aesthetic enjoyment. Public access to these waters may be restricted to protect drinking water supplies;

(2) Class 2.

The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. No new treated

sewage discharges shall be permitted within estuaries. No new industrial discharges shall be permitted within estuaries, with the exception of:

(A) Acceptable non-contact thermal and drydock or marine railway discharges within Pearl Harbor, Oahu;

(B) Stormwater discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-04(a), and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control;" and

(C) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control."

(c) Marine waters.

(1) Class AA.

It is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions. To the extent practicable, the wilderness character of these areas shall be protected. No zones of mixing shall be permitted in this class:

(A) Within a defined reef area, in waters of a depth less than 18 meters (ten fathoms); or

(B) In waters up to a distance of 300 meters (one thousand feet) off shore if there is no defined reef area and if the depth is greater than 18 meters (ten fathoms). The uses to be protected in this class of waters are oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment. The classification of any water area as Class AA shall not preclude other uses of the waters compatible with these objectives and in conformance with the criteria applicable to them;

(2) Class A.

It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in

and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. No new sewage discharges will be permitted within embayments. No new industrial discharges shall be permitted within embayments, with the exception of:

(A) Acceptable non-contact thermal and drydock or marine railway discharges, in the following water bodies:
  (i) Honolulu Harbor, Oahu;
  (ii) Barbers Point Harbor, Oahu;
  (iii) Keehi Lagoon Marina Area, Oahu;
  (iv) Ala Wai Boat Harbor, Oahu; and
  (v) Kahului Harbor, Maui.

(B) Storm water discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-04, and all applicable requirements specified in the chapter 11-55, titled "Water Pollution Control"; and

(C) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control".

(d) Marine bottom ecosystems.

(1) Class I.
It is the objective of class I marine bottom ecosystems that they remain as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state, such as for nonconsumptive scientific research (demonstration, observation or monitoring only), nonconsumptive education, aesthetic enjoyment, passive activities, and preservation;

(2) Class II.
It is the objective of class II marine bottom ecosystems that their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way. The uses to be protected in this class of marine bottom ecosystems are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and

with recreation. Any action which may permanently or completely modify, alter, consume,or degrade marine bottoms, such as structural flood control channelization,(dams); landfill and reclamation; navigational structures (harbors, ramps); structural shore protection (seawalls, revetments); and wastewater effluent outfall structures may be allowed upon securing approval in writing from the director, considering the environmental impact and the public interest pursuant to sections 342D-4, 342D-5, 342D-6, and 342D-50, HRS in accordance with the applicable provisions of chapter 91, HRS.[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000** (Auth: HRS §174C, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-04 Basic water quality criteria applicable to all waters. (a) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including:

(1) Materials that will settle to form objectionable sludge or bottom deposits;

(2) Floating debris, oil, grease, scum, or other floating materials;

(3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters;

(4) High or low temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water;

(5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life;

(6) Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

(b) To ensure compliance with paragraph (a)(4), all state waters are subject to monitoring and to the following standards for acute and chronic toxicity and the protection of human health.

(1) As used in this section:

(A) "Acute Toxicity" means the degree to which a pollutant, discharge, or water sample causes a

rapid adverse impact to aquatic organisms. The acute toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(B) "Chronic Toxicity" means the degree to which a pollutant, discharge, or water sample causes a long-term adverse impact to aquatic organisms, such as a reduction in growth or reproduction. The chronic toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(C) "Dilution" means, for discharges through submerged outfalls, the average and minimum values calculated using the models in the EPA publication, Initial Mixing Characteristics of Municipal Ocean Discharges (EPA/600/3-85/073, November, 1985), or in the EPA publication, Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Submerged Single Port Discharges (Cormix 1) (EPA/600/3-90/073), February, 1990.

(D) "No Observed Effect Concentration Observed Effect Concentration" (NOEC), means the highest per cent concentration of a discharge or water sample, in dilution water, which causes no observable adverse effect in a chronic toxicity test. For example, an NOEC of 100 percent indicates that an undiluted discharge or water sample causes no observable adverse effect to the organisms in a chronic toxicity test.

(2) Narrative toxicity and human health standards.

(A) Acute Toxicity Standards: All state waters shall be free from pollutants in concentrations which exceed the acute standards listed in paragraph (3). All state waters shall also be free from acute toxicity as measured using the toxicity tests listed in section 11, or other methods specified by the director.

(B) Chronic Toxicity Standards: All state waters shall be free from pollutants in concentrations which on average during any 24-hour period exceed the chronic standards listed in paragraph (3). All state waters shall also be free from chronic toxicity as measured using the toxicity tests listed in section 11-54-10, or other methods specified by the director.

(C) Human Health Standards: All state waters shall be free from pollutants in concentrations which, on

average during any 30-day period, exceed the "fish consumption" standards for non-carcinogens in paragraph (3). All state waters shall also be free from pollutants in concentrations, which on average during any 12 month period, exceed the "fish consumption" standards for pollutants identified as carcinogens in paragraph (3).

(3) Numeric standards for toxic pollutants applicable to all waters. The freshwater standards apply where the dissolved inorganic ion concentration is less than 0.5 parts per thousand; saltwater standards apply above 0.5 parts per thousand. Values for metals refer to the dissolved fraction. All values are expressed in micrograms per liter.

	Freshwater		Saltwater		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
Acenapthene	570	ns	320	ns	ns
Acrolein	23	ns	18	ns	250
Acrylonitrile*	2,500	ns	ns	ns	0.21
Aldrin*	3.0	ns	1.3	ns	0.000026
Aluminum	750	260	ns	ns	ns
Antimony	3,000	ns	ns	ns	15,000
Arsenic	360	190	69	36	ns
Benzene*	1,800	ns	1,700	ns	13
Benzidine*	800	ns	ns	ns	0.00017
Beryllium*	43	ns	ns	ns	0.038
Cadmium	3+	3+	43	9.3	ns
Carbon tetra-chloride*	12,000	ns	16,000	ns	2.3
Chlordane*	2.4	0.0043	0.09	0.004	0.000016
Chlorine	19	11	13	7.5	ns
Chloroethers-ethy(bis-2)*	ns	ns	ns	ns	0.44
isoprophyl	ns	ns	ns	ns	1,400
methyl(bis)*	ns	ns	ns	ns	0.00060

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Fish Consumption
Cloroform*	9,600	ns	ns	ns	5.1
Chlorophenol(2)	1,400	ns	ns	ns	ns
Chlorpyrifos	0.083	0.041	0.011	0.0056	ns
Chromium (VI)	16	11	1,100	50	ns
Copper	6+	6+	2.9	2.9	ns
Cyanide	22	5.2	1	1	ns
DDT*	1.1	0.001	0.013	0.001	0.000008
metabolite TDE*	0.03	ns	1.2	ns	ns
Demeton		0.1	ns	0.1	ns
Dichloro-benzenes*	370	ns	660	ns	850
benzidine*	ns	ns	ns	ns	0.007
ethane(1,2)*	39,000	ns	38,000	ns	79
ethylene(1,1)*	3,900	ns	75,000	ns	0.60
phenol(2,4)	670	ns	ns	ns	ns
propanes	7,700	ns	3,400	ns	ns
propene(1,3)	2,000	ns	260	ns	4.6
Dieldrin*	2.5	0.0019	0.71	0.0019	0.000025
Dinitro o-cresol(2,4)	ns	ns	ns	ns	250
toluenes*	110	ns	200	ns	3.0
Dioxin*	0.003	ns	ns	ns	5.0×10^{-9}
Diphenyl-hydrazine(1,2)	ns	ns	ns	ns	0.018
Endosulfan	0.22	0.056	0.034	0.0087	52
Endrin	0.18	0.0023	0.037	0.0023	ns
Ethylbenzene	11,000	ns	140	ns	1,070
Fluoranthene	1,300	ns	13	ns	18
Guthion	ns	0.01	ns	0.01	ns

