Legal Issues Surrounding the Development of Sustainable Forms of Aquaculture in Hawai'i

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"It is the mission of the Hawaii Coastal Zone Management Program to balance marine and coastal resources protection and sustainable economic development, anticipating emerging issues and facilitating their resolution by coordinating among interests, developing and articulating appropriate management policies, and involving the public in resource management efforts."[1]

I. Introduction

Aquaculture development in Hawai`i, like other ventures that involve the use of public lands or resources, is subject to a complex and often confusing system of laws and regulations at the federal, state, and local level. Although the state of Hawaii recognizes the economic benefits of aquaculture and seeks to establish a viable fish-farm production capability, it is obligated to protect other public values as well. Therefore the state must balance a variety of competing interests as it attempts to foster the growth of a budding aquaculture industry.

Aquaculture has the potential to make great contributions to a region's economy and overall economic health; however, it also has the potential to cause environmental and economic harm if not properly evaluated, planned, and monitored.[2] A 1997 Environmental Defense Fund study on the effects of aquaculture in the United States reports that pollution from fish farms can be substantial, and public opposition to environmental degradation may hamper the growth of the industry.[3] Somewhat analogous to controversial modern chicken processing facilities, concentrated populations of captive fish in aquaculture facilities can harm the environment if their discharged wastes remain untreated.[4] This is of particular concern in Hawaii, where the industry is looking to further expand into offshore marine waters that are within the conservation land use district and are part of "ceded lands" transferred from the Kingdom of Hawaii to the Territorial Government, as well as the state's public trust resource base.[5]

The state's interest in promoting a sustainable aquaculture industry presents an interesting challenge for lawmakers and regulators: how to properly regulate the aquaculture industry without destroying its economic viability. The issues involved are diverse and complex, and to be successful resolved, they must not be approached with the view that supporting the

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[1] Hawaii Coastal Zone Management Program Mission Statement, at http://www.hawaii.gov/dbedt/czm/.
[2] *See* Rebecca Goldburg & Tracy Triplett, Environmental Defense Fund, *Murky Waters: Environmental Effects of Aquaculture in the U.S.*, 19, 20 (1997).
[3] *Id*. (citing B.A. Costa-Pierce, Environmental Impacts of Nutrients Discharged from Aquaculture: Towards the Evolution of Sustainable Ecological Aquaculture Systems, Plenary Talk at the Conference on Aquaculture and Water Resource Management, Institute of Aquaculture, University of Stirling, Stirling, Scotland (1994)).
[4] *Id*. at 9.
[5] *See* D. Douglas Hopkins et al., *An Environmental Critique of Government Regulations and Policies for Open Ocean Aquaculture,* 2 Ocean & Coastal L.J. 235, 236 (1997) (stating that "[a]s the industry continues to grow, it will likely expand into the open ocean . . .").

aquaculture industry is mutually exclusive of supporting responsible environmental regulation of the industry. This paper discusses and analyzes a variety of policies and legal issues faced by the aquaculture industry in Hawaii today. Part II looks at federal and state effluent limitations & water quality standards issues. Part III reviews ceded land issues, the public trust, Native Hawaiian gathering rights, and laws that protect cultural and historic resources. Part IV discusses the impact and role of the Humpback Whale sanctuary on the aquaculture industry in Hawaii, beginning with an explanation of the statutory and regulatory framework and ending with an breakdown of specific limitations on aquaculture within the sanctuary. Part V examines the sale of research by-products generated from research funded by federal grant money under the U.S. Department of Agriculture (USDA) through Cooperative State Research, Education, and Extension Service (CSREES) and via the Center for Tropical and Subtropical Aquaculture (CTSA) as governed by USDA rules. Part VI reviews procedures for adding species to the list of importable non-native and unlisted species. Part VII concludes with a call for a coordinated effort by the various levels of government and all stakeholders to work together to ensure a vibrant and environmentally sustainable aquaculture industry for Hawai1i.

II. Effluent Limitations & Water Quality Standards

Protection of water quality through regulating pollutants that enter the ocean and other water bodies is a joint responsibility of the federal and state governments.[6] An understanding of the federal regulatory framework is necessary to evaluate the particular issues within the state. The following section details these issues and presents an overview of recent U.S. government planning initiatives.

A. Current Federal Regulatory Framework

Federal authority over offshore marine aquaculture rests primarily with two agencies: the Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA). Under the Rivers and Harbors Act,[7] the Corps is responsible for issuing permits for structures located in navigable waters. In its "public interest review" of requests for aquaculture facilities, the Corps considers the benefits and detriments to the public interest, including environmental, economic, aesthetic, navigation, property rights, and international interests.[8] Under the Clean Water Act (CWA),[9] EPA has asserted regulatory authority over discharges from aquaculture facilities as "concentrated aquatic animal production facilities."[10] Other federal agencies, including the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS), have an opportunity to review and comment on any permit proposed for issuance by the Corps or EPA. In addition, NOAA's regional Fisheries Management Councils have authority over the harvesting of species covered by fishery management plans.[11]

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[6] *See* Alison Rieser, *Defining the Federal Role in Offshore Aquaculture: Should It Feature Delegation to the States?*, Ocean and Coastal Law Journal 2, 209-234 (1997).
[7] 33 U.S.C. § 403 (1994).
[8] 33 C.F.R. § 320.4(a)(1) (1995).
[9] 33 U.S.C. §§ 1251-1387 (1994).
[10] 40 C.F.R. § 122.24(a) (1995).
[11] The Magnuson Fishery Conservation and Management Act, 16 U.S.C. §§ 1801-1882 (1994), amended by Sustainable Fisheries Act, Pub. L. No. 104-297, 110 Stat. 3559 (1996) does not expressly authorize the regional

Today, a critical constraint facing the aquaculture industry is the lack of federal guidelines for states to follow in implementing industry pollution control. Aquaculture operations come in all shapes, sizes and configurations. A frequent question involving such operations is how to determine which of these will be designated as a "point source" of pollutants into the nation's waterways under the federal CWA. Furthermore, how should the government regulate those that do qualify as point sources; i.e., how can an aquaculture operation organize itself in order to be best prepared for government regulation?

Much of the current debate surrounding regulation of aquaculture's contributions of pollutants to water centers on whether the contribution actually involves a point source. That is, in part, because the amount of regulation applied to an aquaculture producer under the CWA varies depending on whether a point source exists. Pollutants from a point source may not be lawfully discharged without first obtaining a National Pollution Discharge Elimination System (NPDES) permit.[12] The CWA "point source" definition identifies two basic distinguishing characteristics: a point source is a conveyance, and a point source must also discharge or have a potential for a discharge of pollutants. It then goes on to provide a list of examples of point sources, including the term "concentrated animal feeding operation."[13] However, the CWA does not describe the distinguishing characteristics of a concentrated animal feeding operation that would cause it to be treated as a point source under the law. EPA guidelines generally specify that discharges into an aquaculture project area require an NPDES permit.[14]

The CWA itself does not use or define the terms "concentrated aquatic animal production facility (CAAP)," "aquatic animal production facility," "cold water aquatic animals," or "warm water aquatic animals." The EPA, however, has promulgated regulatory definitions for and uses those terms.[15] Under EPA rules, a CAAP facility is a point source subject to the NPDES permit program.[16] CAAP facilities include certain aquaculture operations. The EPA further defines aquaculture as a "defined managed water area which uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater estuarine or marine

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fishery management councils or the National Marine Fisheries Service to license aquaculture projects outside of state waters, within the EEZ. See William J. Brennan, "To Be Or Not To Be Involved: Aquaculture Management Industry-Driven Changes and Policy Responses Options for the New England Fishery Management Council," 2 Ocean & Coastal L.J. 261 (1997). However, NOAA's Office of General Counsel has concluded that aquaculture constitutes "fishing" under the Magnuson Act because it involves harvesting fish from the EEZ by U.S. vessels. See Memorandum from Jay S. Johnson, NOAA Deputy General Counsel, and Margaret F. Hayes, NOAA Assistant General Counsel for Fisheries, to James W. Brennan, NOAA Acting General Counsel (Feb. 7, 1993) (discussing the applicability of federal laws to aquaculture in the EEZ). This could become a much more important issue as aquaculture moves outside of state coastal zones and into the EEZ.

[12] 33 U.S.C. §1311(a).

[13] 33 U.S.C. §1362 (14). Point source is defined as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture." *Id*.

[14] EPA Clean Water Act information, at http://www.epa.gov/agriculture/lcwa.html#Aquaculture%20Projects.

[15] See 40 C.F.R. §122.24 and 40 C.F.R. Pt. 122, App. C.

[16] 40 C.F.R. §122.24 (a).

plants or animals."[17] While the current regulations do not define "managed water area" or "designated area", they do define "designated project area" as "the portions of the waters of the United States within which the permittee or permit applicant plans to confine the cultivated species using a method or plan of operation (including, but not limited to, physical confinement) which, on the basis of reliable scientific evidence, is expected to ensure that specific individual organisms comprising an aquaculture crop will enjoy increased growth attributable to the discharge of pollutants and be harvested within a defined geographic area." [18] A hatchery, fish farm, or other facility is a CAAP facility if it contains, grows, or holds cold water fish species or other cold water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year.[19]

As to cold water fish and cold water animals, the following are excluded from that term:

1. Facilities which produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year, and
2. Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.

