

To: Ocean Policy Work Group

From: Aquaculture subgroup

Subject: Offshore marine aquaculture policy and shellfish policy

Background:

Aquatic farming has been producing quality products in Washington State for over a century and has regulations and protocols in place with State and Federal agencies. These protocols and regulations have served agencies, protected the general public and public resources and the aquatic farmer well. There is however room for improvement, especially with the possible expansion of aquaculture into the offshore area due to growing global demand for aquaculture products. Many current protocols meet international requirements for foreign trade, as well as, European Union and other various US Trade Agreements. Aquaculture worldwide is an expanding industry. In 2001 aquaculture accounted for about one-third of the worlds seafood supply and it continues to grow (www.pacaqua.org). Due to the plateau that wild capture fisheries have reached, aquaculture development, policy and marketing will be necessary issues for nations, states and municipalities to address. The primary rationale for moving aquaculture operations offshore is the theoretically greater availability of sites with fewer user conflicts and environmental impacts than in coastal waters closer to shore (Cicin-Sain et al 2001). Washington's shellfish aquaculture industry is the leading producer of farmed bivalves generating an estimated \$77 million in sales in 2004 which accounted for 86% of the west coast production. As of 2003 there were eight operating marine finfish aquaculture sites in Washington, the sites are in Puget Sound and the Strait of Juan de Fuca. They mainly produce Atlantic salmon, worth an estimated \$40 million annually. The need for legislative and regulatory action is highlighted by the conflicts aquaculturists may experience with other uses of the ocean such as commercial fishing, navigation, tribal, and recreational uses. As many aquaculturists realize, the absence of regulations can impede development as much as too many regulations impede other land industries (Fletcher and Weston). This means that without regulation there is a tendency to be leery of getting into development for fear that once the regulations catch up with the development they will harm the industry by over or inappropriately regulating.

While expanding Washington's current aquaculture production into offshore waters has the possibility to generate revenue for the state there is debate regarding the next steps that Washington should take in either promoting or opposing that development, or landing somewhere in between. There are a wide variety of stakeholders that will be interested in the development of offshore aquaculture in Washington and their views must be taken into account as Washington begins to examine the possibility of aquaculture development off its coast.

With the introduction of the National Offshore Aquaculture Act of 2005, aquaculture issues have been brought to the federal level. There is also a push for more aquaculture development in the US EEZ from reports such the US Ocean Commission and PEW Commission Reports (see Appendix D). The National Offshore Aquaculture Act of 2005 is currently in the process of being considered by Congress. Several amendments have

been made by members of Congress and are listed in Appendix C. Below are the highlights and the purpose of the bill.

National Offshore Aquaculture Act of 2005

Purpose: To provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for aquaculture in Federal waters.

This bill will:

- Authorize the Secretary of Commerce to issue offshore aquaculture permits and establish environmental requirements where the current law is inadequate.
- Exempt offshore aquaculture from legal definitions of fishing that restrict size, season and harvest methods
- Authorize research and development programs to support offshore aquaculture
- Require the Secretary of Commerce to work with other federal agencies in the coordination and development of the permitting process
- Authorize funds as necessary
- Provide for enforcement of the Act
- Ensure that operations do not interfere with wild stock conservation and management
- Require consistency with state plans

Current Washington State Law and Policy:

In the state of Washington the guidance for aquaculture policy comes from the Washington Departments of Fish and Wildlife (WDFW), Washington Department of Health (WDOH), Ecology (WDOE), Agriculture (WSDA), and Natural Resources (WDNR) (Appendix E). WDFW has regulatory authority which is restricted to disease control, escape prevention, enforcement of harvest, mitigation and protection of wildlife (www.wfga.net/conduct.asp) and the newest 2003 marine finfish aquaculture policies (see Appendix A). Washington Department of Fish and Wildlife's new rules as of 2003 require marine finfish growers to get prior approval of the species, stock and race of marine fish to be grown. The new rules also specifically prohibit growers from using transgenic fish in their operations (Appendix A). Regulations specific to open ocean shellfish aquaculture are lacking if this was to become a new industry, currently there are regulations of marine finfish aquaculture and aquaculture in general, shellfish regulations are concentrated on tidal areas. More specifically in the Washington Administrative Code title 220, which regulates WDFW, the following issues are dealt with as they relate to marine fin fish aquaculture: aquatic farm registration, disease control, approval permits for marine finfish aquaculture, escape prevention plan requirements, escape reporting and recapture plan requirements, aquaculture facility inspection authority, Atlantic salmon watch program established, educational program for marine finfish aquatic farmers. This title does not specifically state that the regulations are for open ocean aquaculture within state waters. In the case of shellfish aquaculture, a majority of lands under cultivation are owned privately. The authority for leasing state-owned tidelands for shellfish aquaculture is with the WDNR. In some cases there are also certain permits required from counties or municipalities, and also the Army Corps of Engineers for facilities that

are in navigable waters. Under current state law the WDOH manages cultivated shellfish harvesting in terms of water quality and food safety regulations. Shellfish growers must register with WDFW as “aquatic farmers,” and provide the department of quarterly production reports. WDFW enforcement officers are charged with assuring product is harvested from only open “certified” growing waters and that certified growers only harvest off those beds designated specifically under their certificates. WDFW is also charged with managing pest and disease control, which includes transfers of shellfish from one growing area to another. As this list of possible permit actions shows, this is a complicated system which is in need of consolidation and coordination.