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Fish Consumption
Heptachlor*	0.52	0.0038	0.053	0.0036	0.00009
Hexachloro-benzene*	ns	ns	ns	ns	0.00024
butadiene*	30	ns	11	ns	16
cyclohexane-alpha*	ns	ns	ns	ns	0.010
beta*	ns	ns	ns	ns	0.018
technical*	ns	ns	ns	ns	0.014
cyclopentadiene	2	ns	2	ns	ns
ethane*	330	ns	310	ns	2.9
Isophorone	39,000	ns	4,300	ns	170,000
Lead	29+	29+	140	5.6	ns
Lindane*	2.0	0.08	0.16	ns	0.020
Malathion	ns	0.1	ns	0.1	ns
Mercury	2.4	0.55	2.1	0.025	0.047
Methoxychlor	ns	0.03	ns	0.03	ns
Mirex	ns	0.001	ns	0.001	ns
Naphthalene	770	ns	780	ns	ns
Nickel	5+	5+	75	8.3	33
Nitrobenzene	9,000	ns	2,200	ns	ns
Nitrophenols*	77	ns	1,600	ns	ns
Nitrosamines*	1,950	ns	ns	ns	0.41
Nitroso dibutylamine-N*	ns	ns	ns	ns	0.19
diethylamine-N*	ns	ns	ns	ns	0.41
dimethylamine-N*	ns	ns	ns	ns	5.3
diphenylamine-N*	ns	ns	ns	ns	5.3
pyrrolidine-N*	ns	ns	ns	ns	30
Parathion	0.065	0.013	ns	ns	ns

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Fish Consumption
Pentachloro-ethanes	2,400	ns	130	ns	ns
benzene	ns	ns	ns	ns	28
phenol	20	13	13	ns	ns
Phenol	3,400	ns	170	ns	ns
2,4-dimethyl	700	ns	ns	ns	ns
Phthalate esters dibutyl	ns	ns	ns	ns	50,000
diethyl	ns	ns	ns	ns	590,000
di-2-ethylhexyl	ns	ns	ns	ns	16,000
dimethyl	ns	ns	ns	ns	950,000
Polychlorinated biphenyls*	2.0	0.014	10	0.03	0.000079
Polynuclear aromatic hydrocarbons*	ns	ns	ns	ns	0.01
Selenium	20	5	300	71	ns
Silver	1+	1+	2.3	ns	ns
Tetrachloro-ethanes	3,100	ns	ns	ns	ns
benzene(1,2,4,5)	ns	ns	ns	ns	16
ethane(1,1,2,2)*	ns	ns	3,000	ns	3.5
ethylene*	1,800	ns	3,400	145	2.9
phenol(2,3,5,6)	ns	ns	ns	440	ns
Thallium	470	ns	710	ns	16
Toluene	5,800	ns	2,100	ns	140,000
Toxaphene*	0.73	0.0002	0.21	0.0002	0.00024
Tributyltin	ns	0.026	ns	0.1	ns
Trichloro-ethane(1,1,1)	6,000	ns	10,400	ns	340,000
ethane(1,1,2)*	6,000	ns	ns	ns	14

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Fish Consumption
ethylene*	15,000	ns	700	ns	26
phenol(2,4,6)*	ns	ns	ns	ns	1.2
Vinyl chloride*	ns	ns	ns	ns	170
Zinc	22+	22+	95	86	ns

ns - No standard has been developed.
* - Carcinogen.
+ - The value listed is the minimum standard. Depending upon the receiving water $CaCO_3$ hardness, higher standards may be calculated using the respective formula in the U. S. Environmental Protection Agency publication Quality Criteria for Water (EPA 440/5-86-001, Revised May 1, 1987).
Note - Compounds listed in the plural in the "Pollutant" column represent complex mixtures of isomers. Numbers listed to the right of these compounds refer to the total allowable concentration of any combination of isomers of the compound, not only to concentrations of individual isomers.

(4) The following are basic requirements applicable to discharges to state waters. These standards shall be enforced through effluent limitations or other conditions in discharge permits. The director may apply more stringent discharge requirements to any discharge if necessary to ensure compliance with all standards in paragraph (2).

(A) Continuous discharges through submerged outfalls. The No Observed Effect Concentration (NOEC), expressed as percent effluent, of continuous discharges through submerged outfalls shall not be less than 100 divided by the minimum dilution. In addition, such discharges shall not contain:

(i) Pollutants in 24-hour average concentrations greater than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for the prevention of chronic toxicity.

(ii) Non-carcinogenic pollutants in 30-day average concentrations greater than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for fish consumption.

(iii) Carcinogenic pollutants in 12-month average concentrations greater than the values obtained by multiplying the average dilution

by the standards in paragraph (3) for fish consumption.

(B) Discharges without submerged outfalls. The survival of test organisms in an undiluted acute toxicity test of any discharge shall not be less than 80 per cent. In addition, no such discharge shall contain pollutants in concentrations greater than the standards in paragraph (3) for the prevention of acute toxicity to aquatic life. The director may make a limited allowance for dilution for a discharge in this category if it meets the following criteria: the discharge velocity is greater than 3 meters per second; the discharge enters the receiving water horizontally, and; the receiving water depth at the discharge point is greater than zero.

(c) The requirements of paragraph (a)(6) shall be deemed met upon a showing that the land on which the erosion occurred or is occurring is being managed in accordance with soil conservation practices acceptable to the applicable soil and water conservation district and the director, and that a comprehensive conservation program is being actively pursued, or that the discharge has received the best degree of treatment or control, and that the severity of impact of the residual soil reaching the receiving body of water is deemed to be acceptable.

(d) In order to reduce a risk to public health or safety arising out of any violation or probable violation of this chapter, the director may post or order posted any state waters. Posting is the placement, erection, or use of a sign or signs warning people to stay out of, avoid drinking, avoid contact with, or avoid using the water. This posting authority shall not limit the director's authority to post or order posting in any other appropriate case or to take any enforcement action. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-05 Uses and specific criteria applicable to inland waters. Inland water areas to be protected are described in section 11-54-05.1, corresponding specific criteria are set forth in section 11-54-05.2; water body types are defined in section 11-05-01. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-05.1 Inland water areas to be protected.

(a) Freshwaters.

(1) Flowing waters: perennial streams and rivers, intermittent streams, springs and seeps, and man-made ditches and flumes that discharge into any other waters of the State.

(A) Class 1.a.

(i) All flowing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All flowing waters in national and state parks.

(iii) All flowing waters in state or federalfish and wildlife refuges.

(iv) All flowing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All flowing waters in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All flowing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All flowing waters in areas not otherwise classified.

All flowing waters in classes 1 and 2 in which water quality exceeds the standards specified in this chapter shall not be lowered in quality unless it has been affirmatively demonstrated to the director that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently in, those waters. This statement of antidegradation policy does not limit the applicability of the policy in §11-54-01.1 to the whole chapter.

(2) Standing waters (natural freshwater lakes and reservoirs):

(A) Class 1.a.

(i) All standing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All standing waters in national and state parks.

(iii) All standing waters in state or federal fish and wildlife refuges.

(iv) All standing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All standing waters in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All standing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All standing waters in areas not otherwise classified.

(3) Elevated wetlands and low wetlands:

(A) Class 1.a.

(i) All elevated and low wetlands within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All elevated and low wetlands in national and state parks.

(iii) All elevated and low wetlands in state or federal fish and wildlife refuges.

(iv) All elevated and low wetlands which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All elevated and low wetlands in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All elevated and low wetlands in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All elevated and low wetlands not otherwise classified.

(b) Brackish or saline waters (anchialine pools, saline lakes, coastal wetlands, and estuaries).

(1) Class 1.a.

(A) All inland brackish or saline waters within natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(B) All inland brackish or saline waters in national and state parks.

(C) All inland brackish or saline waters in state or federal fish and wildlife refuges.

(D) All inland brackish or saline waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(E) All inland brackish and saline waters in Wai-manu

National Estuarine Research Reserve (Hawai'i).

(F) The following natural estuaries: Lumaha'i and Ki-lau-ea estuaries (Kaua'i).

(2) Class 1.b. All inland brackish or saline waters in protective subzones designated under chapter 13-5 of the state board of land and natural reources.

(3) Class 2. All inland brackish and saline waters not otherwise classified. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-05.2 Inland water criteria. (a) Criteria for springs and seeps, ditches and flumes that discharge into any other waters of the State, natural freshwater lakes, reservoirs, low wetlands, coastal wetlands, saline lakes, and anchialine pools. Only the basic criteria set forth in section 11-54-04 apply to springs and seeps, ditches and flumes that discharge into any other waters of the State, natural freshwater lakes, reservoirs, low wetlands, coastal wetlands, saline lakes, and anchialine pools. Natural freshwater lakes, saline lakes, and anchialine pools will be maintained in the natural state through Hawai'i's "no discharge" policy for these waters. Waste discharge into these waters is prohibited (see paragraph 11-54-03(b)(1)).