A hatchery, fish farm, or other facility is also a CAAP facility if it contains, grows, or holds warm water fish species or other warm water aquatic animals in ponds, raceways, or other similar structures that discharge at least 30 days per year.[20] As to warm water fish and warm water animals, the following are excluded from that term:

1. Closed ponds which discharge only during periods of excess runoff, and
2. Facilities which produce less than 45,454 harvest weight kilograms (approximately 100,000 pounds) of aquatic animals per year.

In addition, any warm or cold water aquatic animal production facility can be "designated" as a CAAP facility under the current regulations if the Director of EPA "determines" that it is a significant contributor of pollution to waters of the United States.[21] However, a permit application is not required from a CAAP facility that has been designated as such by the Director under that section until the Director has conducted an on-site inspection of the facility and has determined that the facility should and could be regulated under the permit program.[22] In making that determination the Director must consider the following factors:

1. The location and quality of the receiving waters of the United States;
2. The holding, feeding, and production capacities of the facility;
3. The quantity and nature of the pollutants reaching waters of the United States; and
4. Other relevant factors.

[17] *Id*.
[18] 40 C.F.R. §122.25 (b) (2).
[19] 40 C.F.R. Pt. 122, App. C, (a).
[20] 40 C.F.R Pt. 122, App. C, (b).
[21] 40 C.F.R. §122.24 (c) (1).
[22] 40 C.F.R. §122.24 (c) (2).

The CWA directs the EPA to establish effluent limitations for discharges covered under the NPDES program that are both technology and water quality-based.[23] Under the CWA,

(A) Technology based effluent limitations must be both economically achievable and technologically attainable through operation of control technologies and process changes, and
(B) Water quality based effluent limitations must be set to meet regional or site-specific water quality standards.

The EPA has not established nationwide effluent limitation guidelines for NPDES permits associated with CAAP facilities or other aquaculture operations. However, in 2002 the EPA solicited input for proposed rulemaking concerning effluent limitations for CAAP facilities and is expected to publish new rules concerning total suspended solids (TSS) limitations and effluent guidelines based on a Best Management Practices (BMP) standard. [24] The guidelines are expected to be published by June 2004.[25] In the proposed rule, the EPA's effluent limitations guidelines and standards apply to flow-through systems, recirculating systems, and net pens.[26] Once promulgated, these rules should provide more guidance to the aquaculture industry.

B. Federal Aquaculture Initiatives

Major federal initiatives on aquaculture regulation have come from the interagency Joint Subcommittee on Aquaculture (JSA) and NOAA. The JSA's 1996 draft National Aquaculture Development Plan[27] calls for "an appropriate and harmonized Federal regulatory framework" for aquaculture. The plan highlights "the complex, fragmented, and uncertain regulatory environment" and points out that "as a result, aquatic farmers may either be required to comply with a daunting and expensive array of regulations or, as exemplified by offshore marine aquaculture initiatives, be forced to operate in a highly uncertain regulatory framework." [28] The plan's list of needed regulatory improvements includes "permits and regulations for commercial aquaculture operations in public waters, including Federal marine waters."[29] The draft plan has yet to be formally adopted by the JSA.

Within NOAA, marine aquaculture issues are being addressed in several ways. NOAA's strategic plan includes agency promotion of "robust and environmentally sound aquaculture development" by "bringing the combined resources and efforts of all the department's offices to

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[23] 33 U.S.C §§ 1311, 1312.
[24]The proposed rule was published in the Federal Register on September 12, 2002. Comments were due to the agency by December 11, 2002. On December 2, 2002, the comment period was extended to January 27, 2003. A good location for viewing federal statutory law is http://www4.law.cornell.edu/uscode/. Another location for viewing federal rules and regulations is http://www.access.gpo.gov/nara/cfr/cfr-table-search.html/.
[25] 67 Fed. Reg. 5787.
[26] 67 Fed. Reg. 57572, 57884.
[27] National Science and Technology Council, Joint Subcommittee on Aquaculture. *National Aquaculture Development Plan of 1996* (Draft, 5 March 1996), at http://ag.ansc.purdue.edu/aquanic/publicat/govagen/usda/dnadp.htm.
[28] *Id*., §4.4.8.
[29] *Id*., §5.8 .

bear on the 'sustainable development' of aquaculture."[30] This includes environmental stewardship and environmental assessment and prediction, with overall goals of "building sustainable fisheries and sustaining healthy coasts,"[31] as well as rethink[ing] patterns of production and consumption, and creat[ing] the necessary markets, technologies, and institutional mechanisms to allow for the development of a more sustainable economy that reflects… a fuller accounting of the social benefits that derive from a clean, just and resilient relationship within human society and with the natural world."[32] The plan recognizes the need for a timely regulatory process, specifically mentioning the need to emphasize "a regulatory framework and permitting process for aquaculture in the EEZ."[33] It includes the following performance measures[34] for the next 5 years:

1. Promote the commercial rearing of at least seven new species;
2. Reduce the time and cost of permitting environmentally sound aquaculture ventures;
3. Provide financial assistance for environmentally sound aquaculture ventures;
4. Identify areas in coastal waters and the EEZ suitable for environmentally sound aquaculture development;
5. Develop and implement environmentally sound aquaculture technologies and practices.[35]

C. Hawaii State Policies and Programs

The CWA allows states to get approval from the EPA to manage the NPDES permitting program within their borders. In November of 1974, EPA delegated the administration of the NPDES program in Hawai`i to the state's Department of Health (DOH). DOH establishes certain levels of performance that the permit holder must maintain with respect to discharges of pollutants to the state waters. The program requires the permit holder to report failures to meet those permit limits to the Department. The goal of the program and its rules[36] is to achieve a level of water quality that provides for the protection and propagation of fish, shellfish and wildlife. Accordingly, the State designates uses for each body of water and adopts water quality criteria to protect those uses. The permit and sampling program carried out by the DOH, along with enforcement of the Water Pollution Law, its rules and permits, are designed to achieve these objectives. This section provides a brief description of Hawai`i's program.

1. Maintaining the Quality of State Waters

[30] Mathew Borgia, "Commerce-Wide Aquaculture Policy Unveiled at Forum," NOAA Report, 7 Sep 1999, at http://www.nmfs.noaa.gov/trade/aqpolicy.htm.
[31] NOAA Office of Sustainable Development and Intergovernmental Affairs website, at http://www.susdev.noaa.gov/index.html.
[32] *Id*., at http://www.susdev.noaa.gov/aqucult.html.
[33] *Id*.
[34] Note that the aquaculture ventures in the performance measures are qualified by the words "environmentally sound." *Id*.
[35] *Id*.
[36] HAW. ADMIN. RULES §§11-54 & 55.

Hawaii's water quality standards must be consistent with the goal of attaining "swimmable and fishable" waters as mandated by the federal CWA.[37] DOH designates uses for each body of water in the State and adopts water quality criteria to protect those designated uses.[38] The State water quality standards are applicable to all state surface waters, including fresh, brackish and saline waters.[39] State waters are classified either as inland waters or marine waters. Marine waters are classified as embayments, open coastal or oceanic waters. Marine waters are further classified according to the following bottom subtypes: soft bottom communities, reef flats, artificial basins, marine pools and protected coasts, lava rock shorelines, and sand beaches.

Marine waters are classified as either Class AA or Class A.[40] Class AA waters are intended to remain in their natural state with a minimum of pollution from human caused sources. Zones of mixing are not permitted in defined reef areas where the water is less than ten fathoms[41] (60 feet) or in waters less than 1,000 feet offshore if there is no defined reef area and if the depth is greater than ten fathoms. Uses protected in Class AA waters are the conservation of coral reefs and wilderness, support and propagation of marine life, oceanographic research, aesthetic enjoyment and compatible recreation. Other compatible uses that conform to Class AA may be permitted.[42] Class A waters are intended for recreational purposes and any other uses compatible with recreation and the protection and proliferation of fish, shellfish and wildlife. Class A waters may act as receiving waters for NPDES and storm water discharges and discharges that have received the best degree of treatment or have controls compatible with criteria for this class.

