Shoreline Master Program Updates
Aquaculture Interim Guidance

Introduction

Ecology is publishing this aquaculture interim guidance until a more complete Shoreline Master Program (SMP) handbook section can be provided later this year. Local governments may direct any questions or issues needing immediate attention to the Ecology regional planner assigned to their jurisdiction.

Figure 1: Taylor Shellfish Inc. geoduck farm at Cape Horn, Mason County (Photo taken by Washington Department of Ecology staff.)

Aquaculture landscape

Aquaculture is a water-dependent and preferred use of the shoreline [Revised Code of Washington (RCW) 90.58.020, Washington Administrative Code (WAC) 173-26-201(2)(d), and WAC 173-26-241(3)(b)(i)(A)]. It includes a broad array of activities such as the commonly known salmon net pens and commercial geoduck farms to less known activities such as culturing seed in a small barge in an urban marina and restoring native pinto abalone. New aquaculture methods and processes continue to be developed.

The policy, regulatory, scientific and cultural landscape for aquaculture also continues to evolve – especially in regards to shellfish aquaculture. Stakeholders from all sides of the issue are actively engaged and keenly aware of the significant role SMP updates and shoreline permits play in aquaculture's future. The following list illustrates this landscape.

- Ecology amended the aquaculture provisions of the SMP Guidelines rule in 2011 in compliance with a legislative directive [RCW 43.21A.681] regarding geoduck aquaculture. The amendments resulted from a multi-year public and stakeholder process that included the Shellfish Aquaculture Regulatory Committee (SARC) comprised of industry, environmental, tribal, local government, and state agency stakeholders. The amendments took effect March 14, 2011, and included changes addressing shellfish aquaculture primarily and new geoduck operations specifically. (See Shoreline Management Act: Rulemaking 2010-11.)

- The Governor's office launched the Washington Shellfish Initiative on December 9, 2011 *"to protect and enhance a resource that is important for jobs, industry, citizens and tribes."* (see *Washington Shellfish Initiative*, Office of the Governor, December 9, 2011.) The initiative's action items include a federal, tribal, state, and local model permitting program; shellfish aquaculture research; restoration of native shellfish; enhancement of recreational shellfish harvest; and protection and enhancement of clean water for shellfish beds. The action items have been integrated into the Puget Sound Action Agenda coordinated by the Puget Sound Partnership. (See Washington Shellfish Initiative.)

- The US Army Corps of Engineers (Corps) reauthorized the Nationwide Permit 48 (NWP 48) for existing commercial shellfish aquaculture in March 2012. The permit was revised to provide greater flexibility in its use. The Corps modified the permit to authorize expansion of existing operations and new activities, with a 0.5 acre limit of disturbance to submerged aquatic vegetation beds. The Corps also removed the reporting requirement for certain on-going commercial activities.

- Appeals of local shellfish aquaculture shoreline permits and other local decisions continue to be filed by various parties. For example, several individual Section 401 Water Quality Certifications issued by Ecology for new geoduck aquaculture operations have been appealed. Decisions on these appeals may clarify the appropriate management of aquaculture in SMPs.

- The status of non-native eelgrass (*Zostera japonica*) has changed. On January 1, 2012, the state Noxious Weed Control Board listed non-native eelgrass as a noxious weed in commercially managed shellfish beds. When siting aquaculture, an important management consideration for local governments is the proximity to eelgrass beds and other aquatic vegetation important to salmon and other aquatic species.

- Washington Sea Grant's geoduck aquaculture research in response to a legislative directive [RCW 28B.20.475]is scheduled for completion in December 2013. Once the research is complete and vetted, Ecology is directed to update the Guidelines "as necessary" [RCW 43.21A.681(3)]. The state Department of Natural Resources (DNR), National Oceanic and Atmospheric Administration (NOAA), Puget Sound Restoration Fund, and Pacific Shellfish Institute also are conducting research. DNR is also working on a state habitat conservation plan that will affect aquaculture.