Washington State also has a role to play in aquaculture management when the site is to be in the 3-200 mile EEZ that joins the state waters. The state would have influence over the siting of federal water projects under the CZMA and would have certification power for CWA water quality issues.

Stakeholders:

We have listed the stakeholders in the development of offshore marine aquaculture policy in Washington in a hierarchy according to the level of influence they are able to wield over the development of policy. We will expand on their interests and needs within this issues in the following paragraph.

- I. State / local governments, state agencies and Tribal governments
- II. Aquaculture farmers and associations
- III. Wild catch fishermen
- IV. Non-governmental organizations and private industry

State agencies and local and Tribal governments will have the most interest in the development of offshore marine aquaculture because they will be the ones designing, implementing and enforcing rules and regulations. Aquaculture farmers and associations will have the next highest level of influence because the members of these associations are economically tied to any changes in aquaculture policies and will be the most effected by those changes. Groups such as the Pacific Aquaculture Caucus, Pacific Coast Shellfish Growers Association and Washington Fish Growers Association will be important collaborators in the development of Washington’s marine aquaculture policies and would like to see Washington have a clear policy on the development of aquaculture in our waters. Wild catch fishermen are next on this list because they are an important stakeholder when dealing with fisheries issues and should have input regarding the development of aquaculture especially when it is a species they are economically tied to or may compete with a species they harvest. There is a great potential for wild catch fishermen and aquaculturists to work together on the development of offshore aquaculture in the state. This collaboration could work to the mutual advantage to eliminate seasonality in wild products and secure a broader portion of the market with greater variety of products. Finally, non-governmental organizations and private industry need to be included in the development of offshore aquaculture because they represent a large sector of the public which should have a voice in this process.

Current Governance Gaps:

Shellfish: Lack of centralized application process for tidal farms and information for development. The Aquaculture subcommittee would like to highlight the fact that current Washington regulations for shellfish have been developed with farmers input and have made it possible for the state of Washington to produce high quality products for many years. Changes in the regulatory structure for aquaculture should be based on a demonstrated need for those changes in order to administer current aquaculture activities in a more effective manner.

Offshore finfish: The current system is complicated and decentralized for finding information on development, permits and laws. While new regulations from the WDFW have tried to bridge the gap for regulation of offshore fin fish aquaculture, there is still more to be done in the way of consolidating the permitting process.

Federal waters: No clear state policy to guide a response to the National Offshore Aquaculture Act 2005. This Act however has not been approved and so immediate next steps for the OPWG and the Aquaculture subgroup should focus on getting stakeholder involvement and input and investigation into the pros and cons of siting offshore aquaculture facilities in Washington's waters.

As the broad scope and range of these three categories highlights, there is a need for a comprehensive state plan equipped to deal with multiple technologies, species and locations.

Governance Structure Issues:

Examples from other states are a useful device to highlight possible improvements to Washington's offshore marine aquaculture policy. In California for example there is an aquaculture coordinator within the Department of Fish and Game, who chairs the Aquaculture Development Committee. The major function of this committee is to update the permit guide. This committee was designed by the Interagency Committee for Aquaculture which worked with the Industry Advisory Committee to provide guidance regarding the aquaculture permitting process. Other states such as Florida also have a lead agency for aquaculture issues and Florida has a best management practices (BMPs) provision in its state administrative code. Organizational responses are one of the many tools available with the possibility to make Washington's aquaculture policy framework more comprehensive and the development positive for those involved.

Issues surrounding offshore marine aquaculture include siting, disease control, technology development, feed sources and depletion, pollution control and escapement. Other possible issues surrounding the development of offshore marine aquaculture include the impact on wild fisheries, health and safety issues for consumers and economic and physical feasibility of using Washington's coast for aquaculture development.

In developing Washington's marine offshore aquaculture policies the following criteria and goals should be considered when evaluating alternatives (Cicin-Sain et al 2001):

- Employs precautionary approach to avoid and minimize environmental impacts
- Promotes communication between all agencies and local governments involved

- Is consistent with existing laws and agency responsibilities
- Is consistent, to the maximum extent possible, with the coastal, water, environmental, and aquaculture policies of adjacent coastal states
- Encourages technological development and improvement
- Interferes minimally with transportation routes and services
- Produces a fair return to the public for the use of open water
- Promotes opportunities for scientific inquiry

Conclusion and Next Steps:

Aquaculture worldwide is the fastest growing agriculture sector accounting for a large portion of the United States trade deficit, \$6 billion - \$11 billion in imported seafood products and increasing domestic production is the most effective way to reduce that trade imbalance (www.pacaqua.org). The state of Washington, as a leading producer of shellfish already has a part of that seafood market. However, before the state promotes offshore aquaculture there needs to be an evaluation of the issues associated with having the facilities in Washington such as siting, disease control, technology development, feed sources and depletion, pollution control, escapement, impact on wild fisheries, health and safety issues for consumers and economic and physical feasibility of using Washington's coast for aquaculture development. These concerns need to be discussed with the involvement of stakeholders in an open dialogue with legislators and agency staff. Because of this need the subcommittee on Aquaculture is not prepared to propose large administrative structural changes at this time. We have however, prepared possible alternatives that may be explored later (Appendix F). In light of the need for stakeholder meetings the Aquaculture subcommittee of the OPWG recommends the following:

- Legislative representatives to organize stakeholder hearings on all issues of offshore aquaculture
 - Stakeholders should be from a wide range of areas such as labor representatives, public citizens, fish and shellfish growers associations, NGO's, federal and state representatives and scientists, and other as identified
- Be prepared to make comments on the National Offshore Aquaculture Bill 20005

Work Cited

- Anonymous. 2002. State Aquaculture regulations and research goals: A west coast aquaculture perspective. Downloaded 9-27-05 from www.pacaqua.org.
- Anonymous. 2004. State of Aquaculture on the West Coast: 2004 Annual Report. Downloaded 9-27-05 from www.pacaqua.org.
- Cicin-Sain, B., Bunsick, S.M., DeVoe, R., Eichenberg, T., Ewart, J., Halvorson, H., Knecht, R.W., and Rheault, R. 2001. Development of a Policy Framework for Offshore Marine Aquaculture in the 3-200 mile U.S. Ocean Zone. Center for Study of Marine Policy, University of Delaware.
- Fletcher, K.M., Weston, G. The legal and regulatory environment: Offshore Aquaculture permitting process in the Gulf of Mexico. Mississippi-Alabama Sea Grant Legal Program.

Van Houtte A. Establishing Legal, Institutional and Regulatory Framework for Aquaculture Development and Management. *In* Aquaculture in the Third Millennium Technical Proceedings of the Conference on Aquaculture in the Third Millennium. 20-25 February 2000, Bangkok, Thailand. eds. Subasinghe, R.P., Bueno, P., Phillips, M.J., Hough, C., McGladdery, C.E., Arthur, J.R. Washington Department of and Wildlife. 2003. Downloaded 10-9-05 <http://www.wdfw.wa.gov/factshts/aquaculture.htm>
Washington Fish Growers Association. 2005. Downloaded 10-10-05. www.wfga.net/conduct.asp

Appendices

- A. Washington Department of Fish and Wildlife fact sheet for 2003 Marine Finfish Aquaculture policy
- B. National Offshore Aquaculture Act of 2005 and Amendments
- C. Literature and web resources
- D. Summary of federal actions, USCOP Report, and PEW Commission Report
- E. Current WA Agencies involved in Aquaculture and their duties
- F. Possible policy alternatives for Washington state aquaculture consolidation and coordination

A.

<http://www.wdfw.wa.gov/factshts/aquaculture.htm>



FACT SHEET

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
600 Capitol Way North, Olympia, WA 98501-1091

January 2003

Contact: Doug Williams, (360) 902-2256

Marine Finfish Aquaculture

New rules governing the marine finfish aquaculture industry in Washington state have been adopted by the Washington Fish and Wildlife Commission.

The rules, which take effect in July 2003, allows Washington's small aquaculture industry to continue operating in state waters while protecting the state's natural resources.

There are eight operating marine aquaculture sites in Washington, all owned by Cypress Island, Inc. The sites, located in Puget Sound, the San Juan Islands and the Strait of Juan de Fuca, currently produce about 12 million pounds of farmed fish, mainly Atlantic salmon, worth an estimated \$40 million annually. Washington's aquaculture industry is about one-tenth the size of British Columbia's aquaculture industry.

Several agencies have regulatory authority over the aquaculture industry, including the Washington State departments of Agriculture, Ecology and Natural Resources. Individual counties have regulatory authority to issue shoreline permits to net pen operators.

Aquaculture disease control regulations were developed by the Washington Department of Fish and Wildlife with input from western Washington treaty Indian tribes. The National Marine Fisheries Service can require commercial net pen operators to obtain "take" permits for their operations because of potential impacts on federally-protected salmon species. Finally, the U.S. Army Corps of Engineers can require net pens to have navigation permits.

Washington's new rules require marine finfish growers to get prior approval of the species, stock and race of marine fish to be grown. The new rules also specifically prohibit growers from using transgenic fish in their operations. "Transgenic" is defined as the actual transfer of genetic material from one species to another.

The rules also include requirements for aquaculture growers to develop escape prevention plans, escape reporting plans and recapture plans. A permit is valid for five years.

Escape Prevention Plan

A fish escape prevention plan must be submitted and approved by WDFW before a marine finfish aquaculture permit can be approved. At a minimum, the plan must include:

- Routine procedures and best management procedures used to minimize the risk of escapement;
- Procedures to minimize escapements in the event the net pens need to be moved or repaired;
- Procedures for training employees and contractors in escape prevention;
- Procedures for routinely determining and tracking the number of fish in each pen lost from predation and mortality, and the number of fish lost to escapement.

Failure to implement the provisions of an approved escape prevention plan can result in the loss of the site's aquaculture permit.