Marine bottom ecosystems are divided into Classes 1 and 2. Class 1 marine bottom ecosystems are intended to remain in their natural pristine state with a minimum of pollution from human induced sources. Passive human uses are allowed for marine bottom ecosystems in this class if they do not interfere with or alter the marine bottom in its natural state. Class 2 marine bottom ecosystems may be used for the propagation of fish, shellfish, and wildlife and for recreational purposes. Actions that modify, alter, or consume the marine bottom may be allowed with the approval of the Director of Health (Director). Navigational structures, structural shore protection and wastewater effluent outflow structures also may be permitted by the Director.[43]

The Environmental Planning Office (EPO) is responsible for describing baseline conditions in surface waters and for developing reliable, risk-based water quality standards and improving methods of water quality monitoring. The EPO is tasked with preparing and revising a State Water Quality Management Plan in conjunction with the State Commission on Water Resources Management and revision of the Clean Water Act list of impaired waters. As required

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[37] *See* 65 Fed. Reg. 82, 24641-24653 (Apr. 27, 2000), at http://www.epa.gov/fedrgstr/EPA-WATER/2000/April/Day-27/w8536.htm.
[38] The Water Quality Standards are found in the Hawaii Administrative Rules, Title 11, Chapter 54. The standards were adopted in April 2000, and EPA granted its approval of the revised standards April 27, 2000
[39] HAW. REV. STAT. § 342D-1; HAW. ADMIN. RULES § 11-54-01.
[40] HAW. ADMIN. RULES § 11-54-03(c).
[41] A fathom equals six feet.
[42] HAW. ADMIN. RULES § 11-54-03(c)(1).
[43] HAW. ADMIN. RULES § 11-54-03(d).

by the EPA, the EPO also develops reliable biological and land use assessments for use in preparing Total Maximum Daily Load estimates on a watershed basis.[44]

The DOH has established an antidegradation water quality policy that requires that waters whose quality is higher than the water quality standard not be lowered in quality unless the change is justifiable for important social or economic developments.[45] In addition, any decrease in water quality may not injure or interfere with uses that were already assigned to those waters. The water quality antidegradation policy is supplemented by the DOH policy of water pollution control.[46] This policy supports the conservation of Hawai`i's waters and the protection and improvement in the quality of water for drinking, marine and aquatic life, oceanographic research, preservation of wilderness and coral reefs, and other legitimate uses of water. The water pollution control policy also provides for effective wastewater treatment and water pollution control. Finally, the water pollution control policy mandates the "highest and best degree of waste treatment practicable under existing technology" in project designs for all new or increased sources of water pollution.[47]

The Department of Health's goals are designed to ensure that Hawai`i's coastal waters are safe and healthy for people, plants and animals and also to protect and restore the quality of Hawaii's streams, wetlands, estuaries and other inland waters for fish and wildlife, recreation, aesthetic enjoyment and other appropriate uses. The Clean Water Branch of the Department implements and maintains the statewide clean water program for recreational and ecosystem protection through services including engineering analysis and permitting, water quality monitoring and investigation, water quality violation enforcement, and polluted runoff or nonpoint source pollution control monitoring.[48] As part of its duties, the Monitoring Section of the Clean Water Branch identifies sources of water pollution through area surveillance, routing inspections and complaint investigations. The Monitoring Section also evaluates the impact of water pollutants on public health; determines compliance with rules via source testing, water sampling and special studies; and submits data that appear to indicate non-compliance to the Enforcement Section.[49]

2. Hawaii NPDES Program

The general policy of the water pollution control program provides that no waste is to be discharged into any waters of Hawaii without first being given the degree of treatment necessary to protect the legitimate beneficial uses of such waters.[50] The Clean Water Branch of DOH administers the NPDES permit program. All discharges of water pollutants to state waters must be in compliance with the Water Pollution Law, its rules and the NPDES permit or variance

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[44] Hawaii State Department of Health, *Strategic Plans for Hawaii's Environmental Protection Programs*, at 24 (January 1990).
[45] HAW. ADMIN. RULES § 11-54-01.1.
[46] HAW. ADMIN. RULES § 11-55-02.
[47] HAW. ADMIN. RULES § 11-55-02(b).
[48] Hawaii DOH Clean Water Branch website, at http://www.hawaii.gov/doh/eh/ cwb/#Monitoring%20Section; Hawaii DOH, *Strategic Plan for Hawaii's Environmental Protection Programs*, at 90 (January 1999).
[49] *Id*.
[50] HAW. ADMIN. RULES § 11-55-02(a)(3).

provisions issued by the Director of DOH.[51] The NPDES permit program serves two objectives: the regulation of water pollutants that are discharged to state waters and the requirement of monitoring and reporting by the permittee to the State. Applications for NPDES permits and variances are made to the Director by the owner or operator of the facility. Each application for an NPDES permit must be made on the application forms furnished by the DOH.[52] The application package must include siting information, a plan description, specifications, drawings and other detailed information regarding the treatment works or waste outlet. With the exception of county, state and federal agency applicants, each NPDES permit application requires a non-refundable filing fee.[53] The application for an NPDES permit will be granted if the Director determines that the application is consistent with the regulatory public interest criterion. Each application for an NPDES permit is subject to public notice and comment and may be subject to a public hearing. Variances to NPDES permit requirements may be granted by the Director after the fulfillment of certain procedural requirements, including public notice.[54]

III. Ceded Land, the Public Trust, and Native Hawaiian Traditional Gathering Rights

A. The Ceded Lands Trust

With annexation of Hawai`i into the United States in 1898, the Republic of Hawai`i ceded absolute title to the United States of approximately 1.75 million acres of Government and Crown lands which constituted its public domain.[55] Under Hawai`i's Organic Act, these public or ceded lands "were given a special trust status under the federal government's proprietorship, due in part to the unique circumstances surrounding Hawaii's annexation."[56] "[U]pon Hawaii's admission to statehood in 1959, the federal government relinquished title to most of these lands to the new state."[57]

As part of this trust relationship, Section 5 of the Admission Act imposes five obligations on the state government to hold the ceded lands, together with their income and the proceeds from their disposition, as a public trust:

1) for the support of the public schools and other public educational institutions,
2) for the betterment of the conditions of native Hawaiians as defined in the Hawaiian Homes Commission Act, 1920, as amended,
3) for the development of farm and home ownership on as widespread basis as possible,
4) for the making of public improvements, and
5) for the provision of lands for public use."[58]

Additionally, by law, 20% of all funds derived from these lands by must go to the Office of Hawaiian Affairs to support its work with Native Hawaiians.[59] Thus, public lands or ceded

[51] HAW. ADMIN. RULES §342D-50.
[52] Forms available at http://www.hawaii.gov/health/eh/cwb/forms/index.html.
[53] HAW. ADMIN. RULES § 11-55-04.
[54] Haw. Rev. Stat. §§342D-6, 342D-7.
[55] *Hawaii's Ceded Lands*, 3 U. HAW. L. REV. 101, 101 (1981).
[56] Admission Act of March 18, 1959, Pub. L. No. 86-3, § 5(b),(c) & (d), 73 Stat. 4.
[57] Admission Act of March 18, 1959, Pub. L. No. 86-3, § 5(b),(c) & (d), 73 Stat. 4.
[58] *Id.* § 5(f). This mandate has been codified at HAW. REV. STAT. § 171-18.

lands, as they are commonly called, are "all lands…classed as government or crown lands… including *submerged lands*, and lands beneath tidal waters which are suitable for reclamation, together with reclaimed lands which have been given the status of public land (emphasis added)."[60] According to statute, the Board of Land and Natural Resources (BLNR), as the state agency responsible for the management and disposition of public lands, is authorized to lease state submerged lands, both tidal and non-tidal.[61]

However, BLNR does not have unfettered discretion in leasing ceded lands. First, it is prohibited from "leas[ing] state marine waters when existing programs of the department, such as the marine life conservation district program, shoreline fisheries management area program, or the natural area reserve program will suffer adverse impacts as a consequence of the proposed activities."[62] Second, the BLNR is not allowed to "lease state marine waters unless the board finds that a lease for the proposed activity, after detailed consideration of the present uses, is clearly in the public interest upon consideration of the overall economic, social, and environmental impacts and consistent with other state policy goals and objectives."[63] Third, the lease applicant must be in compliance with all applicable federal, state, and county statutes, ordinances, and rules before BLNR can issue the lease.[64] Finally, BLNR is prohibited from approving an application, "if in doing so, [BLNR] will fail to protect the public's use and enjoyment of the reefs in the state marine waters."[65]

When permitting the placement of net pens and cages in the open ocean within the its 3-mile boundary, BLNR must take into account the ceded lands trust. If portions of the ocean within state jurisdiction are leased out to private companies, these leases and 20% of the revenues generated will be paid to the Office of Hawaiian Affairs. Private companies should be aware of this payment requirement to the extent that this 20% share could impact negotiations between the state and the private entity.

In addition, ceded lands are a "lightning rod" within the legal-political community. For example, commentators maintain that more than just "lands" are part of the ceded land trust:

> The submerged lands surrounding Hawaii, the water column above these submerged lands, and the resources in the submerged lands and the water above were all part of the Crown and Government Lands illegally acquired by the United States in 1898 without the consent of or compensation to persons of Native Hawaiian ancestry. These illegally acquired properties are now commonly referred to as the ceded lands because they were ceded by the illegally constituted 'Republic of Hawaii' to the United States at the time of annexation in 1898.[66]

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[59] HAW. REV. STAT. § 10-13.5.
[60] HAW. REV. STAT. § 171-2.
[61] HAW. REV. STAT. §§ 171-53 and 190D-21(a).
[62] HAW. REV. STAT. § 190D-21(b).
[63] HAW. REV. STAT. § 190D-21(c).
[64] HAW. REV. STAT. § 190D-21(d).
[65] HAW. REV. STAT. § 190D-21(f).
[66] Jon M. Van Dyke, "An Overview of the Jurisdictional Issues Affecting Hawaii's Ocean Waters," THE INT'L J. OF MARINE AND COASTAL LAW, Vol. 11, No.3, 351, 360-61 (1996).

With the current political struggle for Native Hawaiian sovereignty and the notion that the ceded lands potentially form the corpus for a Hawaiian nation, there is heightened public awareness concerning the ceded lands. Any use of those lands will not go unnoticed by interested public parties.