(b) Specific criteria for streams.

(1) Water column criteria for streams shall be as provided in the following table:

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	250.0* 180.0**	520.0* 380.0**	800.0* 600.0**
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	70.0* 30.0**	180.0* 90.0**	300.0* 170.0**
Total Phosphorus (ug P/L)	50.0* 30.0**	100.0* 60.0**	150.0* 80.0**
Total Suspended Solids (mg/L)	20.0* 10.0**	50.0* 30.0**	80.0* 55.0**
Turbidity (N.T.U.)	5.0* 2.0**	15.0* 5.5**	25.0* 10.0**

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* Wet season - November 1 through April 30.
** Dry season - May 1 through October 31.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 5.5 nor higher than 8.0
Dissolved Oxygen - Not less than eighty per cent saturation, determined as a function of ambient water temperature.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Specific Conductance - Not more than three hundred micromhos/centimeter.

(2) Bottom criteria for streams:

(A) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of five millimeters (0.20 inch) over hard bottoms twenty-four hours after a heavy rainstorm.

(B) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of ten millimeters (0.40 inch) over soft bottoms twenty-four hours after a heavy rainstorm.

(C) In soft bottom material in pool sections of streams, oxidation-reduction potential (EH) in the top ten centimeters (four inches) shall not be less than +100 millivolts.

(D) In soft bottom material in pool sections of streams, no more than fifty per cent of the grain size distribution of sediment shall be smaller than 0.125 millimeter (0.005 inch) in diameter.

(E) The director shall prescribe the appropriate parameters, measures, and criteria for monitoring stream bottom biological communities including their habitat, which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality criteria for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(c) Specific criteria for elevated wetlands: pH units shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 4.5 nor higher than 7.0.

(d) Specific criteria for estuaries.

(1) The following table is applicable to all estuaries except Pearl Harbor:

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	200.00	350.00	500.00
Ammonia Nitrogen (ug NH_4-N/L)	6.00	10.00	20.00
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	8.00	25.00	35.00
Total Phosphorus (ug P/L)	25.00	35.00	35.00
Chlorophyll a (ug/L)	2.00	5.00	10.00
Turbidity (N.T.U.)	1.5	3.00	5.00

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 7.0 nor higher than 8.6.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from ambient conditions.
Oxidation - reduction potential (EH) - Shall not be less than -100 millivolts in the uppermost ten centimeters (four inches) of sediment.

(2) The following table is applicable only to Pearl Harbor Estuary.

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	300.00	550.00	750.00
Ammonia Nitrogen (ug NH_4-N/L)	10.00	20.00	30.00
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	15.00	40.00	70.00
Total Phosphorus (ug P/L)	60.00	130.00	200.00
Chlorophyll a (ug/L)	3.50	10.00	20.00
Turbidity (N.T.U.)	4.00	8.00	15.00

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams.
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 6.8 nor higher than 8.8.
Dissolved Oxygen - Not less than sixty per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from ambient conditions.
Oxidation - Reduction potential (EH) - Shall not be less than -100 millivolts in the uppermost ten centimeters (four inches) of sediment. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-06 Uses and specific criteria applicable to marine waters. (a) Embayments.

(1) As used in this section:

"Embayments" means land-confined and physically-protected marine waters with restricted openings to open coastal waters, defined by the ratio of total bay volume to the cross-sectional entrance area of seven hundred to one or greater.

"Total bay volume" is measured in cubic meters and "cross-sectional entrance area" is measured in square meters, and both are determined at mean lower low water.

(2) Water areas to be protected.

(A) Class AA.

(i) Hawaii

Puako Bay
Waiulua Bay
Anaehoomalu Bay
Kiholo Bay
Kailua Harbor
Kealakekua Bay
Honaunau Bay

Oahu

Waialua Bay
Kahana Bay
Kaneohe Bay
Hanauma Bay

Kauai

Hanalei Bay

(ii) All embayments in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life established under chapter 190,HRS.

(iii) All waters in state or federal fish and wildlife refuges and marine sanctuaries.

(iv) All waters which have been officially identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(B) Class A.

Hawaii

Hilo Bay (inside breakwater)
Kawaihae Boat Harbor
Honokohau Boat Harbor

Keauhou Bay

Maui
Kahului Bay
Lahaina Boat Harbor
Maalaea Boat Harbor

Lanai
Manele Boat Harbor
Kaumalapau Harbor

Molokai
Hale o Lono Harbor
Kaunakakai Harbor
Kaunakakai Boat Harbor

Oahu
Kaiaka Bay
Paiko Peninsula to Koko Head
Ala Wai Boat Harbor
Kewalo Basin
Honolulu Harbor
Keehi Lagoon
Barbers Point Harbor
Pokai Bay
Heeia Kea Boat Harbor
Waianae Boat Harbor
Haleiwa Boat Harbor
Ko Olina

Kauai
Hanamaulu Bay
Nawiliwili Bay
Kukuiula Bay
Wahiawa Bay
Hanapepe Bay (inside breakwater)
Kikiaola Boat Harbor
Port Allen Boat Harbor

(3) The following criteria are specific for all embayments excluding those described in section 11-54-06(d). (Note that criteria for embayments differ based on fresh water inflow.)

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	200.00* 150.00**	350.00* 250.00**	500.00* 350.00**
Ammonia Nitrogen (ug NH_4-N/L)	6.00* 3.50**	13.00* 8.50**	20.00* 15.00**
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	8.00* 5.00**	20.00* 14.00**	35.00* 25.00**
Total Phosphorus (ug P/L)	25.00* 20.00**	50.00* 40.00*	75.00* 60.00**
Chlorophyll a ug/L)	1.50* 0.50**	4.50** 1.50**	8.50* 3.00**
Turbidity (N.T.U.)	1.5* 0.40**	3.00* 1.00**	5.00* 1.50**

* "Wet" criteria apply when the average fresh water inflow from the land equals or exceeds one per cent of the embayment volume per day.
** "Dry" criteria apply when the average fresh water inflow from the land is less than one per cent of the embayment volume per day.
Applicable to both "wet" and "dry" conditions:
pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined

conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams

(b) Open coastal waters.

(1) As used in this section:
"Open coastal waters" means marine waters bounded by the 183 meter or 600 foot (100 fathom) depth contour and the shoreline, excluding bays named in subsection (a);

(2) Water areas to be protected (measured in a clockwise direction from the first-named to the second-named location, where applicable):

(A) Class AA.

(i) Hawaii - The open coastal waters from Leleiwi Point to Waiulaula Point;

(ii) Maui - The open coastal waters between Nakalele Point and Waihee Point, and between Huelo Point and Puu Olai;

(iii) Kahoolawe - All open coastal waters surrounding the island;

(iv) Lanai - All open coastal waters surrounding the island;

(v) Molokai - The open coastal waters between the westerly boundary of Hale o Lono Harbor to Lamaloa Head. Also, the open coastal waters from Cape Halawa to the easterly boundary of Kaunakakai Harbor;

(vi) Oahu - Waimanalo Bay from the southerly boundary of Kaiona Beach Park, and including the waters surrounding Manana and Kaohikaipu Islands, to Makapuu Point. Also, Waialua Bay from Kaiaka Point to Puaena Point, and the open coastal waters along Kaena Point between a distance of 5.6 kilometers (3.5 miles) from Kaena Point towards Makua and 5.6 kilometers (3.5 miles) from Kaena Point toward Mokuleia;

(vii) Kauai - The open coastal waters between Hikimoe Valley and Makahoa Point. Also, the open coastal waters between Makahuena Point and the westerly boundary of Hoai Bay;

(viii) Niihau - All open coastal waters surrounding the island;

(ix) All other islands of the state - All open coastal waters surrounding the islands not classified in this section;

(x) All open waters in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources

under chapter 195 or chapter 190, HRS or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in the refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(B) Class A - All other open coastal waters not otherwise specified.

(3) The following criteria are specific for all open coastal waters excluding those described in section 11-54-06(d). (Note that criteria for open coastal waters differ, based on fresh water discharge.)