Escape Recapture and Reporting Plans

At a minimum, the escape recapture plan must include:

- Procedures for determining what constitutes a reportable fish escape;
- An emergency contact list in the event of a reportable fish escape from the pens, including local government, WDFW and Washington Department of Ecology;
- Procedures for attempting to recapture escaped fish, including using boats, net and tribal or commercial fishers with commercial fishing gear.

Net pen operators are required to report escapes within 24 hours to local government, WDFW and the Washington Department of Ecology, and must also attempt to recapture escaped fish. The report must include location, number, age class, disease and medication history and the cause of escape. Growers must submit a follow-up report after each escape describing fish recovery efforts and their effectiveness. WDFW can schedule recreational or commercial fisheries to quickly harvest escaped fish.

Growers must also submit to WDFW an annual fish escape report. The report, which is due by the end of February each year, must include:

- A summary of the number, age class, disease and medication history, and the cause of all fish escapes on a month-by-month basis; and
- A summary of all actions growers have taken during the previous year to prevent fish escapes.

WDFW staff will conduct at least annual inspections of all marine finfish aquaculture facilities in the state. Contingent on funding, WDFW will implement an Atlantic salmon watch program, including hiring a coordinator whose responsibilities will include developing and maintaining a system to record and report observations and catch of

Atlantic salmon in state waters and monitoring selected watersheds to detect spawning Atlantic salmon.

Numerous attempts have been made historically to introduce anadromous Atlantic salmon to the Pacific Northwest. The last attempt occurred in 1981, when juvenile hatchery Atlantic salmon were intentionally released. No adult fish returned as a result of the releases.

While there is documented evidence of Atlantic salmon aquaculture escapees successfully reproducing in three British Columbia rivers, no evidence exists that naturally spawned juvenile Atlantic salmon have grown and reproduced in Washington.

B.

National Offshore Aquaculture Bill 2005 proposed amendments. Amendments and status of the bill can be found at the following web address. Full text of amendments is below.

[http://thomas.loc.gov/cgi-bin/query/r?r109:@OR+\(+@1\(S.+1195\)++\)](http://thomas.loc.gov/cgi-bin/query/r?r109:@OR+(+@1(S.+1195)++))

Mr. STEVENS. Mr. President, by request of the Administration, Senator **INOUYE** and I introduce today the ``National Offshore Aquaculture Act of 2005'', a bill to provide the regulatory framework for the development of aquaculture in the United States Exclusive Economic Zone (EEZ). Concurrently, we have introduced an amendment to this bill to allow coastal States to decide whether or not they want offshore aquaculture in the EEZ off that State's coastline. We are cosponsoring Senator **SNOWE**'s amendment to strike the Jones Act waiver for vessels supporting offshore aquaculture facilities contained in the Administration's bill. I am also a cosponsor of Senator **INOUYE**'s amendment to better clarify language that environmental protections apply. As we review the Administration's measure in detail, there may be additional amendments offered to this bill and I look forward to working with my colleagues to address any concerns with the legislation.

TEXT OF AMENDMENTS -- (Senate - June 08, 2005)

SA 766. Mr. INOUYE (for himself and Mr. STEVENS) submitted an amendment intended to be proposed by him to the bill S. 1195, to provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the United States Exclusive Economic Zone, and for other purposes; which was ordered to lie on the table; as follows:

Strike paragraph (4) of section 4(a) and insert the following:

(4) An offshore aquaculture permit holder shall be--

(A) a citizen or resident of the United States; or

(B) a corporation, partnership, or other entity organized and existing under the laws of a State or the United States.

SA 767. Mr. INOUE (for himself and Mr. STEVENS) submitted an amendment intended to be proposed by him to the bill S. 1195, to provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the United States Exclusive Economic Zone, and for other purposes; which was ordered to lie on the table; as follows:

Strike section 5(a) and insert the following:

(a) **ENVIRONMENTAL REQUIREMENTS.**--The Secretary shall consult as appropriate with other Federal agencies, the coastal States, and regional fishery management councils established under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) to identify the environmental requirements applicable to offshore aquaculture under existing laws and regulations. The Secretary shall establish additional environmental requirements for offshore aquaculture facilities in consultation with appropriate Federal agencies, coastal States, regional fishery management councils, and the public needed to address any environmental risks and impacts associated with such facilities. Environmental requirements may include, but are not limited to, environmental monitoring, data archiving, and reporting by the permit holder, as deemed necessary or prudent by the Secretary. The environmental requirements shall address risks to and impacts on--

(1) natural fish stocks, including safeguards needed to conserve genetic resources and prevent or minimize the transmission of disease, parasites, or invasive species to wild stocks,

(2) marine ecosystems,

(3) biological, chemical and physical features of water quality and habitat,

(4) marine mammals, other forms of marine life, birds, and endangered species, and

(5) other features of the environment,

as identified by the Secretary, in consultation as appropriate with other Federal agencies.

SA 768. Ms. SNOWE (for herself, Mr. STEVENS, and Mr. INOUE) submitted an amendment intended to be proposed by her to the bill S. 1195, to provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the United States Exclusive Economic Zone, and for other purposes; which was ordered to lie on the table; as follows:

Strike paragraph (8) of section 4(a).