Two projects offer a study in contrasts regarding community involvement and participation approaches a company could take in addressing potential ceded lands issues. In the case of Kona Blue Water Open Ocean Fish Farms (Kona Blue Water) proposed off Unualoha Point in Kona, Hawai`i., the Draft Environmental Assessment, published in January 2003, reflects a company that has been engaged in two years of discussion with a broad cross-section of the community. Not only did Kona Blue Water meet with industry and government specialists, they also conducted specific meetings with Native Hawaiian individuals and groups, including local *kupuna*, or elders, and cultural practitioners.[67]

In addition to these grassroots meetings, a "Core Group" consisting of the company, industry, governmental, and community and Native Hawaiian representatives met to address concerns raised by ceded lands revenues and how these revenues could be parlayed into other benefits that could be derived from the open-ocean project.[68] From this Core Group meeting, community grassroots and industry interests left with a commitment to collaborate on a nursery and restocking project that could possibly be funded with parts of the lease payments.[69] Kona Blue Water Farms representatives even suggested that "[i]f there was strong local support, then the lease might actually stipulate that some portion is to go to a reef restocking program."[70]

The Ahi Nui Tuna Farming Co. (Ahi Nui) which has proposed an offshore tuna growout project utilizing sea cages and the "farming" of juvenile tuna, followed a very different approach regarding public consultation as evidenced by its Draft Environmental Assessment (EA). First, although Ahi Nui throughout its EA alludes to consultation with community groups, the listing of groups actually consulted shows a list of mostly business and industry interests under "Community and Local Businesses."[71] In addition to the sparse representation of community interests in the consultation and drafting of the EA, Ahi Nui also followed a process of inviting community group participation *after* the initial preparation of the EA, evidenced by a meeting scheduled with the "Kawaihae Community" planned for mid-August *after* the release of the EA.[72] This less open approach to community participation is further illustrated in Ahi Nui's EA where it recognizes that portions of the lease revenues must go into special land and

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[67] *See Transcripts of May 21st and May 28th, 2002 Meetings*, available at http://www.blackpearlsinc.com/3_4.shtml (last visited May 24, 2003).

[68] *Notes from Core Group Meeting to Discuss Potential Broader Benefits From KWBF's Proposed Hatchery/Offshore Farm Project*, available at http://www.blackpearlsinc.com/3_4.shtml (last visited May 24, 2003). *See also* Kona Blue Water Farms, *Draft Environmental Assessment for An Offshore Open Ocean Fish Farm Project Off Unualoha Point, Kona, Hawaii* at 45 (January 17, 2003), available at http://www.blackpearlsinc.com/3_4.shtml (last visited May 24, 2003) [*Kona Blue Water EA*].

[69] *Notes from Core Group Meeting to Discuss Potential Broader Benefits From KWBF's Proposed Hatchery/Offshore Farm Project*, available at http://www.blackpearlsinc.com/3_4.shtml (last visited May 24, 2003).

[70] *Id.*

[71] Ahi Nui Tuna Farming, LLC, *Draft Environmental Assessment Ahi Tuna Farming Co. Offshore Tuna Growout Project* at 11 & 36, July 20, 2002;

[72] *Id.* at 11.

development funds.[73] Ahi Nui, however, continues on that "[t]he issues related to the use of, or authority over, ceded lands are recognized by the Company but are not appropriate topics for discussion in this Draft Environmental Assessment."[74]

An approach that actively seeks community involvement and input is more desirable and more inviting from the grassroots community perspective than a closed approach that seeks input later in the process. Furthermore, when given sensitive community issues like ceded lands, the use of those lands, and money generated from those lands, the more a company or the industry is willing to listen to the community and actively solicit meaningful community input, the more potential community partners and allies will emerge for the proposed aquaculture venture.

B. Constitutional Provisions and the Public Trust Doctrine

Hawai`i's public trust doctrine has evolved into one of the most protective in the United States. It is incorporated in the Hawai`i Constitution; Article XI, section 1 provides in part:

> "For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State."

Provision 2 further mandates that "[a]ll public natural resources are held in trust by the State for the benefit of the people."

As related to water resources, Section 7 provides that:

> "[t]he State has an obligation to protect, control and regulate the use of Hawaii's water resources for the benefit of its people. The legislature shall provide for a water resources agency which, as provided by law, shall set overall water conservation, quality and use policies; define beneficial and reasonable uses; protect ground and surface water resources, watersheds and natural stream environments; establish criteria for water use priorities while assuring appurtenant rights and existing correlative and riparian uses and establish procedures for regulating all uses of Hawaii's water resources."

Finally, Article XI, section 9 states that "Each person has the right to a clean and healthful environment, as defined by law relating to environmental quality, including control of pollution and conservation, protection and enhancement of natural resources." Thus, reading these provisions together, Hawai`i recognizes a public trust duty residing with the state to conserve and protect natural resources, including water and ocean resources.

In August 2000, the Hawai`i Supreme Court, in *In re: Water Use Permit Applications* [*"Waiahole"*], applied the public trust doctrine when it reviewed a decision by the State

[73] *Id.* at 9.
[74] *Id.* at 10.

Commission on Water Resources Management to restore flows to several streams on the island of O`ahu and reserve waters from these streams for agricultural reserves and other uses.[75] In this landmark decision regarding freshwater resources, the Court explained the doctrine's scope, the purpose of protected uses of public resources and the powers and duties of the State as trustee.[76] In describing more fully the public trust doctrine in Hawai'i, the *Waiahole* decision has important implications for all users of Hawai`i's water and natural resources, including ocean resources.

1. Geographic Reach/Scope of the Public Trust Doctrine

The *Waiahole* court recognized that "the public trust doctrine applies to all water resources without exception or distinction."[77] Citing Article XI, Sections 1 and 7 of the State Constitution and Constitutional Convention proceedings, the Court reasoned that "constitutional provisions…do not differentiate between categories of water in mandating the protection and regulation of water resources for the common good."[78] Furthermore, the framers "understood 'water resources' as 'including ground water, surface water and all other water' (emphasis added)."[79]

Although the *Waiahole* decision concerned fresh water resources, the public trust doctrine is applicable to marine waters as well. Without defining tidelands, the Court explicitly identified their natural preservation as "one of the most important public uses of the tidelands—a use encompassed within the tidelands trust—…so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area."[80] The Court described Hawaii's public trust doctrine as "more than an affirmation of the state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands, and *tidelands*, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust."[81]

2. Purposes and Protected Uses

The public trust doctrine is a "dynamic common-law principle" that evolves as the needs of society change.[82] Traditionally, the protected uses of public trust lands and waters included

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[75] In re Water Use Permit Applications, 94 Haw. 97, 117 (2000) [hereinafter Waiahole].

[76] See generally Denise Antolini, Symposium, Managing Hawaii's Public Trust Doctrine: Water Rights and Responsibilities in the Twenty-first Century: A Foreword to the Proceedings of the 2001 Symposium on Managing Hawaii's Public Trust Doctrine, 24 U. Haw. L. Rev. 1 (2001); Transcripts, 2001 Symposium on Managing Hawaii's Public Trust Doctrine (September 2001), *at* http://www.hawaii.edu/uhreview/publictrust.pdf (last visited July 17, 2003).

[77] Waiahole, 94 Haw. at 133.

[78] Id.

[79] Id. (quoting Debates, in 2 Proceedings, at 861 (statement by Delegate Fukunaga).

[80] Id. at 136.

[81] Waiahole, 94 Haw. at 138.

[82] Slade, Putting the Public Trust Doctrine to Work, p. 132 quoting District of Columbia v. Air Florida, Inc. 750 F. 2d 1077 (D.C. Cir. 1984):

> "Traditionally, the doctrine has functioned as a constraint on states' ability to alienate public trust lands and as a limitation on uses that interfere with trust purposes. More recently, courts and commentators have

commerce, navigation and fishing.[83] Other courts have further identified a wide range of recreational uses, including bathing, swimming, boating and scenic viewing.[84] Finally, courts have extended public use to "the preservation of lands…in their natural state."[85] In *Waiahole*, the court recognized these recreational uses and affirmed "conservation" as a valid public trust use, stating that "the maintenance of waters in their natural state constitutes a distinct "use under the water resources trust, [disposing] of any portrayal of retention of waters in their natural state as 'waste.'"[86] The Court further stated that "the public trust has never been understood to safeguard rights of exclusive use for private commercial gain. Such an interpretation, indeed, eviscerates the trust's basic purpose of reserving the resource for use and access by the general public without preference or restriction."[87]

3. Trust Powers and Duties of the State

The public trust doctrine imposes two fundamental, affirmative duties on the State: "to maintain the purity and flow of our waters for future generations and to assure that the waters…are put to reasonable and beneficial uses."[88] Thus, the Trust "embodies a dual mandate of 1) protection and 2) maximum reasonable and beneficial use."[89] In the State's exercise of the first of these mandates, the Court recognized that the "trust protects public waters and submerged lands against irrevocable transfer to private parties, or 'substantial impairment.'"[90] The duty to promote reasonable and beneficial use of waters was further defined by the Court "not [as] maximum consumptive use, but rather the most equitable, reasonable, and beneficial allocation of state water resources, with full recognition that resource protection also constitutes 'use.'"[91]

Other duties enumerated by the Court include (1) "[t]he continuing authority to the state over its water resources [to] preclude any grant or assertion of vested rights to use water to the detriment of public trust purposes;"[92] (2) "the authority…to revisit prior diversions and allocations, even those made with due consideration on their effect on the public trust";[93] (3) "to take the public trust into account in the planning and allocation of water resources";[94] (4) "[to] weigh competing public and private water uses on a case-by-case basis,"[95] and in this balancing act, apply "a 'higher level of scrutiny' for private commercial uses" such that "the burden ultimately lies with those seeking or approving such uses to justify them in light of the purposes

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found in the doctrine a dynamic common-law principle flexible enough to meet diverse modern needs. The doctrine has been expanded to protect additional water-related uses such as swimming and similar recreation, aesthetic enjoyment of rivers and lakes, and preservation of flora and fauna indigenous to public trust lands."