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	150.00* 110.00**	250.00* 180.00**	350.00* 250.00**
Ammonia Nitrogen (ug NH_4-N/L)	3.50* 2.50**	8.50* 5.00**	15.00* 9.00**
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	5.00* 3.50**	14.00* 10.00**	25.00* 20.00**
Total Phosphorus (ug P/L)	20.00* 16.00**	40.00* 30.00**	60.00* 45.00**
Chlorophyll a ug/L)	0.30* 0.15**	0.90* 0.50**	1.75* 1.00**
Turbidity (N.T.U.)	0.50* 0.20**	1.25* 0.50**	2.00* 1.00**

* "Wet" criteria apply when the open coastal waters receive more than three million gallons per day of fresh water discharge per shoreline mile.

** "Dry" criteria apply when the open coastal waters receive less than three million gallons per day of fresh water discharge per shoreline mile.

Applicable to both "wet" and "dry" conditions:

pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to

7.6
8.6

a minimum level of 7.0.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
k units = the ratio of light measured at the water's surface to light measured at a particular depth.
L = liter
Light Extinction Coefficient is only required for dischargers who have obtained a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251), as amended, and are required by EPA to monitor it.
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams

(c) Oceanic waters.

(1) Definition - "Oceanic waters" means all other marine waters outside of the 183 meter (600 feet or 100 fathom) depth contour;

(2) Water areas to be protected - Class A - All oceanic waters;

(3) The following criteria are specific for oceanic waters:

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	50.00	80.00	100.00
Ammonia Nitrogen (ug NH_4-N/L)	1.00	1.75	2.50
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	1.50	2.50	3.50
Total Phosphorus (ug P/L)	10.00	18.00	25.00
Chlorophyll a (ug/L)	0.06	0.12	0.20
Turbidity (N.T.U.)	0.03	0.10	0.20

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from a value of 8.1.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.

(d) Area-specific criteria for the Kona (west) coast of the island of Hawaii.

(1) For all marine waters of Hawaii Island from Loa Point, South Kona District, clockwise to Malae Point, North Kona District, excluding Kawaihae Harbor and Honokohau Harbor, and for all areas

from the shoreline at mean lower low water to a distance 1000 m seaward:

(i) in areas where nearshore marine water salinity is greater than 32.00 parts per thousand the following specific criteria apply:

Parameter	Geometric mean not to exceed the given single value
Total Dissolved Nitrogen (ug N/L)	100.00
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	4.50
Total Dissolved Phosphorus (ug P/L)	12.50
Phosphate (ug PO_4 - P/L)	5.00
Ammonia Nitrogen (ug NH_4 - N/L)	2.50
Chlorophyll a (ug/L)	0.30
Turbidity (N.T.U.)	0.10

* Specific criteria for Class A embayments apply to Honokohau Harbor and Kawaihae Harbor, see section 11-54-06(a)(3).

(ii) if nearshore marine water salinity is less than 32.00 parts per thousand the following parameters shall be related to salinity on the basis of a linear least squares regression equation:

$$Y = MX + B$$

where:
Y = parameter concentration(in ug/L)
X = salinity (in ppt)
M = regression coefficient (or "slope")
B = constant (or "Y intercept").

The absolute value of the upper 95 per cent

confidence limit for the calculated sample regression coefficient (M) shall not exceed the following values:

Parameter	M
Nitrate and Nitrite Nitrogen (ug [NO3 + NO2]-N/L)	-31.92
Total Dissolved Nitrogen (ug N/L)	-40.35
Phosphate (ug PO4 - P/L)	-3.22
Total Dissolved Phosphorus (ug P/L)	-2.86

The specific criteria for ammonia nitrogen, chlorophyl a, and turbidity given in (i) above, also apply.

(iii) Parameter concentrations shall be determined along a horizontal transect extending seaward from a shoreline sample location using the following method: water samples shall be obtained at distances of 1, 10,50, 100, and 500 meters from the shoreline sampling location. Samples shall be collected within one meter of the water surface and below the air-water interface. Dissolved nutrient samples shall be filtered through media with particle size retention of 0.7•m. This sampling protocol shall be replicated not less than three times on different days over a period not to exceed fourteen days during dry weather conditions. The geometric means of sample measurements for corresponding offshore distances shall be used for regression calculations.

pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.

Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.

Temperature - Shall not vary more than one degree Celsius from ambient conditions.

Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.

L - liter

N.T.U. - Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug - microgram or 0.000001 grams. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-07 Uses and specific criteria applicable to marine bottom types. (a) Sand beaches.

(1) As used in this section:
"Sand beaches" means shoreline composed of the weathered calcareous remains of marine algae and animals (white sand), the weathered remains of volcanic tuff (olivine), or the weathered remains of lava (black sand). Associated animals are largely burrowers and are related to particle grain size, slope, and color of the beach;

(2) Water areas to be protected:
(A) Class I - All beaches on the Northwestern Hawaiian Islands. These islands comprise that portion of the Hawaiian archipelago which lies northwest of the island of Kauai and is part of the State of Hawaii; including Nihoa Island, Necker Island, French Frigate Shoals, Brooks Banks, Gardiner Pinnacles, Dowsett and Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, Gambia Shoal
Kure Atoll;
(B) Class II - All beaches not in Class I;

(3) The following criteria are specific to sand beaches:
(A) Episodic deposits of flood-borne sediment shall not occur in quantities exceeding an equivalent thickness of ten millimeters (0.40 inch) twenty-four hours after a heavy rainstorm;
(B) Oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than +100 millivolts;
(C) No more than fifty per cent of the grain size distribution of sediment shall be smaller than 0.125 millimeters in diameter.

(b) Lava rock shoreline and solution benches.

(1) As used in this section:
"Lava rock shorelines" means sea cliffs and other vertical rock faces, horizontal basalts, volcanic tuff beaches, and boulder beaches formed by rocks falling

from above or deposited by storm waves. Associated plants and animals are adapted to the harsh physical environment and are distinctly zoned to the degree of wave exposure;

"Solution benches" means sea level platforms developed on upraised reef or solidified beach rock by the erosive action of waves and rains. Solution benches are distinguished by a thick algal turf and conspicuous zonation of plants and animals;

(2) Water areas to be protected:

(A) Class I - All lava rock shorelines and solution benches in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(B) Class II

(i) All other lava rock shorelines not in Class I;

(ii) The following solution benches:

Maui	Oahu
Kihei	Diamond Head
Papaula Point	Manana Island
	Makapuu
Kauai	Laie
Near Hanapepe Salt Ponds	Kahuku
Milolii	Mokuleia
Nualolo	Makua
Makaha	Makaha
Mahaulepu	Maile
Kuhio Beach Park (Kukuiula)	Lualualei
	Barbers Point

(3) The following criteria are specific to lava rock shorelines and solution benches:

(A) Episodic deposits of flood-borne sediment shall not occur in quantities exceeding an equivalent thickness of five millimeters (0.20 inch) for longer than twenty-four hours after a heavy rainstorm;

(B) The director shall determine parameters, measures, and criteria for bottom biological communities which may be affected by proposed actions. The location and boundaries of each bottom-type class will be clarified when

situations require their identification. For example, when a discharge permit is applied for or a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act (33 U.S.C. Section 1311) is required. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(c) Marine pools and protected coves.

(1) As used in this section:
"Marine pools" means waters which collect in depressions on sea level lava rock outcrops and solution benches and also behind large boulders fronting the sea. Pools farthest from the ocean have harsher environments and less frequent renewal of water and support fewer animals. Those closest to the ocean are frequently renewed with water, are essentially marine, and support more diverse fauna;
"Protected coves" means small inlets which are removed from heavy wave action or surge;

(2) Water areas to be protected;

(A) Class I.