- Marine salmon net pens have existed in Washington waters for over 30 years. The first National Pollution Discharge Elimination Permits (NPDES permits) were issued in 1996 to 12 net pens operated by private companies and Washington State Department of Fish and Wildlife. Ecology now manages 8 NPDES permits for private net pen operations owned by one company. The current permits have changed from earlier ones in that they now include salmon escapement plans, sea lice monitoring plans, and reporting of fish feed, biomass and chemical usage on a monthly basis. (See Ecology Water Quality Program database PARIS at: http://www.ecy.wa.gov/programs/wq/permits/wwdischargepermits.html.)

- Supplementing naturally-spawning salmon stocks through hatcheries is a common part of native salmon recovery efforts in many watersheds. "Acclimation facilities" in the upper part of a watershed are emerging as a vital part of salmon stock restoration programs. These facilities imprint the young salmon with the water in their native river. However, siting these facilities is proving a challenge. Local shoreline programs and other land use regulations sometimes prohibit facilities like hatcheries in these relatively pristine areas. And the siting of the facilities may conflict with protecting priority habitat and floodplain concerns.

Frequently Asked Questions: Aquaculture and SMPs

It is within this changing landscape that local governments are developing and updating their shoreline programs. The following aquaculture Frequently Asked Questions will assist local governments in developing programs that are consistent with the Shoreline Management Act and the SMP Guidelines.

Is aquaculture a water-dependent, preferred use of the shoreline?

Yes, aquaculture is generally a water-dependent, preferred use of the shoreline. WAC 173-26-241(3)(b)(i)(A) states:

> *Aquaculture is dependent on the use of the water area and, when consistent with control of pollution and prevention of damage to the environment, is a preferred use of the water area.*

A water-dependent use is "a use or portion of a use which cannot exist in a location that is not adjacent to the water and which is dependent on the water by reason of the intrinsic nature of its operations. [See WAC 173.26.020.]

In reserving shoreline areas for uses, local governments must give preference to reserving appropriate areas for protecting and restoring ecological functions over reserving areas for water-dependent and associated water-related uses; and give preference to water-dependent uses over other types of shorelines uses. [See RCW 90.58.020 ,WAC 173-26-201(2)(d), and WAC 173-26-251(2).]

The SMP Guidelines also recognize aquaculture as an activity of statewide interest. WAC 173-26-241(3)(b)(i)(A) also states:

> *This activity is of statewide interest. Properly managed, it can result in long-term over short-term benefit and can protect the resources and ecology of the shoreline.*

The Shoreline Management Act [RCW 90.58.020] directs local governments to give preference to such uses within shorelines of statewide significance.

> *…local government, in developing master programs for shorelines of statewide significance, shall give preference to uses in the following order of preference which:*
>
> *(1) Recognize and protect the statewide interest over local interest:*
> *(2) Preserve the natural character of the shoreline;*
> *(3) Result in long-term over short-term benefit;*
> *(4) Protect the resources and ecology of the shoreline;*

(5) Increase public access to publicly owned areas of the shorelines;
(6) Increase recreational opportunities for the public in the shoreline;
(7) Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

Aquaculture is a broad category. Local governments may need to decide whether project proposals are water-dependent.

Local governments should keep in mind that, just because it may be possible to site a project in the upland area, it does not necessarily mean that the activity is not a water-dependent use; or, just because an activity can be sited within shoreline jurisdiction, that it is a water-dependent use. For example, while finfish aquaculture can be carried out in contained systems in the upland area, this does not mean that floating net pens are not a water-dependent use. The Shorelines Hearings Board (SHB) has assumed in a number of cases that houseboats are water-dependent (SHB No. 05-019, SHB No. 88-44), even though a house can be located in the upland.

What definition of aquaculture should be used in a local SMP?

Local governments must use definitions that are consistent with those in the Shoreline Management Act (SMA) and SMP Guidelines. Aquaculture is defined in WAC 173-26-020(6).