[83] Waiahole, 94 Haw. at 136; See also Slade, Putting the Public Trust Doctrine to Work, p. 130.
[84] Waiahole, 94 Haw. at 136.
[85] Id. at 136.
[86] Id. at 136-37.
[87] Id. at 138.
[88] Waiahole, 94 at 138 (emphasis by Court).
[89] Id. at 139.
[90] Id.
[91] Id. at 140.
[92] Id. at 141.
[93] Id.
[94] Id.
[95] Id. at 142.

protected by the trust";[96] and (5) "to consider the cumulative impact of existing and proposed diversions on trust purposes and to implement reasonable measures to mitigate this impact, including the use of alternative sources."[97]

The application of the public trust doctrine to Hawai`i's coastal and ocean waters and resources raises some interesting challenges to Hawaii's growing aquaculture industry. Assuming that the public trust doctrine now creates a seamless web of protection over all fresh and coastal waters, the affirmative duties of the public trust must be applied to commercial ventures in coastal and offshore facilities within State waters.

C. Cultural Impact Statements

The Hawai`i Environmental Impact Statement Law (HEISL) includes a cultural impact component. The law is designed to ensure that environmental concerns are weighed along with economic and technical considerations in certain specific types of decision-making.[98] HEISL requires the preparation of an Environmental Assessment ("EA") for all actions utilizing state or county lands or funds, and certain private actions that fall into administrative, geographic, or action criteria.[99] An Environmental Impact Statement ("EIS") is required if, after public review of the EA, "the agency finds that the proposed action may have a significant effect on the environment."[100] Significant effects contemplated by HEISL include "actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, . . . or adversely affect the economic welfare, social welfare, *or cultural practices of the community and State* (emphasis added)."[101] In 2000, the State Legislature amended HEISL's definition of "significant effects" and added more protective language for cultural practices beyond just those practices by Native Hawaiians. Using broad and inclusive language, Section 1 of Act 50 asserts that state agencies have a "duty to promote and protect cultural beliefs, practices, and resources *of native Hawaiians as well as other ethnic groups* (emphasis added)."[102]

Along with this inclusive language, Act 50 also appears to afford Native Hawaiian culture greater protections. For example, the Legislature acknowledges "the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of

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[96] Id. at 142.
[97] Id. at 143.
[98] HAW. REV. STAT. § 343-1.
[99] HAW. REV. STAT. § 343-5(a) states that "an environmental assessment shall be required for actions which:
(1) Propose the use of state or county lands or the use of state or county funds,…
(2) Propose any use within any land classified as conservation district by the state land use commission under chapter 205;
(3) Propose any use within the shoreline area as defined in section 205A-41;
(4) Propose any use within any historic site as designated in the National Register or Hawaii Register…;
(5) Propose any use within the Waikiki area of Oahu,…establishing the "Waikiki Special District";
(6) Propose any amendments to existing county general plans where such amendments would result in designations other than agriculture, conservation, or preservation,…;
(7) Propose any reclassification of any land classified as conservation district by the state land use commission under chapter 205; and
(8) Propose the construction of new, or the expansion or modification of existing helicopter facilities…."
[100] HAW. REV. STAT. § 343-5(c).
[101] HAW. REV. STAT. § 343-2.
[102] Act 50, § 1, 20th Leg., Reg. Sess., (2000), *reprinted in* 2000 Haw. Sess. Laws 93.

many important cultural resources and has interfered with the exercise of native Hawaiian culture."[103] The Legislature further finds "that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture."[104]

D. State Constitutional and Statutory Protections for Native Hawaiian Customary Traditions and Practices

Hawai`i has a set of unique laws that protect and preserve the traditional and customary rights of Native Hawaiians. Article XII, Section 7 of the Hawai`i Constitution places an affirmative duty on the state and its agencies to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778."[105] This constitutional protection grew out of the 1978 Constitutional Convention that recognized the need to "preserve the small remaining vestiges of a quickly disappearing culture [by providing] a legal means…to recognize and reaffirm native Hawaiian rights."[106] The Committee on Hawaiian Affairs, responsible for drafting Article XII, section 7, also acknowledged that "sustenance, religious and cultural practices of native Hawaiians are an integral part of their culture, tradition and heritage, with such practices forming the basis of Hawaiian identity and value systems."[107]

Several statutes underscore and clarify Article XII's constitutional mandate to protect Native Hawaiian cultural practices and properties. Haw. Rev. Stat., section1-1, provides that:

> The common law of England, as ascertained by English and American decisions, is declared to be the common law of Hawai`i, in all cases, *except* as otherwise expressly provided by the Constitution or laws of the United States, or by the laws of the State, *or fixed by Hawaiian judicial precedent, or established by Hawaiian usage*. (emphasis added).

Thus, even before Hawai`i had a State Constitution, when the common law of England was adopted as the governing law of Hawai`i in 1892, legislators recognized that Hawaiian "usage" or custom and tradition should prevail over English common law.[108]

Section 7-1 of the Hawaii Revised Statutes is a second statute that protects Native Hawaiian customary and traditional gathering rights. Enacted in 1850 when the Kuleana Act granted private property to commoners, it explicitly provides:

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[103] Act 50, § 1, 20th Leg., Reg. Sess., (2000), *reprinted in* 2000 Haw. Sess. Laws 93.
[104] *Id.*
[105] HAW. CONST. art. XII, § 7.
[106] STAND. COMM. REP. NO. 57, *reprinted in* 1 PROCEEDINGS OF THE CONSTITUTIONAL CONVENTION OF 1978, at 640 (1980).
[107] COMM. WHOLE REP. NO. 12, *reprinted in* 1 PROCEEDING OF THE CONSTITUTIONAL CONVENTION OF 1978, at 1016 (1980).
[108] Kalipi v. Hwn Trust Co., 66 Haw. 1 (1982) (stating "statutory exception...is thus akin to the English doctrine of custom whereby practices and privileges unique to particular districts continued to apply to the residents of those districts even though in contravention of the common law").

> When the landlords have obtained. . . allodial titles to their lands, the people on each of their lands shall not be deprived of the right to take firewood, house timber, aho cord, thatch, or ki leaf, from the land on which they live, for their own private use… The people shall also have the right to drinking water…and the right of way. The springs of water, running water, and roads shall be free to all, on all lands granted in fee simple; provided that this shall not be applicable to wells and watercourses, which individuals have made for their own use.[109]

This section is the basis for Native Hawaiian access rights to private property and waterways in order to gather a specific list of natural resources for customary uses.

Hawai`i's statutes protecting Native Hawaiian traditional and customary rights, and more recently cultural practices beyond Native Hawaiian practices, have provided a fertile ground for litigation. The Hawai`i Supreme Court has shaped this area of the law, clarifying further the duties of the state and its agencies. In the first in this line of cases, William Kalipi, a Molokai taro farmer, sought access to private land in order to gather "ti leaf, bamboo, kukui nuts, kiawe, medicinal herbs and ferns."[110] In a groundbreaking decision, the Hawai`i Supreme Court held that "lawful occupants of an ahupua`a[111] may, for the purposes of practicing native Hawaiian customs and traditions, enter undeveloped lands within the ahupua`a to gather those items enumerated in HRS § 7-1."[112] The Court recognized that guiding its decision was an "obligation to preserve and enforce such traditional rights" pursuant to Article XII, Section 7 of the Hawai`i State Constitution.[113] Finally, the Court concluded Kalipi's gathering rights also existed under "the Hawaiian usage exception to English common law found in HRS § 1-1…as customary rights which continued to be practiced and worked no actual harm upon the recognized interests of others."[114]

In Pele Defense Fund v. Paty,[115] the Supreme Court reaffirmed and extended Hawaiian gathering rights under §§ 1-1 and 7-1. In this case, the Pele Defense Fund challenged the exchange between the State and a private landowner for more than 27,000 acres of public lands, including areas designated as Natural Area Reserve lands.[116] As part of that challenge, plaintiff's Native Hawaiian members asserted access rights into the undeveloped areas of the Natural Area Reserve lands for traditional subsistence, cultural, and religious purposes.[117] Plaintiffs in Pele Defense Fund differed from plaintiff in Kalipi because they claimed their access rights solely on traditional access and gathering rights instead of land ownership and tenancy.[118] Looking to the history of the Constitutional Convention of 1978, the Court broadly interpreted Article XII, Section 7 and extended Kalipi by holding that "Native Hawaiian