SA 769. Mr. STEVENS (for himself and Mr. INOUE) submitted an amendment intended to be proposed by him to the bill S. 1195, to provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the United States Exclusive Economic Zone, and for other purposes; which was ordered to lie on the table; as follows:

At the appropriate place, insert the following:

SEC. -----. STATE OPT-OUT.

(a) **IN GENERAL.**--Notwithstanding any other provision of this Act, if Secretary receives notice in writing from the chief executive officer of a coastal State that the State does not wish to have the provisions of this Act apply in the State's seaward portion of the Exclusive Economic Zone, then--

(1) the provisions of sections 4 shall not apply in that portion of the Exclusive Economic Zone more than 30 days after the date on which the Secretary receives the notice;

(2) no permit issued under this Act shall be valid in that portion of the Exclusive Economic Zone more than 30 days after the date on which the Secretary receives the notice; and

(3) the Secretary may not utilize the personnel, services, equipment, or facilities of that State under section 7 more than 30 days after the date on which the Secretary receives the notice.

(b) **TERMINATION OF AQUACULTURE ACTIVITIES.**--If the Secretary receives the notice described in subsection (a) after an offshore aquaculture facility has been established under this Act in the State's seaward portion of the Exclusive Economic Zone or permits have been granted under this Act with respect to that area, the Secretary shall--

(1) revoke any such permit or limit its application to areas not included in the State's seaward portion of the Exclusive Economic Zone;

(2) order the closure of the facility within a period of not more than 30 days and provide for an orderly phase out of any activities associated with the facility under this Act; and

(3) take any other action necessary to ensure that the provisions of this Act (other than this section) are not applied within that area.

(c) **REVOCATION.**--The chief executive officer of a State that has transmitted a notice to the Secretary under subsection (a) may revoke that notice at any time in writing.

(d) **DEFINITIONS.**--

(1) **COASTAL STATE.**--The term "coastal State" has the same meaning as given that term in section 304(4) of the Coastal Zone Management Act of 1972 (16 U.S.C. 1453(4)).

(2) **STATE SEAWARD PORTION OF THE EXCLUSIVE ECONOMIC ZONE.**--

(A) **IN GENERAL.**--In this section, the term "State's seaward portion of the Exclusive Economic Zone" shall be determined by extending the seaward boundary (as defined in section 2(b) of the Submerged Lands Act (43 U.S.C. 1301(b))) of each coastal State seaward to the edge of the Exclusive Economic Zone.

(B) **LIMITATION.**--Nothing in paragraph (1) shall be construed to give a State any right, title, authority, or jurisdiction over that portion of the Exclusive Economic Zone described in paragraph (1).

SA 1727. Ms. MURKOWSKI submitted an amendment intended to be proposed by her to the bill S. 1195, to provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the United States Exclusive Economic Zone, and for other purposes; which was referred to the Committee on Commerce, Science, and Transportation; as follows:

On page 20, between lines 13 and 14, insert the following:

(j) *Prohibition on Permits for Aquaculture.*--

(1) **DEFINITIONS.**--In this subsection:

(A) **AGENCY WITH JURISDICTION TO REGULATE AQUACULTURE.**--The term "agency with jurisdiction to regulate aquaculture" means--

(i) the Department of Agriculture;

(ii) the Coast Guard;

(iii) the Department of Commerce;

(iv) the Environmental Protection Agency;

(v) the Department of the Interior; and

(vi) the Corps of Engineers.

(B) REGIONAL FISHERY MANAGEMENT COUNCIL.--The term 'regional fishery management council' means a regional fishery management council established under section 302(a) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1852(a)).

(2) **PROHIBITION.**--The head of an agency with jurisdiction to regulate aquaculture may not issue a permit or license to permit an aquaculture facility located in the exclusive economic zone to operate until after the date on which a bill is enacted into law that--

(A) sets out the type and specificity of the analyses that the head of the agency with jurisdiction to regulate aquaculture shall carry out prior to issuing any such permit or license, including analyses relating to--

(i) disease control;

(ii) structural engineering;

(iii) pollution;

(iv) biological and genetic impacts;

(v) access and transportation;

(vi) food safety; and

(vii) social and economic impacts of the aquaculture facility on other marine activities, including commercial and recreational fishing; and

(B) requires that a decision to issue such a permit or license be--

(i) made only after the head of the agency that issues the license or permit consults with the Governor of each State located within a 200-mile radius of the aquaculture facility; and

(ii) approved by the regional fishery management council that is granted authority under title III of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1851 et seq.) over a fishery in the region in which the aquaculture facility will be located.

C.

Literature and web resources – see above for sample list under work cited.