> *Aquaculture means the culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.*

Ecology recommends that local governments use the WAC definition of aquaculture verbatim. This will provide for greater consistency across jurisdictions and more certainty that local policies and regulations are consistent with state statute and rules, especially upon appeal.

Upland finfish rearing facilities are included in the SMA description of “agricultural activities” [RCW 90.48.065]. However, “upland finfish” or “upland finfish rearing facilities” are not defined in the SMA or implementing WACs. To help distinguish between agricultural activities and aquacultural activities in an SMP, Ecology recommends that local governments define "upland finfish rearing facilities" as:

> *Those private facilities not located within waters of the state where finfish are hatched, fed, nurtured, held, maintained, or reared to reach the size for commercial market sale. This shall include fish hatcheries, rearing ponds, spawning channels, and other similarly constructed or fabricated facilities.*

Local governments should proceed with caution defining other terms such as practices, operations, activities, harvesting or processing because this can lead to unintended consequences. For example, "development" and "structures" are two terms that have been the subject of litigation. Local governments should use the full definitions of development and structures provided in statute and rule to ensure consistency.

Per RCW 90.58.030(3)(a), "development" is defined as:

> *a use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to this chapter at any state of water level.*

Per WAC 173-27-030(15), "structures" is defined as:

> *A permanent or temporary edifice or building, or any piece of work artificially built or composed of parts joined together in some definite manner.*

"Development" and "structures" also are analyzed in Attorney General Opinion (AGO) 2007, No. 1 in relationship to tube-type geoduck aquaculture. The AGO is referenced in the geoduck aquaculture provisions of the Guidelines [WAC 173-26-241(3)(b)(iii)] to ensure local governments understand that Ecology will review and approve SMPs consistent with the AGO.

Can a local government prohibit aquaculture within its shorelines?

A local government generally must allow for water-dependent uses that will not result in net loss to the ecological functions of the shoreline. There may be some limited circumstances in which a jurisdiction-wide prohibition on aquaculture may be appropriate, but this would be unusual.

More typically, a jurisdiction would identify specific environment designations where aquaculture will not be allowed – based on current conditions revealed in the local shoreline inventory and characterization. In such cases, the rationale for this prohibition and the lack of potential for future aquaculture uses must be well-documented. This determination may be based on use conflicts, specific ecological considerations, or the requirement to achieve no net loss of shoreline ecological functions.

Similarly, these factors can come into play when a local jurisdiction is considering action at the permitting level. Individual project details and site specific conditions can vary greatly and

should be assessed fully. Current aquaculture in Washington includes, but is not limited to, research on ecological impacts and new technologies; restoration and enhancement of existing native stock; and commercial ventures growing product for human consumption and sale. Project proposals may include one or more stages of aquaculture – including raising eggs, seed, smolts or seedlings; growing these plants and animals to maturity; or processing them for sale or non-commercial use. Also, projects may be located in water or on the shoreline, or both.

Figure 2: Floating Upweller System (FLUPSY) for raising oyster seed. (Photo source: Keri Weaver, City of Poulsbo)

The presence of water pollution, navigation channels, and residential neighborhoods are not automatic reasons for local governments to prohibit all forms of aquaculture. For example, growing shellfish for human consumption may need to be restricted in a marina, but growing shellfish seed in a FLUPSY (see Figure 2) then transferring it to clean water for final grow out is allowed by the state Department of Health (DOH) and should be allowed by the local SMP. Also, culturing aquatic plants or animals for native species enhancement or improving water quality may be appropriate uses near a port or another urbanized location not suitable for growing product for human consumption.

In addition, local governments should ensure that their SMP provides some latitude for new or unforeseen forms of aquaculture. Per WAC 173-26-241(3)(b)(i)(B):

> *The technology associated with some forms of present-day aquaculture is still in its formative stages and experimental. Local shoreline master programs should therefore recognize the necessity for some latitude in the development of this use as well as its potential impact on existing uses and natural systems.*

See Appendix B for an example of language suitable for cities written to accommodate a variety of aquaculture uses and to allow for innovation.