(i) All marine pools and protected coves in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Fisheries Service;

(ii) <u>Hawaii</u>
Honaunau
Kiholo

(B) Class II

Hawaii
Kalapana
Pohakuloa
Kapalaoa
Haenokalele
Kapoho
King's Landing (Papai)
Hilo
Leleiwi Point
Wailua Bay

Maui
Hana
Keanae
Napili
Puu Olai to Cape Hanamanioa
Kipahulu

Molokai
Cape Halawa
Kalaupapa
South Coast

Oahu
Diamond Head
Halona Blowhole to Makapuu
Mokuleia
Kaena Point
Makua
Punaluu

Kauai
Kealia
Mahaulepu
Hanamaulu
Poipu
Puolo Point

(3) The following criteria are specific to marine pools and protected coves:

(A) In marine pools and coves with sand bottoms, oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than +100 millivolts;

(B) In marine pools and coves with sand bottoms, no more than fifty per cent of the grain size distribution of the sediment shall be smaller than 0.125 millimeters in diameter;

(C) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding equivalent thicknesses for longer than twenty-four hours following a heavy rainstorm according to the following:

(i) No thicker than an equivalent of five millimeters (0.20 inch) on hard bottoms (other than living corals);

(ii) No thicker than an equivalent of ten millimeters (0.40 inch) on soft bottoms;

(D) The director shall determine parameters, measures,

and criteria for bottom biological communities which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(d) Artificial basins.

(1) As used in this section:
"Artificial basins" means dredged or quarried channels or harbors, and harbor-associated submerged structures. Many organisms can attach to the vertical structures, but the soft, shifting sediment bottoms of harbors may only be colonized by a few hardy or transient species.

(2) Class II water areas to be protected are as follows:
(A) Shallow draft harbors:

Hawaii
Wailoa River Boat Harbor
Mahukona Harbor
Keauhou Harbor
Kailua-Kona Harbor
Honokohau Boat Harbor
Kawaihae Boat Harbor

Maui
Maalaea Boat Harbor
Lahaina Boat Harbor
Hana Harbor

Lanai
Manele Boat Harbor
Kaumalapau Harbor

Molokai
Kalaupapa Anchorage
Kaunakakai Small Boat Harbor
Hale o Lono Harbor

Oahu
Heeia Kea Boat Harbor
Kaneohe Marine Corps Air Station
Kaneohe Yacht Club
Hawaii Kai Marina (Kuapa Pond)
Pokai Bay
Waianae Boat Harbor
Keehi Marine Center
La Mariana Sailing Club
Haleiwa Harbor
Makani Kai Marina
Keehi Boat Harbor
Ala Wai Boat Harbor:
Ala Wai Fuel Dock
Hawaii Yacht Club
Waikiki Yacht Club

Ko Olina

Kauai
Nawiliwili Small Boat Harbor
Kukuiula Boat Harbor
Kikiaola Boat Harbor
Port Allen Boat Harbor

(B) Deep draft commercial harbors:

Hawaii
Kuhio Bay (Hilo Harbor)
Kawaihae Deep Draft Harbor

Maui
Kahului Harbor

Molokai
Kaunakakai Barge Harbor

Oahu
Honolulu Harbor
Barbers Point Harbor
Kewalo Basin

Kauai
Nawiliwili Harbor
Port Allen Harbor

(3) Specific criterion to be applied - Oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than
-100 millivolts.

(e) Reef flats and reef communities.

(1) As used in this section:
"Nearshore reef flats" means shallow platforms of reef rock, rubble, and sand extending from the shoreline. Smaller, younger flats projected out as semicircular aprons while older, larger flats form wide continuous platforms. Associated animals are mollusks, echinoderms, worms, crustaceans (many living beneath the surface), and reef-building corals.
"Offshore reef flats" means shallow, submerged platforms of reef rock and sand between depths of zero to three meters (zero to ten feet) which are separated from the shoreline of high volcanic islands by lagoons or ocean expanses. Dominant organisms are bottom-dwelling algae. Biological composition is extremely variable. There are three types: patch, barrier, and atoll reef flats; quite different from one another

structurally. The presence of heavier wave action, water more oceanic in character, and the relativeabsence of terrigenous influences distinguish offshore reef flats.

"Protected reef communities" means hard bottom aggregations, including scattered sand channels and patches, dominated by living coral thickets, mounds,or platforms. They are found at depths of ten to thirty meters (thirty-two to ninety-six feet) along protected leeward coasts or in shallow water (up to sea level)in sheltered lagoons behind atoll or barrier reefs and in the calm reaches of bays or coves.

"Wave-exposed reef communities" means aggregations, including scattered sand channels and patches, dominated by corals. They may be found at depths up to forty meters (approximately one hundred thirty feet) along coasts subject to continuous or heavy wave action and surge. Wave-exposed reef communities are dominated biologically by benthic algae, reef-building corals, and echinoderms.

(2) Water areas to be protected:

(A) Class 1.

(i) All reef flats and reef communities in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life under chapter 190, HRS, as amended; or in refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(ii) Nearshore reef flats:

Hawaii	Maui
Puako	Honolua
Lanai	Oahu
Northwest Lanai Reef	Hanauma Bay
Molokai	Kauai
Western Kalaupapa	Nualolokai
Southeast Molokai Reef	Hanalei
Honomuni Harbor	(Anini to Haena)
Kulaalamihi Fishpond	

(iii) Offshore reef flats:

Moku o Loe (Coconut Island, Kaneohe Bay, Oahu)
Kure Atoll
Pearl and Hermes Atoll
Lisianski Island
Laysan Island
Maro Reef
French Frigate Shoals

(iv) Wave exposed reef communities:

Hawaii
1823 Lava Flow (Punaluu)
1840 Lava Flow (North Puna)
1868 Lava Flow (South Point)
1887 Lava Flow (South Point)
1955 Lava Flow (South Puna)
1960 Lava Flow (Kapoho)
1969 Lava Flow (Apuna Point)
1970 Lava Flow (Apuna Point)
1971 Lava Flow (Apuna Point)
1972 Lava Flow (Apuna Point)
1973 Lava Flow (Apuna Point)

Maui
Hana Bay
Makuleia Bay (Honolua)

Molokini Island
All wave exposed reef communities

Molokai
Moanui Kahinapohaku Waikolu - Kalawao
Halawa Bay
Oahu
Sharks Cove (Pupukea)
Moku Manu (Islands)
Outer Hanauma Bay
Waimea Bay
Kawela Bay
Kahana Bay

Kauai
Ke`e Beach
Poipu Beach
Kipu Beach

Niihau
All wave exposed communities

Lehua (off Niihau)
All wave exposed communities

(v) Protected reef communities:

Hawaii
Puako
Honaunau
Kealakekua
Kiholo
Anaehoomalu
Hapuna
Kahaluu Bay
Keaweula (North Kohala)
Milolii Bay to Keawaiki
Kailua-Kaiwi (Kona)
Onomea Bay
1801 Lava Flow (Keahole or Kiholo)
1850 Lava Flow (South Kona)
1859 Lava Flow (Kiholo)
1919 Lava Flow (Milolii)
1926 Lava Flow (Milolii)

Maui
Honolua
Ahihi-La Perouse (including 1790 Lava Flow at Cape Kinau)

Molokini Island
All protected reef communities

Lanai
Manele
Hulopoe

Molokai
Southeast Molokai
Kalaupapa
Honomuni Harbor

Oahu
Hanauma Bay
Moku o Loe (Coconut Island, Kaneohe Bay)

Kauai
Hoai Bay (Poipu)

Northwestern Hawaiian Islands
Kure Atoll Lagoon
Pearl and Hermes Lagoon
Lisianski Lagoon
Maro Reef Lagoon

French Frigate Shoals Lagoon

(B) Class II.

(i) Existing or planned harbors may be located within nearshore reef flats showing degraded habitats and only where feasible alternatives are lacking and upon written approval by the director, considering environmental impact and the public interest pursuant to section 342D-6, HRS.

Hawaii
Blonde Reef (Hilo Harbor)
Kawaihae Small Boat Harbor

Maui
Lahaina Harbor
Kahului Harbor

Lanai
Manele

Molokai
Kaunakakai Harbor
Hale o Lono Harbor
Palaau (2.4 kilometers/1.5 mile, east of Pakanaka Fishpond)

Oahu
Keehi Boat Harbor
Ala Moana Reef
Honolulu Harbor
Heeia Harbor
Kaneohe Yacht Club
Ala Wai Harbor
Haleiwa Boat Harbor
Maunalua Bay
Pearl Harbor
Kaneohe Bay
Kahe

All other nearshore reef flats not in Class I;

(ii) Offshore reef flats:

Oahu
Kapapa Barrier Reef
Kaneohe Patch Reefs (Kaneohe Bay)

(iii) All other wave exposed or protected reef communities not in Class I.