- <http://www.wfga.net/links.asp>
- <http://fish.washington.edu/wrac/>

- <http://www.leg.wa.gov/WAC/index.cfm?fuseaction=chapterdigest&chapter=220-76>
- <http://www.leg.wa.gov/wac/index.cfm?fuseaction=chapterdigest&chapter=220-77>
- <http://www.leg.wa.gov/wac/index.cfm?fuseaction=title&title=16>
- <http://www.leg.wa.gov/WAC/index.cfm?section=16-603-010&fuseaction=section>
- <http://www.pcsqa.org/>
- <http://www.pacaqua.org/>
- <http://www.nmfs.noaa.gov/mediacenter/aquaculture/>
- <http://www.wfga.net/sjdf/index.html>
- <http://www.leg.wa.gov/wac/index.cfm?fuseaction=title&title=220>
- <http://www.agmrc.org/agmrc/commodity/aquaculture/finfish.htm>
- http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/003/AB412E/ab412e23.htm
- <http://yosemite.epa.gov/R10/OEA.NSF/0/71a10fa5f24efdaa88256c5a007573d0?OpenDocument>
- http://www.dnr.wa.gov/htdocs/aqr/aquaculture/aqua_rcw_wac.html
- <http://www.hawaii-aquaculture.org/>
- Literature resources not listed in work cited section above
 - Offshore finfish mariculture in the Strait of Juan de Fuca, By J.E. Rensel, D.A. Kiefer, J.R.M. Forster, D.L. Woodruff, and N.R. Evans.
 - Salmon net pens in Puget Sound: Rules, performance criteria and monitoring. An Overview of net pen permitting and monitoring in Washington State. By J.E. Rensel 2001. Global Aquaculture Advocate 4(1): 66-69
 - Aquaculture regulations and research goals: A west coast aquaculture perspective. From Pacific Aquaculture Caucus website at <http://www.pacaqua.org/issues.htm>

D.

Summary current federal plans or proposed plans and recommendations

Pew Oceans Commission Report 2003

This reports section on marine aquaculture is divided into two main sections which are further explained divided into specific recommendations.

- I. Implement a new national marine aquaculture policy based on sound conservation principles and standards
 - a. Adopt national and regional aquaculture standards to limit negative impacts of aquaculture activities on marine ecosystems
 - b. Establish national marine aquaculture standards with defined minimum requirements for facility performance to ensure ecological sustainability.
 - i. These standards should:
 1. Minimize adverse effects on living marine resources, physical habitat and marine ecosystems

2. Consider siting issues such as bottom habitat, protected species, hydrographic considerations, and social, economic and compatibility with existing ocean uses
 3. Promote species not dependent on high levels of fish meal and fish oil
 4. Limit marine aquaculture to the use of indigenous species
- c. The Environmental Protection Agency should ensure that aquaculture facilities do not diminish water quality in public waters
 - i. EPA should establish national effluent guidelines pursuant to the Clean Water Act
 - ii. Discharges should be consistent with the National Pollution Discharge Elimination System permits
 - iii. Guidelines should control pollutants including nutrient, chemical, and biological
 - iv. EPA should develop water quality standards for federal waters as required by the Clean Water Act
 - d. Regional ocean governance councils should set regional standards tailored to regional conditions and priorities that are consistent or more stringent than national standards
 - i. These standards should:
 1. Consider the cumulative and individual impacts of aquaculture
 2. Establish compliance verification and enforcement
 3. Hold aquaculture facilities responsible for adverse environmental effects and non compliance
 4. Require existing facilities to reach standards within 5 years of implementation
 5. Reward facilities for improved performance past minimum standards
 - e. Expand and improve marine aquaculture research with a focus on ecologically sustainable aquaculture practices
 - i. At a regional level funds should be made available to research institutions to work with local, state, and federal agencies, and stakeholders
 - f. Restrict expansion of marine finfish farming until standards for ecologically sustainable practices are implemented
 - g. Ensure an adequate regulatory review process to determine if the cultivation of genetically modified organisms is ecologically sustainable
- II. Provide international leadership for sustainable marine aquaculture practices
 - a. The United States should negotiate and work with other nations to establish environmental provisions in international trade agreements to encourage ecologically sustainable aquaculture practices globally

National Offshore Aquaculture Act of 2005

Purpose: To provide the necessary authority to the Secretary of Commerce for the establishment and implementation of a regulatory system for aquaculture in Federal waters.

This bill will:

- Authorize the Secretary of Commerce to issue offshore aquaculture permits and establish environmental requirements where the current law is inadequate.
- Exempt offshore aquaculture from legal definitions of fishing that restrict size, season and harvest methods
- Authorize research and development programs to support offshore aquaculture
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- Require consistency with state plans

US Commission on Ocean Policy

The USCOP report has a designated chapter to the development of sustainable aquaculture. This chapter contains specific recommendations for sustainable aquaculture as well as an acknowledgement of the current system and its roadblocks and gaps. The major sections and their recommendations are as follows.

- Acknowledging the growing significance of marine aquaculture
- Addressing environmental impacts of aquaculture
- Dealing with uncertainty in the existing management structure
- Developing a new marine aquaculture management framework
 - Recommendation 22–1. Congress should amend the National Aquaculture Act to designate the National Oceanic and Atmospheric Administration (NOAA) as the lead federal agency for implementing a national policy for environmentally and economically sustainable marine aquaculture and create an Office of Sustainable Marine Aquaculture in NOAA.
 - Recommendation 22–2. The National Oceanic and Atmospheric Administration’s new Office of Sustainable Marine Aquaculture should be responsible for developing a comprehensive, environmentally-sound permitting, leasing, and regulatory program for marine aquaculture. The permitting and leasing system and implementing regulations should:
 - reflect a balance between economic and environmental objectives consistent with national and regional goals.
 - be coordinated with guidelines and regulations developed at the state level.
 - include a system for the assessment and collection of a reasonable portion of the resource rent generated from marine aquaculture projects that use ocean resources held in public trust.