Can local governments prohibit floating net pens?

Ecology may accept a shoreline program prohibition on floating net pens if the public involvement process, inventory and characterization, and aquaculture policies contain information and justification that support such a prohibition.

Local governments should particularly look to see if their shoreline jurisdiction overlaps the areas of special concern identified in the *Recommended Interim Siting Guidelines for the Management of Salmon Net-Pen Culture in Puget Sound* (Science Applications International Corporation, 1986, page 7). The interim siting guidelines identify *"areas of special concern in which culture is not recommended unless the applicant can demonstrate that culture will not result in adverse environmental effects.*" These nutrient sensitive areas and the associated jurisdictions are:

- Budd Inlet: Thurston County, Olympia
- Holmes Harbor: Island County
- Hood Canal south of Hazel Point: Mason, Jefferson, and Kitsap County

The interim siting guidelines take a tiered approach and also identify areas that are more suitable for net pens:

- Strait of Juan de Fuca
- Strait of Georgia
- San Juan Islands
- Main Basin of Puget Sound
- Southern Puget Sound in the vicinity of Tacoma Narrows, Nisqually Reach and Anderson Island

Even though the interim siting guidelines and their associated environmental impact statement (*Final Programmatic Environmental Impact Statement Fish Culture in Floating Net Pens,* Parametrix, Inc., January 1990) were completed more than two decades ago, they are based on robust and appropriate scientific methods and are important resources used by Ecology for water quality permitting for net pens.

Local governments should rely on these documents to help guide decisions regarding net pen aquaculture, along with other more current studies and analyses.

When are conditional use permits (CUPs) required for aquaculture?

Updated SMPs must require a conditional use permit (CUP) for all new commercial geoduck aquaculture [WAC 173-26-241(2)(b)(ii)(D) and (3)(b)(iv)]. The harvest of wild geoduck associated with the state managed wildstock geoduck fishery does not require a CUP since it is excluded from the definition of aquaculture.

Ecology determined as part of the aquaculture amendment in 2011 that a CUP is the most appropriate permitting mechanism to determine mitigation actions that ensure no net loss of ecological functions from new commercial geoduck aquaculture on other critical saltwater habitats, such as eelgrass beds and forage fish spawning habitat. A CUP allows local governments and Ecology the ability to review individual projects on a case-by-case basis and limit and condition the use or development to achieve no net loss. A CUP also offers the opportunity to review a project in light of the most current information.

The SMP Guidelines do not require CUPs for aquaculture other than new commercial geoduck aquaculture. Local governments may decide to require conditional use permits in their shoreline programs for additional types of aquaculture.

What information should be included in an inventory and characterization report? What are the sources for this information?

When updating their SMP, local governments must prepare an inventory and characterization with the broad array of aquaculture uses in mind. The SMP Guidelines describe the minimum aquaculture information that should be included in an inventory and characterization. These include:

- *Existing aquatic and terrestrial wildlife habitats; native aquatic vegetation; riparian and associated upland plant communities; and critical areas, including wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, geologically hazardous areas, and frequently flooded areas. See also WAC 173-26-221.* [WAC 173-26-201(3)(c)(ii)]
- *Information specific to the aquatic environment for siting in-water uses and development, such as sediment contamination, intertidal property ownership, aquaculture operations,*

shellfish beds, shellfish protection districts, and areas that meet department of health shellfish water quality certification requirements. [WAC 173-26-201(3)(c)(xi)].

- *Identify water quality and quantity issues relevant to master program provisions, including those that affect human health and safety. Review data and information specific to shellfish areas. Identify measures to protect water quality for human health as described in WAC 173-26-221(6). At a minimum, consult with appropriate federal, state, tribal and local agencies.* [WAC 173-26-201(3)(d)(vii)].

See Appendix C for a list of information sources that may be suitable for your SMP. The list is not exhaustive, but does contain primary sources to help you get started. Additional sources will be added as they become available.