(3) Specific criteria to be applied to all reef flats and reef communities: No action shall be undertaken which would substantially risk damage, impairment, or alteration of the biological characteristics of the areas named herein. When a determination of

substantial risk is made by the director, the action shall be declared to be contrary to the public interest and no other permits shall be issued pursuant to chapter 342, HRS.

(A) Oxidation-reduction potential (EH) in the uppermost ten centimeters (four inches) of sand patches shall not be less than +100 millivolts;

(B) No more than fifty per cent of the grain size distribution of sand patches shall be smaller than 0.125 millimeters in diameter;

(C) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding equivalent thicknesses for longer than twenty-four hours after a heavy rainstorm as follows:

(i) No thicker than an equivalent of two millimeters (0.08 inch) on living coral surfaces;

(ii) No thicker than an equivalent of five millimeters (0.2 inch) on other hard bottoms;

(iii) No thicker than an equivalent of ten millimeters (0.4 inch) on soft bottoms;

(D) The director shall determine parameters,measures, and criteria for bottom biological communities which may be affected by proposed actions. The location and boundaries of each bottom-type class shall be clarified when situations require their identification. For example, the location and boundaries shall be clarified when a discharge permit is applied for or a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251 et seq.) is required. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(f) Soft bottom communities.

(1) As used in this section:

"Soft bottom communities" means poorly described and "patchy" communities, mostly of burrowing organisms, living in deposits at depths between two to forty meters (approximately six to one hundred thirty feet). The particle size of sediment, depth below sea level, and degree of water movement and associated sediment turnover dictate the composition of animals which rework the bottom with burrows, trails, tracks,

ripples, hummocks, and depressions.

(2) Water areas to be protected:
Class II - All soft bottom communities;

(3) Specific criteria to be applied - Oxidation-reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment should not be less than -100 millivolts. The location and boundaries of each bottom-type class shall be clarified when situations require their identification. For example, the location and boundaries shall be clarified when a discharge permit is applied for or a waiver pursuant to Section 301(h) of the Act is required. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-08 Specific criteria for recreational areas. (a) In inland recreational waters:

(1) Fecal coliform content shall not exceed a geometric mean of two hundred per one hundred milliliters in ten or more samples collected during any thirty day period and not more than ten percent of the samples shall exceed four hundred per one hundred milliliters in the same period.

(2) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas.

(b) In marine recreational waters:

(1) Within 300 meters (one thousand feet) of the shoreline, including natural public bathing or wading areas, enterococci content shall not exceed a geometric mean of seven per one hundred milliliters in not less than five samples which shall be equally spaced at six day intervals or unequally spaced at five, six, seven or eight day intervals, provided that the total period covered is between 25 and 30 days. Consecutive samples shall not be collected on the same day of the week. Marine recreational waters along sections of coastline where enterococci content does not exceed the standard, as shown by the geometric mean test described above, shall not be lowered in quality.

(2) Marine recreational waters adjacent to sections of coastline receiving stream discharges or stormdrain discharges or in areas of restricted water exchange caused by shore protection structures such as offshore

breakwaters and groins, where the standard has been shown by monitoring data to be chronically exceeded, as determined by the geometric mean test, may be posted with signs warning the public that a risk to human health from exposure to dense populations of water-borne microorganisms may exist at those locations. Chronic exceedance of the standard at a location is defined as the condition where more than 50 percent of the geometric means calculated for the preceding 12-month period exceeded the standard, or, for infrequently sampled stations, the median for the data set from the preceding 12-month period exceeded the standard.

(3) At locations where sampling is less frequent than five samples per 25 - 30 days, if one sample exceeds the standard by a factor of 10 or more, sampling should be repeated on the schedule described in paragraph (1) above and geometric means calculated until it is possible to determine the cause of the high bacterial counts. The nature of the cause will determine if warning signs may be posted.

(4) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-09 Zones of mixing. (a) As used in this section "zones of mixing" means limited areas around outfalls and other facilities to allow for the initial dilution of waste discharges.

(b) Zones of mixing for the assimilation of domestic, agricultural, and industrial discharges which have received the best degree of treatment or control are recognized as being necessary. It is the objective of these limited zones to provide for a current realistic means of control over the placement and manner of discharges or emissions so as to achieve the highest attainable level of water quality or otherwise to achieve the minimum environmental impact considering initial dilution, dispersion, and reactions from substances which may be considered to be pollutants.

(c) Establishment, renewal, and termination.

(1) Application for establishment of a zone of mixing shall be made concurrently with any discharge permits whenever applicable and the conditions of a zone of

mixing shall be incorporated as conditions of the discharge permits. Every application for a zone of mixing shall be made on forms furnished by the director and shall be accompanied by a complete and detailed description of present conditions, how present conditions do not conform to standards, and other information as the director may prescribe;

(2) Each application for a zone of mixing shall be reviewed in light of the descriptions, statements, plans, histories, and other supporting information as may be submitted upon the request of the director, and in light of the effect or probable effect upon water quality standards established pursuant to this chapter;

(3) Whenever an application is approved, the director shall establish the zone of mixing, taking into account the environmental impact, including but not limited to factors such as the protected uses of the body of water, existing natural conditions of the receiving water, character of the effluent, and the adequacy of the design of the outfall and diffuser system to achieve maximum dispersion and assimilation of the treated or controlled waste with a minimum of undesirable or noticeable effect on the receiving water;

(4) Approval of a zone of mixing shall be made either after a public hearing is held by the director in the county where the source is situated, in accordance with chapters 91 and 92, HRS and the rules of practice and procedures of the department, or after the public notification and comment process duly established for a discharge permit in the case when the zone of mixing is being considered concurrently with the discharge permit;

(5) No zone of mixing shall be established by the director unless the application and the supporting information clearly show that:

(A) The continuation of the function or operation involved in the discharge by the granting of the zone of mixing is in the public interest;

(B) The discharge occurring or proposed to occur does not substantially endanger human health or safety;

(C) Compliance with the existing water quality standards from which a zone of mixing is sought would produce serious hardships without equal or greater benefits to the public; and

(D) The discharge occurring or proposed to occur does not violate the basic standards applicable to all waters, will not unreasonably interfere with any actual or probable use of the water areas for which it is classified, and has received (or in the case of a proposed discharge will receive) the

best degree of treatment or control;

(6) Any zone of mixing or renewal thereof shall be established within the requirements of this section and for time periods and under conditions consistent with the reasons therefore and within the following limitations:

(A) If the zone of mixing is established on the grounds that there is no reasonable means known or available for the adequate prevention, control, or abatement of the discharge involved, it shall be allowed only until the necessary means for prevention, control or abatement become practicable, and subject to the taking of any substitute or alternative measures that the director may prescribe. No renewal of a zone of mixing established under this subsection shall be allowed without a thorough review of known and available means of preventing, controlling, or abating the discharge involved;

(B) The director may issue a zone of mixing for a period not exceeding five years;

(C) Every zone of mixing established under this section shall include, but not be limited to, conditions requiring the applicant to perform appropriate effluent and receiving water sampling including monitoring of bottom biological communities and report the results of each sampling to the director. A program of research to develop reasonable alternatives to the methods of treatment or control in use by the applicant may be required if research is deemed prudent by the director; and

(D) In order to prevent high temperature discharges from violating section 11-54-04(a)(4), no new or increased domestic, industrial, or other controllable source shall discharge at a maximum temperature which will cause temperatures to exceed 3 degrees Celsius above ambient, or 30 degrees Celsius, whichever is less, within one meter of the bottom within a zone of mixing. For discharges with or without submerged outfalls, the director may make a limited allowance for higher discharge temperatures if there is satisfactory demonstration that the elevated temperature will not cause damage to the local aquatic community.