- include the development of a single, multi-agency permit application for proposed marine aquaculture operations.
- include a permit review process that includes public notice and an opportunity for state, local and public comment.
- require applicants to post a bond to ensure that any later performance problems will be remedied and that abandoned facilities will be safely removed at no additional cost to the taxpayers.
- require the development, dissemination, and adoption by industry of best management practices that are adaptable to new research and technology advances.
- be well coordinated with other activities in federal waters
- Increasing the knowledge base
 - Recommendation 22–3. Congress should increase funding for expanded marine aquaculture research, development, training, extension, and technology transfer programs in the National Oceanic and Atmospheric Administration. The Office of Sustainable Marine Aquaculture should set priorities for the research and technology programs, in close collaboration with academic, business, and other stakeholders.
- Promoting international improvements and cooperation
 - Recommendation 22–4. The United States should work with the United Nations Food and Agriculture Organization to encourage and facilitate worldwide adherence to the aquaculture provisions of the Code of Conduct for Responsible Fisheries.

E.

Current WA Agencies involved in aquaculture and their main duties

Currently the bulk of Washington’s aquaculture policies are concentrated within the Department of Fish and Wildlife (DFW) and the Department of Agriculture (DOA), with DNR have jurisdiction over most of the shellfish regulations. The main provisions from Title 220 of the WAC are concerned with aquatic farm registration, disease control, marine finfish aquaculture permitting, escape prevention, escape reporting and recapture planning, facility inspection, Atlantic salmon watch program and an education program for marine finfish aquatic farmers. The main issues for each section are as follows.

- Aquatic farm registration required.
 - Aquatic farming is illegal without registration with the WA DFW
 - Farm registrations are non transferable and must be renewed annually
- Aquatic farm -- Definition.
 - An aquatic farm is any facility or tract of land used for private, commercial culture of aquatic products. Each geographically separate facility or tract of land used for commercial culture shall constitute a separate farm. In marine waters, facilities, or tracts of land in the same marine aquaculture district which are owned or operated by the same

person shall be considered to be a single farm for the purposes of this section.

- Aquaculture -- Disease -- Control.
 - Outbreaks of disease must be reported
- Marine finfish aquaculture -- Approval permit for marine finfish aquaculture.
 - Unlawful to possess any finfish in marine waters, net pens, cages or other rearing vessels without obtaining marine fin fish aquaculture permit from WDFW
- Marine finfish aquaculture -- Escape prevention plan required.
 - Required with each application for marine finfish aquaculture
 - Plan must include:
 - Routine procedures and best management procedures used to minimize the risk of escapement from pens during normal day-to-day operations.
 - Procedures to minimize escapements in the event the net-pens need to be moved, repaired, or manipulated in any manner, or during stocking or harvesting operations, which could result in a release of fish to state waters. At a minimum, prior to the net-pens being moved, a bathymetric analysis should be made along the intended travel route(s) to ensure adequate depth and the absence of underwater hazards or obstructions.
 - Procedures for routine training of employees and contractors in escape prevention.
 - Procedures for routinely determining and tracking the number of fish in each pen lost due to predation and mortality, and the number of fish lost due to escapement.
 - Procedures for monitoring the implementation of (a) through (d) of this subsection.
- Marine finfish aquaculture -- Aquaculture facility inspection authority.
 - Reasonable access must be given for minimum yearly inspections of facilities and implementation of escapement plan
- Marine finfish aquaculture -- Atlantic salmon watch program established.
 - Establish an Atlantic salmon watch coordinator position whose responsibilities include providing a focal point for consolidation of scientific information and implementation of subsections (2) through (5) of this section.
 - Develop and maintain a system to record and report observations and catch of Atlantic salmon in waters of the state, including modification of the recreational catch data reporting system, the commercial fish ticket reporting system, education of volunteers to identify and report spawning sites, and monitoring of selected watersheds to detect spawning Atlantic salmon.
 - Model the impact of Atlantic salmon on naturally produced and cultured finfish stocks by estimates of identification of Atlantic salmon standing crop or populations in the wild, detailed life history requirements, and estimates of niche overlap.

- Coordination with marine finfish aquatic farmers under WAC 220-76-110 for the reporting of escapes of Atlantic salmon from marine aquatic farming locations, and adjustment of escape prevention plans filed with the department under WAC 220-76-100 to prevent future escapes.
- Provide public information on recreational opportunity in the event of an escape, assist the public in understanding the effect of Atlantic salmon escapes on native populations, and provide a public contact for all department efforts regarding Atlantic salmon.
- Marine finfish aquaculture -- Educational program for marine finfish aquatic farmers.
 - WDFW will notify aquatic farmers of upcoming WDFW hatchery workshops, meetings or tours with regard to hatchery disease control procedures and prevention, feeding and waste control at hatcheries and programs investigating raising marine finfish species.
 - Annual "workshop" co-hosted by the industry, WDFW and other interested parties reviewing new containment technologies, or other environmental developments affecting the aquaculture industry.
 - Information sharing by WDFW from any regional or international symposiums attended by WDFW staff covering aspects of marine finfish aquaculture.
- Disease control
 - Upon the initial detection of a regulated pathogen, the department's fish or shellfish health unit must be notified by the end of the following working day after diagnosis is made. The department will confirm or deny the presence of the regulated pathogen.
 - Shellfish aquaculture disease control.
 - The director shall appoint a seven-member advisory committee consisting of one representative each from the department, the department of agriculture, the aquatic farmers of Washington, the federally recognized treaty tribes, private displayers of aquatic invertebrates, aquatic invertebrate ecologists, and aquatic invertebrate disease control specialists. The committee will advise the department on importation of aquatic invertebrates, make recommendations on classification of shellfish diseases, and review department policy. Recommendations of the committee are not binding on the commission or director
 - An additional disease free tissue certification must be submitted every three years. The department will waive the certification requirement if there is sufficient information that the source area is free of Class A shellfish diseases.