Should both native and non-native eelgrass be addressed in SMPs?

This is an issue that is in flux at the date of this guidance. The SMP Guidelines currently do not distinguish between protection requirements for native (*Zostera marina*) and non-native (*Zostera japonica*) eelgrass. Eelgrass is considered a critical saltwater habitat in the SMP Guidelines per WAC 173-26-221(2)(c)(iii) and requires "*a higher level of protection due to the important ecological functions they provide*." WAC 173-26-241(3)(b)(i)(C) states that aquaculture should not be permitted where it would adversely impact eelgrass.

At the time of this guidance, however, the state Noxious Weed Control Board has determined that non-native eelgrass is a noxious weed in commercially managed shellfish beds (see Noxious Weed Control Board, Japanese eelgrass). Thus, this shoreline use is not required to protect *Zostera japonica*, commonly called Japanese eelgrass.

The scientific and regulatory community isn't in full agreement about the overall habitat value of Japanese eelgrass, especially to salmon, herring and other forage fish (see Figure 3, below). Per WAC 220-110-250(3)(a), WDFW Hydraulic Code rules do not distinguish native from non-native eelgrass in the designation of *Zostera spp.* as a saltwater habitat of special concern that *"serves essential functions in the developmental life history of fish or shellfish."*

Given the lack of agreement around the value of Japanese eelgrass, local governments who can map eelgrass species separately should do so. This will enable planning for and managing an array of uses and development including commercially managed shellfish beds. Local governments may also find that mapping the two separately will be useful during permit review.

However, the best source of eelgrass data is the DNR datasets, which do not distinguish between non-native and native eelgrass. WDFW's Priority Habitats and Species maps also include some data on eelgrass habitat, and also do not distinguish between *Zostera spp.* (See Appendix C for data sources). Ecology recognizes the limitations of these readily available datasets and will accept maps with both species mapped as one feature.