(7) Any zone of mixing established pursuant to this section may be renewed from time to time on terms and conditions and for periods not exceeding five years which would be appropriate on initial establishment of

a zone of mixing, provided that the applicant for renewal had met all of the conditions specified in the immediately preceding mixing, and provided further that the renewal and the zone of mixing established in pursuance thereof shall provide for the discharge not greater in quantity of mass emissions than that attained pursuant to the terms of the immediately preceding zone of mixing at its expiration. Any new zones of mixing or requests for zone of mixing renewals for wastewater treatment plants (WWTP) performing primary treatment shall comply with Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251). No renewal shall be allowed except upon application. Any renewal application shall be made at least one hundred and eighty days prior to the expiration of the zone of mixing;

(8) No zone of mixing established pursuant to this part shall be construed to prevent or limit the application of any emergency provisions and procedures provided by law;

(9) The establishment of any zone of mixing shall be subject to the concurrence of the U.S. Environmental Protection Agency;

(10) Each mixing zone may be subject to revocation, suspension, or modification if, after notice and opportunity for a hearing pursuant to chapter 91, HRS and the rules of practice and procedures of the department, the director determines that the terms specified in section 342D-6, HRS have been violated. In taking any action, the director may consider operating records, compliance investigations, or other information regarding discharge quality or impact on receiving waters. The action shall be effected by giving written notice to the permittee, which shall contain the reasons for the action;

(11) The director shall be notified within thirty days of the permanent discontinuance of a discharge. The zone of mixing shall terminate thirty days after such notification has been received;

(12) Upon expiration of the period stated in the designation, the zone of mixing shall automatically terminate and no rights shall become vested in the designee. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-09.1 Water quality certification. As used in sections 11-54-09.1.01 to 11-54-09.1.10:

"33 CFR" means the Code of Federal Regulations, Title 33, Corps of Engineers, Department of the Army, Department of Defense, revised as of July 1, 1998, unless otherwise specified.

"40 CFR" means the Code of Federal Regulations, Title 40, Protection of the Environment, revised as of July 1, 1998, unless otherwise specified.

"Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-483 and Public Law 97-117, 33 U.S.C. Section 1251 et. seq.

"Agent" means a duly authorized representative of the owner as defined in section 11-55-07(b).

"Department" means the state department of health.

"Director" means the director of the department or an authorized agent.

"Discharge" means the same thing as defined in Section 502(16) of the Act.

"Discharge of a pollutant" and "discharge of pollutants" means the same thing as defined in Section 502(12) of the Act.

"Duly authorized representative" means a person or position as defined in 40 CFR Section 122.22(b).

"HRS" means the Hawaii Revised Statutes.

"License or permit" means any permit, certificate, approval, registration, charter, membership, statutory exemption or other form of permission granted by an agency of the federal government to conduct any activity which may result in any discharge into navigable waters.

"Licensing or permitting agency" means any agency of the federal government to which a federal application is made for a "license or permit."

"Navigable waters" means the waters of the United States, including the territorial seas.

"Owner" means the person who owns any "facility" or "activity" which results in any discharge into navigable waters.

"Pollutant" means the same thing as defined in Section 502(6) of the Act.

"Territorial seas" means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles.

"Water quality certification" or "certification" means a statement which asserts that a proposed discharge resulting from an activity will not violate applicable water quality standards. A water quality certification is required by Section 401 of the Act from any applicant for a federal license or permit to conduct

any activity, including the construction or operation of facilities which may result in any discharge into navigable waters.

"Water quality certification application" means any forms provided by the director for use in obtaining the water quality certification.

"Water quality standards" means standards established pursuant to Section 10(c) of the Act, and state-adopted water quality standards for navigable waters which are not interstate waters.

"Waters of the United States" or "waters of the U.S." means:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate "wetlands";

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(A) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(B) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(C) Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (1) through (4) of this definition;

(6) The territorial sea; and

(7) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this definition. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.01 <u>Water quality certification; contents of certification.</u> (a) A certification made by the department shall include:

(1) The legal name(s), street address, contact person's name and position title, and telephone and fax numbers of the owner and, if applicable, its duly authorized representative;

(2) A statement that the director has either:
(A) Examined the application made by the owner or its duly authorized representative to the licensing or permitting agency (specifically identifying the number or code affixed to the application) and bases its certification upon an evaluation of the information contained in the application which is relevant to water quality considerations; or
(B) Examined other information provided by the owner or its duly authorized representative sufficient to permit the director to make the statement described in paragraph (a)(3)
(3) A statement that there is reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;
(4) A statement of any conditions which the director considers necessary or desirable with respect to the discharge resulting from an activity; and
(5) Other information the director determines to be appropriate.

(b) The director shall issue the certification after evaluating the complete water quality certification application, comments received during the public comment period, any record of a public hearing held pursuant to section 11-54-09.1.03, other information and data the director considers relevant, and after the director determines that there is reasonable assurance that applicable water quality standards will not be violated and the best practicable methods of control will be applied to a discharge resulting from an activity including the construction and operation of a facility.

(c) The department shall process applications for permits and water quality certifications for the reconstruction, restoration, repair, or reuse of any Hawaiian fishpond that meets the requirements of chapter 183B, HRS, before all other permits and certifications. The director shall render a decision on the completeness of any application for the permit or water quality certification within thirty days of receipt. Applications for fishpond reconstruction, restoration, or repair that are incomplete shall be denied without prejudice. The director shall render a decision on any complete application for a permit or water quality certification for any fishpond within one hundred fifty days.

(d) The director, at the director's discretion or after consideration of information presented by the owner or its duly authorized representative, the licensing or permitting agency, other government agencies, or interested parties, may modify or revoke an issued certification or waiver. [Eff and comp 4/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D6.5, 342D-53) (Imp: HRS §§342D-4, 342D-6, 342D6.5, 342D-5)

§11-54-09.1.02 Water quality certification; contents of water quality certification application. (a) The owner or its duly authorized representative shall submit a complete water quality certification application for the discharge resulting from an activity. The water quality certification application shall include at a minimum:

(1) The legal name(s), street address, contact person's name and position title, and telephone and fax numbers of the owner and, if applicable, its duly authorized representative;

(2) The company or organization name, contact person's name and position title, and telephone and fax numbers of the emergency contact(s);

(3) The name, street address, contact person's name and position title, telephone and fax numbers, island, and tax map key number(s) for the project;

(4) Associated existing or pending federal and environmental permits and corresponding file numbers;

(5) The name(s) of the navigable water where the discharge occurs, the latitude and longitude of the discharge point(s), the classification of the navigable water, and the associated existing recreational uses;

(6) The scope of work or a description of the overall project including: the construction or operation of facilities which may result in discharges into navigable waters; the proposed discharge resulting from an activity; and specific biological, chemical, physical, thermal, and other pertinent characteristics of the discharge resulting from an activity;

(7) If applicable, a description of the function and operation of equipment or facilities to control discharges, including specification of the methods of control to be used;

(8) The estimated dates on which the activity will begin and end and the date or dates on which the discharge(s) will take place;

(9) If applicable, a description of the methods and means being used or proposed to monitor the quality and characteristics of the discharge and the operation of equipment or facilities employed in the control of the proposed discharges and a map showing the location(s) of the monitoring point(s);

(10) The statement of assurance, statement of choice for publication, and if applicable, an authorization statement, with the owner's original signature. Any signatures required for the water quality certification application shall be provided as described in 40 CFR Section 122.22(a);

(11) Supporting documentation (e.g. maps, plans,

specifications, copies of associated federal permits or licenses, federal applications, Environmental Assessments or Environmental Impact Statements, as applicable, etc.);

(12) Additional information regarding any irregularities or unique features of the project; and

(13) Additional information as required by the director.

(b) The director shall notify the owner or its duly authorized representative in writing if a water quality certification application is incomplete or otherwise deficient. A description of the additional information necessary to complete the water quality certification application or to correct the deficiency shall be included in the written notice. If a water quality certification application is incomplete or otherwise deficient, processing of the water quality certification application shall not be completed until the time the owner or its duly authorized representative has supplied the information or otherwise corrected the deficiency. Failure to provide additional information or to correct a deficiency shall be sufficient grounds for denial of the certification or termination of the processing of the water quality certification application.

(c) The director shall notify the owner or its duly authorized representative in writing when a water quality certification application is considered complete. The director shall act on a request for certification within a period which shall not exceed one year from the date when the water quality certification application was considered complete.

(d) The owner or its duly authorized representative shall notify the department in writing of changes which may affect the water quality certification application and certification process.

(e) Each owner who submits a water quality certification application shall pay a filing fee of $1,000. This filing fee shall be submitted with the water quality certification application and shall not be refunded nor applied to any subsequent water quality certification application following final action of denial or termination of the processing of the water quality certification application.