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[109] HAW. REV. STAT. § 7-1.
[110] Kalipi v. Hawaiian Trust Co., 66 Haw. 1, 3 (1982).
[111] An ahupua`a is a division of land in ancient Hawai`i that runs from the sea to the mountains.
[112] Kalipi, 66 Haw. at 7.
[113] *Id.* at 4.
[114] *Id.* at 12.
[115] 73 Haw. 578 (1992).
[116] *Id*. at 584.
[117] *Id.* at 585.
[118] *Id.* at 578.

rights…may extend beyond the ahupua`a in which a Hawaiian resides where such rights have been customarily and traditionally exercised in this manner."[119]

Where Kalipi and Pele Defense Fund dealt with gathering and access rights to undeveloped lands, Public Access Shoreline Hawai`i v. Hawai`i County Planning Commission ("PASH"),[120] addressed the issue of what happens to Native Hawaiian customary and traditional rights in the face of proposed developments. In this case, the Hawai`i County Planning Commission denied plaintiff's request for a contested case hearing over a Special Management Area use permit for a resort community development.[121] Plaintiffs challenged this denial. The Hawai`i Supreme Court ruled that when undertaking or ruling on development proposals on undeveloped or "not fully developed" lands, state agencies must protect customary and traditional rights associated with the property."[122]

In the next in this line of case, the Hawai`i Supreme Court in Ka Pa`akai O Ka `Āina v. Land Use Commission (Ka Pa`akai)[123] reviewed a decision by the state Land Use Commission (LUC) approving the reclassification of over 1000 acres of land into the urban district to be used for a resort development. In evaluating the LUC's administrative action approving the re-classification, the Court reiterated "that the State and its agencies are obligated to protect the reasonable exercise of customarily and traditionally exercised rights of Hawaiians to the extent feasible."[124] The Court further cited to Act 50's amendments that altered definitions in Hawai`i's EIS process and broadened the state's obligation to consider not just Native Hawaiian but "cultural practices of the community and state" in the EIS process.[125] Ultimately, the Court held that the Land Use Commission's determinations were "insufficient to determine whether [the LUC] fulfilled its obligation to preserve and protect customary and traditional rights of native Hawaiians."[126]

Accordingly, the Court vacated the LUC's grant for land boundary reclassification and remanded the petition back to the LUC for further fact-finding and conclusions about the petition area.[127] First, the LUC was directed to identify specific "valued cultural, historical, or natural resources…including the extent to which traditional and customary native Hawaiian rights are exercised."[128] Next, the LUC was directed to determine "the extent to which those resources – including traditional and customary native Hawaiian rights – [would] be affected or impaired" by the proposed luxury development.[129] Finally, if Native Hawaiian rights were found to exist, the LUC was directed to determine "the feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights."[130]

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[119] *Id.* at 620.
[120] 79 Haw. 425 (1995).
[121] *Id*. at 429.
[122] *Id*. at 448.
[123] 94 Haw. 31 (2000).
[124] *Id.* at 35.
[125] *Id.* at 47, n.28.
[126] *Id.* at 53, 1090.
[127] *Id.*
[128] *Id.*
[129] *Id.* at 35.
[130] *Id.*

Thus, in reaching its decision, the Court reaffirmed the State's duty to protect Native Hawaiian customary and traditional rights. Although Act 50 and Ka Pa`akai are now part of the constitutional, statutory, and judicial case law protecting these rights, footnote 28 of the opinion leaves open the possibility that "cultural resources" cover native Hawaiian and other cultures here in Hawai`i. Because native Hawaiians could claim traditional rights in the ocean and native Hawaiians and other groups can arguably claim ocean areas and resources to be cultural resources, new aquaculture ventures should be aware of the state's obligation to take those interests into consideration in approving any activities associated with aquaculture operations.

In addition, EPA guidelines generally specify that discharges into an aquaculture project area require an NPDES permit.[131]

IV. The Hawaiian Islands Humpback Whale National Marine Sanctuary

A. Statutory and Regulatory Framework

In 1992, as part of reauthorizing the Marine, Protection, Research, and Sanctuaries Act of 1972 [or "National Marine Sanctuary Act" ("NMS")], Congress designated the Hawaiian Islands Humpback Whale National Marine Sanctuary ["Sanctuary"].[132] The NMSA identified four purposes for the Sanctuary:

1) to protect humpback whales and their habitat…;
2) to educated and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment;
3) to manage such human uses of the Sanctuary consistent with [NMSA]; and
4) to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the sanctuary.[133]

Following almost five years of consultation with the State government and with members of the public on each of the main Hawaiian islands, the Sanctuary's boundaries were finalized and the Sanctuary was officially designated the nation's twelfth marine sanctuary on June 5, 1997.[134] Regulations implementing the Sanctuary were finalized on November 29, 1999.[135] Most recently, in August 2002, the Sanctuary completed its first five-year review process and updated the Sanctuary's Management Plan.[136]

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[131] EPA Clean Water Act info, at http://www.epa.gov/agriculture/lcwa.html#Aquaculture%20Projects.
[132] Hawaiian Islands National Marine Sanctuary Act, Pub. Law No. 102-587, §2305(a), 106 Stat. 5039 (Nov. 4, 1992).
[133] *Id.* §2304(b)(1)-(4).
[134] National Oceanic and Atmospheric Administration and Hawaii Department of Land and Natural Resources, Hawaiian Islands Humpback Whale NMS, "The History of the Sanctuary," http:///www.hihwnms.nos.noaa.gov/about/sanctuary_history.html (visited April 26, 2003).
[135] 15 CFR §§922.180-922.187.
[136] National Marine Sanctuary Program, Hawaiian Islands Humpback Whale National Marine Sanctuary Management Plan, August 2002, available at http://www.hihwnms.nos.noaa.gov/planreview/pdfs/HIHWNMS_FMP.pdf (visited April 26, 2003).

Today, the Sanctuary's authorizing statute and implementing regulations provide a protective framework that regulates "activities affecting the resources of the Sanctuary or any of the qualities, values, or purposes for which the Sanctuary was designated."[137] The primary purpose of the statute and regulations is "protecting the humpback whale and its habitat."[138] To the extent compatible with this purpose, the regulations are also intended "to facilitate . . . all public and private use of the Sanctuary, including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes, as well as education, research, recreation, commercial and military activities (emphasis added)."[139]

The area of the Sanctuary is expansive, stretching around six of the eight major Hawaiian Islands in a series of five noncontiguous protected areas.[140] The Sanctuary area is 1,370 square miles[141] and "consists of the submerged lands and waters off the coast of the Hawaiian islands seaward from the shoreline, cutting across the mouths of rivers and streams" on the different islands.[142] The Sanctuary, however, excludes a number of commercial ports and small boat harbors.[143]

Six activities prohibited within the Sanctuary include:

(1) Approaching, or causing a vessel or other object to approach…by any means, within 100 yards of any humpback whale, except as authorized under the Marine Mammal Protection Act…and the Endangered Species Act;
(2) Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale;
(3) Taking any humpback whale…except as authorized under the MMPA and the ESA;
(4) Possessing…(regardless of where taken) any living or dead humpback whale or part thereof;
(5) Discharging or depositing any material or other matter in the Sanctuary; altering the seabed of the Sanctuary or discharging or depositing any material or other matter outside the Sanctuary if the discharge or deposit subsequently enters and injures a humpback whale or humpback whale habitat, provided that such activity:

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[137] 15 CFR 922.180.
[138] 15 CFR 922.180(a).
[139] 15 CFR 922.180(a).
[140] National Marine Sanctuary Program, Hawaiian Islands Humpback Whale National Marine Sanctuary Management Plan 21, August 2002, available at http://www.hihwnms.nos.noaa.gov/planreview/pdfs/HIHWNMS_FMP.pdf (visited April 26, 2003).
[141] *Id.*
[142] 15 CFR 922.121(a)(1)-(5). The boundaries of the Sanctuary are measured seaward from the shoreline…(1) To the 100-fathom isobath from Kailiu Point eastward to Mokolea Point, Kauai; (2) To the 100-fathom isobath from Puaena Point eastward to Mahie Point, and from the Kapahulu Groin in Waikiki eastward to Makapuu Point, Oahu; (3) To the 100-fathom isobath from Cape Halawa, Molokai, south and westward to Ilio Point, Molokai; southwestward to include Penguin Banks; eastward along the east side of Lanai; to the waters seaward of the three nautical mile limit north of Kahoolawe, to the Hanamanoia Lighthouse on Maui, and northward along the shoreline to Lipoa Point, Maui; (4) To the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Lipoa Point, Maui, and southward; (5) To the 100-fathom isobath from Upolu Point southward to Keahole Point, Hawaii.
[143] 15 CFR 922.181(b). The commercial ports and small boat Harbors excluded from the Sanctuary include: Kawaihae Boat Harbor & Small Boat Basin on Hawai`i; Kaumalapau Harbor and Manele Harbor on Lana`i; Lahaina Boat Harbor and Maalaea Boat Harbor on Maui; Hale O Lono Harbor and Kaunakakai Harbor on Moloka`i; and Kuapa Pond on O`ahu.