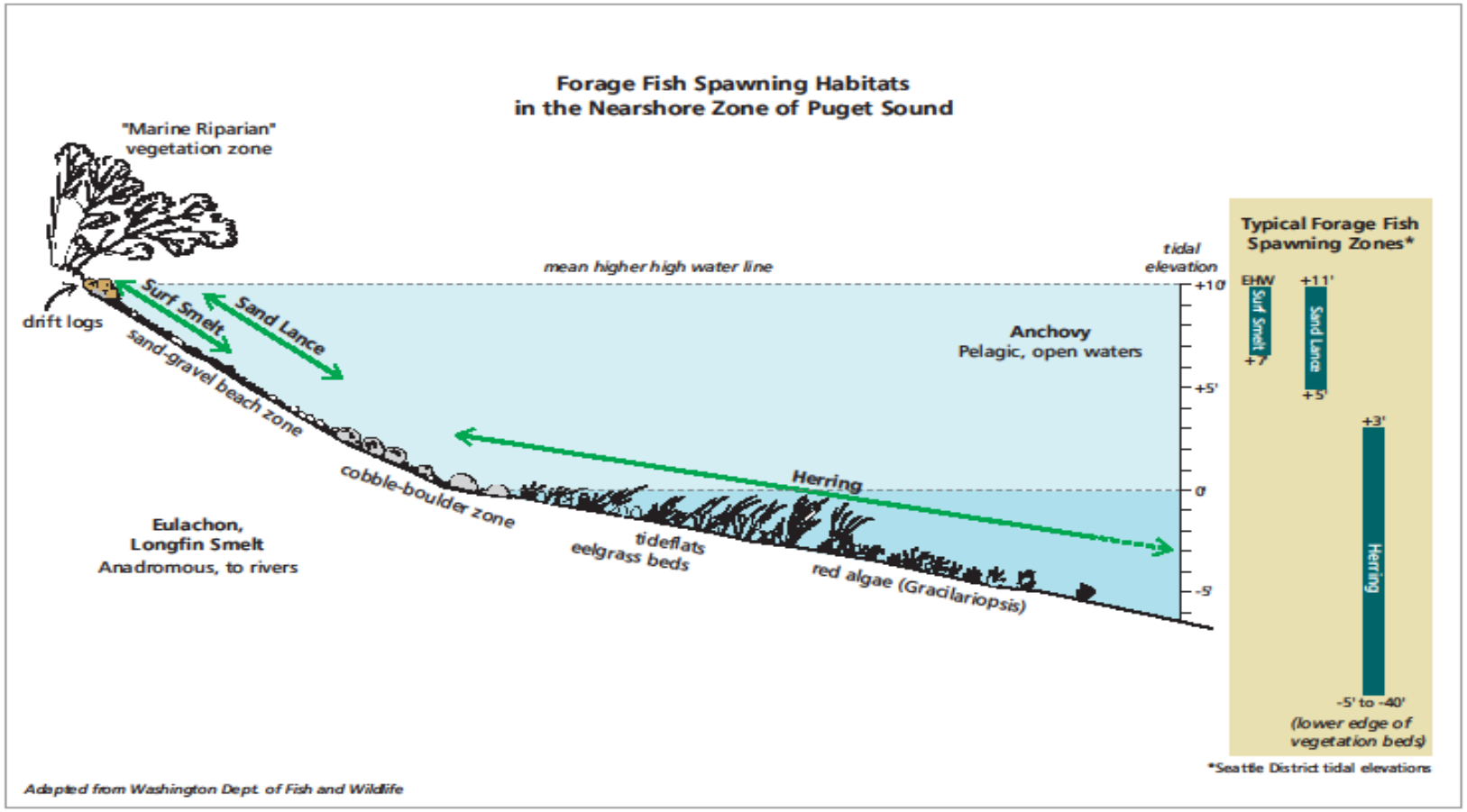

Figure 3: Adaption of Washington Department of Fish and Wildlife illustration by WA Department of Ecology SEA Program showing forage fish spawning habitats, eelgrass, and red algae in the nearshore zone of Puget Sound.

Appendix A: Aquaculture provisions

The following excerpts from the SMP Guidelines are relevant to the interim guidance provided in this document, and are not intended to be a complete list of all provisions relevant to aquaculture.

Definition

WAC 173-26-020(6)

"Aquaculture" means the culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.

Inventory and Characterization

WAC 173-26-201(3)(c)

Local government shall, at a minimum, and to the extent such information is relevant and reasonably available, collect the following Information:

(ii)
Existing aquatic and terrestrial wildlife habitats; native aquatic vegetation; riparian and associated upland plant communities; and critical areas, including wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, geologically hazardous areas, and frequently flooded areas. See also WAC 173-26-221.

(xi)
Information specific to the aquatic environment for siting in-water uses and development, such as sediment contamination, intertidal property ownership, aquaculture operations, shellfish beds, shellfish protection districts, and areas that meet department of health shellfish water quality certification requirements.

WAC 173-26-201(3)(d)(vii) Water quality and quantity.
Identify water quality and quantity issues relevant to master program provisions, including those that affect human health and safety. Review data and information specific to shellfish areas. Identify measures to protect water quality for human health as described in WAC 173-26-221(6). At a minimum, consult with appropriate federal, state, tribal, and local agencies.

Environmental Designation – Aquatic

WAC 173-26-221(5)(c)(ii)(G)

Local governments should reserve shoreline space for shoreline preferred uses. Such planning should consider upland and in-water uses, water quality, navigation, presence of aquatic vegetation, existing shellfish protection districts and critical habitats, aesthetics, public access and views.