(1) Fees shall be made payable to the "State of Hawaii" in the form of a cashier's check or money order;

(2) Water quality certification application(s) submitted by the U.S. Army Corps of Engineers, Honolulu Engineer District, for the purpose of adopting regional or nationwide general permit(s), in accordance with 33 CFR Parts 325 and 330, respectively, shall be exempt from the payment of filing fees.

(f) If a project or activity requiring a federal permit or license involves or may involve the discharge of a pollutant or pollutants and is initiated or completed without a water quality certification, the director may process an After the Fact water

quality certification application as follows: After the Fact water quality certification application may be accepted and processed only for the limited purpose of deeming projects or activities requiring federal permits or licenses to be properly permitted or licensed forward of the date of the water quality certification or waiver. No water quality certification or waiver shall be issued which allows the retroactive permitting or licensing of projects or activities before the date the water quality certification or waiver was issued. A water quality certification or waiver may be issued if the following criteria are met: (1) the project or activity is not the subject of an on-going enforcement action by the federal, state or county government; (2) any adverse impacts upon water quality resulting from the project or activity have been mitigated to the maximum extent feasible, and (3) the project or activity will not cause or contribute to any lack of attainment of water quality standards set forth in this chapter.

(g) Written notification by the department under section 11-54-09.1 is complete upon mailing or sending a facsimile transmission of the document or actual receipt of the document by the owner or its duly authorized representative. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.03 Water quality certification; notice and hearing. The director may provide the opportunity for public comment or hearing(s) or both to consider the issuance of a water quality certification. A notice shall be published in accordance with chapters 91 and 92, HRS. The director shall inform the owner or its duly authorized representative in writing that the action has been taken. All publication and mailing costs associated with the public notification of the director's tentative determinations with respect to the water quality certification application shall be paid by the owner to the appropriate newspaper agency or agencies determined by the director. Failure to provide and pay for public notification, as considered appropriate by the director, may result in a delay in the certification process. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.04 Water quality certification; waiver. (a) If the director fails or refuses to act on a request for certification within one year after receipt of a complete water quality certification application, then the certification

requirements of section 11-54-09.1 shall be waived with respect to the federal application.

(b) If the discharge resulting from an activity receives a determination to be covered under a nationwide permit authorization, thereby fulfilling specific conditions of that permit pursuant to 33 CFR §§330.4, 330.5, and 330.6, then the director will determine, on a case-by-case basis, which projects are considered minor and non-controversial. Certification requirements of section 11-54-09.1 shall be waived for minor and non-controversial activities within one year of receipt of a complete water quality certification application. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.05 Water quality certification; adoption of new water quality standards. (a) The licensee or permittee shall comply with any new water quality standards as adopted by the department.

(b) In any case where:

(1) A certification or waiver was issued without applicable water quality standards;

(2) Water quality standards applicable to the waters into which the activity may discharge are subsequently established before the activity is completed; or

(3) The director determines that the activity is violating new water quality standards

The director shall then notify the licensee or permittee and the licensing or permitting agency of the violation.

(c) If the licensee or permittee fails within one hundred eighty days of the date of the notice to cease the violation, the director shall notify the licensing or permitting agency that the licensee or permittee has failed to comply with the standards. The director, at the director's discretion, shall also revoke the certification or waiver or recommend suspension of the applicable license or permit pursuant to Section 401 of the Act.

(d) The director shall notify the licensing or permitting agency that, in the director's opinion, there is reasonable assurance that applicable water quality standards will not be violated because the licensee or permittee took appropriate action to comply with the applicable water quality standards after their license or permit was suspended pursuant to subsection (c).

(e) This section shall not preclude the department from taking other enforcement action authorized by law. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.06 Water quality certification; inspection of facility or activity before operation. Where any facility or activity has received certification or waiver pursuant to sections 11-54-09.1.01 to 11-54-09.1.09 in connection with the issuance of a license or permit for construction, and where the facility or activity is not required to obtain an operating license or permit, the director, prior to the initial operation of the facility or activity, shall be afforded the opportunity to inspect the facility or activity for the purpose of determining if the manner in which the facility or activity will be operated or conducted will violate applicable water quality standards. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.07 Water quality certification; notification to licensing or permitting agency. If the director, after an inspection pursuant to section 11-54-09.1.06 determines that operation of the proposed facility or activity will violate applicable water quality standards, the director shall so notify the owner or, if applicable, its duly authorized representative and the licensing or permitting agency. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.08 Water quality certification; termination or suspension. Where a licensing or permitting agency, following a public hearing, suspends a license or permit after receiving the director's notice and recommendation pursuant to section 11-54-09.1.07 the owner or its duly authorized representative may submit evidence to the director, that the facility or activity has been modified so as not to violate applicable water quality standards. If the director determines that the applicable water quality standards have not been and will not be violated, the director shall so notify the licensing or permitting agency. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-09.1.09 Water quality certification; review and advice. The director may, and upon request shall, provide licensing and permitting agencies with determinations, definitions, and interpretations to the meaning and content of state water quality standards. The director may, and upon request shall, also advise licensing and permitting agencies of the

status of compliance by the owner(s) of a water quality certification with the conditions and requirements of applicable water quality standards. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp **APR 17 2000**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-10 Water quality analyses. (a) Laboratory analysis shall be performed by a laboratory approved by the department.

(b) Where applicable, analysis to determine compliance with these rules shall be by:

Parameter	Reference
Sample Collection (Phytoplankton and other Bioassays)	Standard Methods for the Examination of Water and Waste Water, twentieth edition, APHA
Sample Preservation and Holding Time, Bacteriological and Chemical Methodology	"Guidelines Establishing Test Procedures for Analysis of Pollutants," Federal Register, July 1, 1998 (40 CFR 136) and "Technical Amendments," Federal Register, July 1, 1998 (40 CFR 136). "A Manual of Chemical and Biological Methods for Seawater Analysis" T.R. Parsons, Y. Maita, and C.M. Lalli, 1984, Pergamon Press, New York. "Methods of Seawater Analysis", 2nd, Revised and Extended Edition, ed. by K. Grashof, M. Erhardt, K. Kremling, 1983. Verlag Chemie, Weinheim, Germany.
Toxicity Test	EPA/600/4-91/002 Short-Term Methods For Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, July 1994, or:

	EPA/600/4-90-027F Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Cincinnati, Ohio, EMSL, August 1995. or: EPA-600/4-91/003, Short-Term methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. ORD, Cincinnati, Ohio, July 1994.
Quality Control (Bacteriological and Biology) and Chemistry	EPA/600/4-79-019, Handbook for Analytical Quality Control in Water and Wastewater Laboratories, March 1979.
Kona Coast Area Specific Standards	Rationale for the Development of Area-Specific Water Quality Criteria for the West Coast of The Island of Hawaii and Procedures for Their Use. Hawaii State Department of Health. March 1997. or: As otherwise previously specified or approved by the director.

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-11 Revision. These water quality criteria are based upon the best currently available data. Studies made in connection with the implementation program may suggest improvements to this chapter. For this reason, the chapter will be subject to periodic review and, where necessary, to change. Any change will be made only after public hearing, held in compliance with chapter 91, HRS and the rules of practice and procedures of the department. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92,

am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-12 Severability. If any provisions of this chapter, or the application thereof to any person or circumstances, is held invalid, the invalidity does not affect other provisions or application of this chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable." [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp **APR 17 2000**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

The Department of Health authorized the adoption of Chapter 11-54, Hawaii Administrative Rules on Water Quality Standards, following public hearing on Hawaii in Kailua-Kona on July 13, 1999, Hawaii in Hilo on July 14, 1999, Maui on July 15, 1999, on Kauai on July 19, 1999, and in Honolulu on July 20 1999, after public hearing notice was given on June 14 1999 in the RFD Publication titled State & County Public Notices.

Chapter 11-54, Hawaii Administrative Rules shall take effect ten days after filing with the Office of the Lieutenant Governor.

Bruce S. Anderson Ph.D., M.P.H.
Director of Health

Date: APR 4 2000

☒ APPROVED ☐ DISAPPROVED

BENJAMIN J. CAYETANO
Governor
State of Hawaii

Date: 4/7/2000 (BJC)

APR 07 2000
Filed

LIEUTENANT GOVERNOR'S OFFICE
'00 APR -7 P4:06

APPROVED AS TO FORM:

Laurence Lau
Deputy Attorney General

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