Washington Department of Natural Resources main role in aquaculture is the leasing of lands for shellfish harvest. The following is a summary of the WA DNR roles.

- The Department of Natural Resources, upon the receipt of an application for the lease shall notify the director of fish and wildlife of the filing of the application describing the lands applied for. The Director will determine as to whether it is necessary, in order to protect existing natural oyster beds, and to secure adequate seeding thereof, to retain the lands described in the application for lease or any part thereof, and in the event the director deems it advisable to retain the lands or any part thereof for the protection of existing natural oyster beds or to guarantee the continuance of an adequate seed stock for existing natural oyster beds, the same shall not be subject to lease.
- "Aquaculture" means the culture and/or farming of food fish, shellfish, and other aquatic plants and animals in fresh water, brackish water or salt water areas. Aquaculture practices may include but are not limited to hatching, seeding or planting, cultivating, feeding, raising, harvesting of planted crops or of natural crops so as to maintain an optimum yield, and processing of aquatic plants or animals.
- Whenever structures are used for aquaculture on the beds of navigable waters, they shall be located in such a way as to minimize the interference with navigation and fishing and strive to reduce adverse visual impacts.

The Washington Department of Ecology grants National Pollution Discharge Elimination System permits (NPDES), and has some authority under the Ocean Management Act which was enacted in 1989.

WAC 173-26-360

- Develop guidelines and policies for the management of ocean uses and to serve as the basis for evaluation and modification of local shoreline management master programs of coastal local governments in Jefferson, Clallam, Grays Harbor, and Pacific counties.
 - The guidelines are intended to clarify state shoreline management policy regarding use of coastal resources, address evolving interest in ocean development and prepare state and local agencies for new ocean developments and activities.
- (6) Permit criteria: Local government and the department may permit ocean or coastal uses and activities as a substantial development, variance or conditional use only if the criteria of RCW 43.143.030(2) listed below are met or exceeded:
 - There is a demonstrated significant local, state, or national need for the proposed use or activity
 - There is no reasonable alternative to meet the public need for the proposed use or activity
 - There will be no likely long-term significant adverse impacts to coastal or marine resources or uses
 - All reasonable steps are taken to avoid and minimize adverse environmental impacts, with special protection provided for the marine life and resources of the Columbia River, Willapa Bay and Grays Harbor estuaries, and Olympic national park

- All reasonable steps are taken to avoid and minimize adverse social and economic impacts, including impacts on aquaculture, recreation, tourism, navigation, air quality, and recreational, commercial, and tribal fishing
- General ocean uses guidelines. The following guidelines apply to all ocean uses, their service, distribution, and supply activities and their associated facilities that require shoreline permits
- Detrimental effects on air and water quality, tourism, recreation, fishing, aquaculture, navigation, transportation, public infrastructure, public services, and community culture should be considered in avoiding and minimizing adverse social and economic impacts

F.

Possible policy alternatives to consolidate and coordinate Washington’s aquaculture production:

Alternative	Pros	Cons
Consolidation of jurisdiction to one lead agency and one comprehensive application	Provides simplified system for development and inquiries into aquaculture, fosters more in-house discussion and ease of communication	Agency culture may not be a good fit for development, isolation of process and staff, agencies currently involved may not want to give up input and power
Increase involvement at local level and with industry	Ensures support and compliance, avoids future conflicts, with increased involvement comes increased investment and jobs	Too much input can weigh the system down and slow down development
Streamline, simplify, or coordinate permitting process and increase financing/funding/staffing	Encourage development of aquaculture on the coast, will increase technology base	Agencies may not want to give up jurisdiction and input into process, danger in oversimplifying, need legislative support for funding
Develop NPDES requirements/environmental BMPs for aquaculture	Will give growers a set limit of pollutants to work within, BMP’s will provide overarching state policy goals, both will reduce uncertainty	NPDES levels set inappropriately may discourage investment in aquaculture, level requires detailed scientific information. BMPs may be inflexible to change in the market or in the regulatory process or needs
Designate zones for aquaculture	Reduces future user conflicts, simplifies system for development by reducing conflicts with existing uses	Requires scientific knowledge and scientific surveys as to what areas are suitable for different types of aquaculture development
Provide long-term leasing options with realistic permit/lease fees	Provide stability in market and develop long term positive relationships with growers	May exclude new technologies and new growers, long term lease fees may not be economically viable