(i) requires a Federal or State permit, license, lease, or other authorization; and
(ii) is conducted:
(A) without such permit, license, lease, or other authorization, or
(B) not in compliance with the terms or conditions of such permit, license, lease, or other authorization.
(6) Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement.[144]

The consequences for violation of the Sanctuary regulations can be significant, including a civil penalty of not more than $100,000 per violation. Each day during which a violation occurs is considered a separate violation with a separate fine. Finally, punishment for each violation includes forfeiture of property.

If discharging or depositing any material in the Sanctuary is going to occur in an aquaculture operation, such discharges or deposits are only prohibited where an operation is required to have a federal or state permit and such operation is conducted without a permit or such operation is not in compliance with the conditions of the permit. Thus, the first protective measure for any aquaculture venture that wishes to come into compliance with the Sanctuary's statute and rules is to obtain any required permits, including NPDES permits under the Clean Water Act.

In addition, aquaculturists will need to consider what activities associated with their venture constitute taking a humpback whale. A taking of a whale is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or injure a humpback whale, or to attempt to engage in any such conduct. The term includes, but is not limited to…operating a vessel or aircraft or doing any other act that results in the disturbing or molesting of any humpback whale."[145] Aquaculturists need to be aware that a broad range of activities may be viewed as possible "takings." For example, whales that become entangled in nets or cages used for the raising of fish would be viewed as a taking under the regulatory definition. The use of certain mooring systems, material, and cages *may* limit the chances for entanglement and thus mitigate a possible taking.[146] In the proposed cage-farming system for Hawai`i, the draft Environmental Assessment reports that "[b]ecause mooring assemblies for these systems are usually large with diameter ropes, chain and other associated equipment, entanglements with marine life…have never occurred. In fact, the same cage system…was moved north to Cape Cod, MA, for an experimental tuna farm trial and was moored directly in the migratory path of the endangered Northern Right Whale. No problems ever occurred and the whales were able to navigate around the cage system."[147] The Environmental Assessment continues with the assertion that

[144] *Id*.
[145] 15 CFR 922.182(a).
[146] Ahi Nui Tuna Farming, LLC, Draft Environmental Assessment: Offshore Tuna Growout Project" 57 (July 20, 2002).
[147] *Id.* at 57.

> "[t]here appears to be no threat to turtles, whales or any other marine life including dolphins…. Furthermore the cage nets are held very rigid and are closed bottom and thus would not pose any threat to whale entanglement. The moorings and anchor lines are spread out and we have never encountered a whale striking one of these lines. Mexico has recently declared its waters a whale sanctuary and has not found a need to cease aquaculture activities in order to do this."[148]

Other examples of possible "takes" include pollution from cages or other operations that alter the whales' habitat or spread disease, causing harm to the whale population. In Canada, concerns have been raised about the practice of installing underwater sonar devices that are intended to drive away possible predators like seals, but may also be impacting the feeding of humpback and minke whales in those waters.[149] Federal regulations further define the term and should be consulted when planning a project.

Finally, alteration of the seabed means drilling into, dredging, or otherwise altering a natural physical characteristic of the seabed of the Sanctuary or constructing, placing, or abandoning any structure, material, or other matter on the seabed of the Sanctuary.[150] Thus, any of the options proposed to anchor cages or pens to the seabed raise the possibility that the seabed will be altered either in the construction or removal of open-ocean operations within the Sanctuary's protected areas.

V. Sale of Research By-Products

The sale of by-products generated from research funded by federal grant money under the U.S. Department of Agriculture (USDA) through the Cooperative State Research, Education, and Extension Service (CSREES) and via the Center for Tropical and Subtropical Aquaculture (CTSA) is governed by USDA rules outlined in 7 CFR 3019, which essentially codify the guidelines set forth by the Office of Management and Budget (OMB).[151]

The CSREES contract agreement provides that "general program income earned under any project during the period of CSREES support shall be added to total project funds and used to further the objectives of this award or the legislation under which this award is made. Disposition of program income earned by sub-awardees shall be determined in accordance with the policies of the awardee."[152] Additional rules break down sources of income by category, including real property, tangible property and equipment, intangible property, and "exempt" property.[153]

The distinction between research by-products and production for sale is dependent on the terms of individual grant conditions. As such, scrutiny and characterization is at the discretion of

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[148] *Id.* at 61.
[149] Colin Woodard, Fish Farms Get Fried for Fouling, The Christian Science Monitor, Sept. 9, 1998.
[150] 15 C.F.R. § 922.182(a).
[151] OMB circular No. A-110, uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and other Non-Profit Organizations.
[152] *Id*. See also 7 CFR Part 3019.24; USDA CSREES General Terms and Conditions, Part A, Section 14, Program Income, at http://www.reeusda.gov/crgam/oep/awardterms.htm.
[153] 7 C.F.R. §§3019.31 through 3019.37.

the awarding agency. Decisions or evaluations of this nature are based upon a "reasonable" standard, and without a showing of arbitrary or capricious agency action in evaluating information and in making decisions, the agency has wide latitude in interpreting the contract terms.

The original Oceanic Institute Pacific Threadfin studies began in 1996, when the Institute received $112,000 to research Threadfin growout requirements and provide seedstock to the commercial sector.[154] This grant continued for three years, ending in 1999 with an OI objective of "maintaining broodstock and provide 250,000 seedstock threadfin to participating qualified farms to prime industry development and expand production of existing farms."[155] Threadfin research continued for another three years under a new grant proposal with similar objectives, in this instance adding the objective of transferring reliable threadfin fry production technologies to commercial hatcheries.[156] The focus of the current grant proposal shifts toward reproduction and selective breeding and does not list any technology or fingerling transfer goals.[157] USDA rules give the awarding agency the option to vest title to the "exempt" property under conditions considered appropriate.[158] This authorizes CTSA to develop individual guidelines for "exempt" property as dictated by specific grant proposals and approved by the awarding authority, in this case USDA CSREES through CTSA. Research by-products, such as Pacific Threadfin fingerlings, are generally considered "exempt property". [159] USDA CSREES Director of Extramural Programs, Ms. Louise Ebaugh, regarding allegations of the improper sale of threadfin fingerlings to commercial businesses, stated that the sale of the fingerlings was "consistent with the intent of the project and goals of the [CTSA]."[160]

Terms and conditions for any income earned during the grant period is normally dictated by the grant terms. For example, the OI grant for Pacific Threadfin research provided for the sale of by-product fingerlings to the commercial sector at a specific unit price that increased annually in order to help "wean" commercial purchasers from the OI by-product. OMB rules provide one caveat contemplating competition with private industry, that "the recipient shall not use supplies acquired with Federal funds to provide services to non-Federal outside organizations

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[154] CTSA Yearly Summary, Development of Pacific Threadfin and Milkfish Growout Technology and Production of Live Feeds and Seedstock Grant Proposal Objectives, Year 1, 1996, at http://www.ctsa.org/ProjectDetail.aspx?pID=1112.

[155] CTSA Yearly Summary, Development of Pacific Threadfin and Milkfish Growout Technology and Production of Live Feeds and Seedstock Grant Proposal Objectives, Objective 1, Year 3, 1998, at http://www.ctsa.org/ProjectDetail.aspx?pID=1131.

[156] CTSA Yearly Summary, Marine Food Fish Seedstock Production Grant Proposal Objectives, Year 1 - 3, 1999 - 2001, at http://www.ctsa.org/ProjectList2.aspx?type=year&id=12.

[157] CTSA Yearly Summary, Reproduction and Selective Breeding of Pacific Threadfin Grant Proposal Objectives, Year 1, 2002, at http://www.ctsa.org/ProjectDetail.aspx?pID=1156.

[158] 7 C.F.R. §3019.33(b).

[159] Telephone conversation with Ms. Colien Hefferan, USDA CSREES Liaison to the Board of Agriculture, April 22, 2003.

[160] Dr. Gary Pruder, Oceanic Institute Executive Vice President, quoting Ms. Ebaugh in his response to Dr. Kevin Hopkins, Director, PACRC, regarding the PACRC document "Aquaculture Policy Issues in Hawaii" (2002), Nov 1, 2002. (On file with author). Interestingly, the only viable commercial aquaculture industry apparently fully exploiting the OI research is one that is not self-sustaining – offshore netpens requiring continued OI support through the supply of threadfin fingerlings. The hatcheries envisioned by the 1999 and 2001 grant objectives have not materialized.

for a fee that is less than private companies charge for equivalent services."[161] "Supplies means all personal property excluding equipment, [and] intangible property. "[162] Also, most notable is the allegation of unfair competition resulting from OI's sale of research byproducts (fingerlings) at prices below the private sector cost for similar products. Though legal under the grant agreement, the relationship between OI, State University, Federal Grant Authority, and State Aquaculture Development Program may be perceived as nepotistic, and intimates an appearance of impropriety.

Yet it seems clear that OMB has foreseen instances where research equipment and supplies will be used to the exclusive benefit of grant recipients. In fact, this is expected and encouraged as an attempt to promote interest in research, bolster the agriculture marketplace, and ultimately increase competition. But guideline rule 2(hh) also contemplates those instances where grant recipients will use federally funded supplies to compete with industry. Such action appears unfair and tends to undercut the integrity of the research grant system. As such, any activity that uses research supplies, in this case living byproducts produced with federal funds, should be carefully scrutinized for its continued impact on private industry and adjusted as appropriate so as to not impair the very industry it intends to support.

Another important issue concerning the aquaculture industry in Hawai`i is the appearance of impropriety in the quasi-commercial use of federally funded research equipment and property and its effect on competition in the open market. Federal goals are to encourage research and education concerning integrated systems of plant and animal production practices having both a site specific and regional application that will over the long-term improve food sources, the environment, and the efficient use of renewable resources, as well as enhance economic and social wellness.[163] For example, OI is working on research involving finfish, shrimp, aquatic nutrition, and marine biotechnology. In fact, it was OI research of the Pacific Threadfin (funded by USDA through CTSA) that helped open doors in Hawai`i leading to the lease of public trust lands and open ocean water space for use by a private commercial aquaculture project. But the progress has not been without difficulties.

Most ethics codes require that public officials and employees avoid the appearance of impropriety. However, an appearance of impropriety is generally not prohibited by law in Hawai`i except under HRS §84-13, the fair treatment section of the code, which prohibits state employees from using their official positions to secure unwarranted treatment for themselves or others. In order to further public confidence in state employees, even the appearance of unwarranted treatment is prohibited by the ethics code. Though this portion of the statute does not seem pertinent here, a reasonable person might question whether an official may remain impartial on the issues she is so closely involved with on multiple layers.

Even more pertinent to the issue at hand, in order to avoid the appearance of impropriety and potential mischief inherent in close transactions, a provision of Hawai`i's Ethics Code prohibits government employees from taking official action affecting a "business or undertaking

[161] OMB Circular A-110, Appendix A, Subpart C, 35.
[162] OMB Circular A-110, Appendix A, Subpart A, 2(hh).
[163] Western Region Sustainable Agriculture Research and Education (WSARE) at http://wsare.usa.edu.

in which he has a substantial financial interest." [164] Furthermore, the law prohibits state employees from acquiring financial interests in businesses that they have reason to believe may be directly involved in official action to be taken by them.[165] Official action is defined as "a decision, recommendation, approval, disapproval, or other action, including inaction that involves the use of discretionary authority."[166] A financial interest includes personal investments in the business or employment by the business personally or of a close relative (spouse, partner, etc.).

In summary, research by-products are generally considered "exempt property". Exempt property means "tangible personal property acquired in whole or in part with Federal funds, where the Federal awarding agency (USDA via CTSA) has statutory authority to vest title in the recipient without further obligation to the Federal Government.[167] Federal guidelines for grant conditions provide that "unless Federal awarding agency regulations or the terms and conditions of the award provide otherwise, recipients shall have no obligation to the Federal Government regarding program income earned after the end of the project period."[168] Additionally, "unless Federal awarding agency regulations or the terms and condition of the award provide otherwise, recipients shall have no obligation to the Federal Government with respect to program income earned from license fees and royalties for copyrighted material, patents, patent applications, trademarks, and inventions produced under an award."[169] The distinction between research by-products and production for sale is dependent on the terms of individual grant conditions. As such, scrutiny and characterization is at the discretion of the awarding agency. Decisions or evaluations of this nature are based upon a "reasonable" standard; therefore, the agency has wide latitude in interpreting the grant provisions.

VI. Procedures for Adding Species to List of Importable Non-Native and Unlisted Species

Certain non-native species considered dangerous to the health and welfare of the people of Hawai`i or a potential hazard to Hawai`i's native fishery resources cannot legally be imported into Hawai`i. DOA maintains a "prohibited" list of species (through the Plant Quarantine Branch). [170] Importing a new species must be approved through rulemaking, a comprehensive process that includes the opportunity for public review and comment, including public hearings. Changing the rules or "streamlining" approval for importation of new species requires either legislative action or having the list amended through rule-making. This section briefly outlines the rule-making process.

An administrative agency has no general, inherent powers. The agency's power is conferred upon it by the Legislature. The agency derives its authority from the enabling statute that mandates the agency's function and grants its power, and from general laws affecting administrative agencies. In other words, the power of the administrative agency to make rules is

[164] Haw. Rev. Stat. section 84-14(a)(1) (1993).
[165] Haw. Rev. Stat. §84-14(b).
[166] Haw. Rev. Stat. §84-3(7).
[167] OMB Circular A-110, Appendix A, as amended 1999.
[168] OMB Circular A-110, Appendix A, Subpart C, 24.
[169] *Id*.
[170] H.A.R. Chapter 70.

delegated to it by the Legislature. In the case of county agencies, their authority to make rules is delegated to them by the Legislature or the county councils.

Agency rules that are legally adopted pursuant to statutory authority and in compliance with the Hawaii Administrative Procedures Act (HAPA)[171] have the force and effect of law. However, there are significant differences between a statute and an administrative agency rule. For example, a statute is a law enacted by the legislature. An administrative rule, on the other hand, is adopted by a state or county administrative agency under the authority granted to that agency by statute or ordinance. Unless specifically exempted, agencies must follow the procedures set forth in HAPA when adopting, amending, or repealing rules. Among other requirements, HAPA requires agencies to give public notice and take written comments as well as have an oral public hearing. To become official, finalized rules must be approved by the Governor (or the Mayor in the case of county agencies). Agencies are to file certified copies of the rules with the Lt. Governor (or the clerk of the county in the case of county agencies).[172]

Other requirements outside of HAPA may also be imposed on an agency in adopting rules, either by the legislature or the Governor. By administrative directive, the Governor has imposed additional requirements for state agencies contemplating the adoption, amendment, or repeal of agency rules.[173] Generally, these additional requirements call for proposed rules to be reviewed by the Attorney General and for agencies to prepare fiscal impact statements and small business impact statements for review by the Department of Budget and Finance and the Small Business Regulatory Review Board.[174]

Some rules are exempt from the usual rulemaking procedures. If there is imminent peril to the public health, safety, or morals, or to livestock and poultry health, emergency rules may be adopted without following the procedures. In addition, the governor is authorized to waive the procedures if a state agency is required by federal law to adopt rules as a condition to receiving federal funds. This same waiver authority is granted to mayors in the case of county agencies. The Legislature may provide other exemptions as the need arises.

The decision whether to amend rules is left to the discretion of the agency. However, a member of the public has the right to petition an agency to engage in rule-making. The agency must take the request seriously and within 30 days either begin rule-making or give its reasons in writing to the person petitioning.[175]

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[171] HAW. REV. STAT. Chapter 91 (2002). HAPA is designed to provide uniform standards for all state and county agencies to follow where a personal right, duty, or privilege is at stake, and where rights and duties of the public are involved. The Act requires state and county agencies to adopt and make public procedural rules, including methods whereby the public can make submissions and requests. The Act also provides for judicial review of agency actions.
[172] Most agencies now have their rules on their websites. You can also go to their offices and request copies, for which you will have to pay a fee for copying.
[173] ADMIN. DIR. 99-02, Policy and Procedure for the Adoption, Amendment, or Repeal of Administrative Rules, Aug. 1999, at http://www.hawaii.gov/dbedt/sbrrb/2002annual.pdf, p. 46-50 (on file with author).
[174] *Id*.
[175] Haw. Rev. Stat. § 91-6.

The Legislature may also assert more oversight of administrative agency rulemaking. For example, a sunset law may be enacted to provide for automatic termination of rules unless specifically re-authorized by the Legislature

VII. Conclusion

Public policy regarding aquaculture is a complex issue that will have a major impact on the future of Hawai`i's industry. This is especially true for marine aquaculture, which normally requires the use of sovereign resources held in the public trust – or ceded lands. To allow the development of marine aquaculture in Hawai`i, the State has undertaken to develop a system to allow private companies and individuals to lease sovereign lands for aquaculture. The use of public resources for private industry is a controversial issue with public interest implications. Policies and rules related to the use of public resources for aquaculture will be based largely on public acceptance of the industry.

Public opposition to aquaculture leasing is normally based on concerns related to environmental impacts, aesthetics, conflicting uses, and the potential for creating navigational hazards. Aquaculturists would be wise to foster public support by working with interested community groups and the Department of Health to minimize these concerns. Aquaculturists should also participate in available Department of Agriculture and Consumer Services programs to improve the image of the Hawai`i aquaculture farmer. These programs will foster public support by providing information about the positive aspects of farming, including food production, job creation, and good environmental stewardship. Proper site selection is also an important means of avoiding public opposition. This is especially true for net pen culture, which requires the use of the entire water column and the exclusion of public access.

Hawai`i should develop a best management practices guideline for the aquaculture industry, concentrating on waste product (excess food, feces, mortality, and escapees) and indirect ocean use impact (e.g., impact on proximity fishing grounds). Guidelines must also consider the necessary life-cycle elements of the industry for developing sustainable *unsubsidized* free-market commerce (e.g., siting of land-based, in-shore, and off-shore aquaculture "staging" methods). Aquaculturalists need to be proactive in assisting the state in developing such guidelines. In addition, they need to be proactive in working with the EPA as they develop their effluent limits for CAAP facilities.

Just as the problems are complex, so are the solutions. A concerted cooperative effort by the relevant agencies, aquaculturalists, and other stakeholders is needed to ensure a healthy, sustainable, and environmentally sound aquaculture industry in Hawai`i.