Critical Saltwater Habitats

WAC 173-26-221(2)(c)(iii)(A), (B)

(A) **Applicability.** Critical saltwater habitats include all kelp beds, eelgrass beds, spawning and holding areas for forage fish, such as herring, smelt and sandlance; subsistence, commercial and recreational shellfish beds; mudflats, intertidal habitats with vascular plants, and areas with which priority species have a primary association. Critical saltwater habitats require a higher level of protection due to the important ecological functions they provide. Ecological functions of marine shorelands can affect the viability of critical saltwater habitats. Therefore, effective protection and restoration of critical saltwater habitats should integrate management of shorelands as well as submerged areas.

(B) **Principles.** Master programs shall include policies and regulations to protect critical saltwater habitats and should implement planning policies and programs to restore such habitats. The inclusion of commercial aquaculture in the critical saltwater habitat definition does not limit its regulation as a use. Reserving shoreline areas for protecting and restoring ecological functions should be done prior to reserving shoreline areas for uses described in WAC 173-26-201 (2)(d)(i) through (v). Planning for critical saltwater habitats shall incorporate the participation of state resource agencies to assure consistency with other legislatively created programs in addition to local and regional government entities with an interest such as port districts. Affected Indian tribes shall also be consulted. Local governments should review relevant comprehensive management plan policies and development regulations for shorelands and adjacent lands to achieve consistency as directed in RCW 90.58.340. Local governments should base management planning on information provided by state resource agencies and affected Indian tribes unless they demonstrate that they possess more accurate and reliable information.

WAC 173-26-221(2)(c)(iii)(C)

(C) **Standards.** Docks, piers, bulkheads, bridges, fill, floats, jetties, utility crossings, and other human-made structures shall not intrude into or over critical saltwater habitats except when all of the conditions below are met:

• The public's need for such an action or structure is clearly demonstrated and the proposal is consistent with protection of the public trust, as embodied in RCW 90.58.020;
• Avoidance of impacts to critical saltwater habitats by an alternative alignment or location is not feasible or would result in unreasonable and disproportionate cost to accomplish the same general purpose;
• The project including any required mitigation, will result in no net loss of ecological functions associated with critical saltwater habitat.
• The project is consistent with the state's interest in resource protection and species recovery.
Private, noncommercial docks for individual residential or community use may be authorized provided that:
• Avoidance of impacts to critical saltwater habitats by an alternative alignment or location is not feasible;
• The project including any required mitigation, will result in no net loss of ecological functions associated with critical saltwater habitat.

Until an inventory of critical saltwater habitat has been done, shoreline master programs shall condition all over-water and near-shore developments in marine and estuarine waters with the requirement for an inventory of the site and adjacent beach sections to assess the presence of critical saltwater habitats and functions. The methods and extent of the inventory shall be consistent with accepted research methodology. At a minimum, local governments should consult with department technical assistance materials for guidance.

Critical Freshwater Habitats

WAC 173-26-221(2)(c)(iv)(A), (B)

(A) Applicability. The following applies to master program provisions affecting critical freshwater habitats within shorelines of the state designated under chapter 36.70A RCW, including those portions of streams, rivers, wetlands, and lakes, their associated channel migration zones, and flood plains designated as such in the master program.

(B) Principles. Many ecological functions of lake, river and stream corridors depend both on continuity and connectivity along the length of the shoreline and on the conditions of the surrounding lands on either side of river channel and lake basin. Environmental degradation

caused by development such as improper storm water sewer or industrial outfalls, unmanaged clearing and grading, or runoff from buildings and parking lots within the watershed, can degrade ecological functions in lakes and downstream. Likewise, gradual destruction or loss of riparian and associated upland native plant communities, alteration of runoff quality and quantity along the lake basin and stream corridor resulting from incremental flood plain and lake basin development can raise water temperatures and alter hydrographic conditions, degrading ecological functions. This makes the corridor inhospitable for invertebrate and vertebrate aquatic, amphibian and terrestrial wildlife species and susceptible to catastrophic flooding, droughts, landslides and channel changes. These conditions also threaten human health, safety, and property. Long stretches of lake, river and stream shorelines have been significantly altered or degraded in this manner. Therefore, effective management of lake basins and river and stream corridors depends on:

(I) Planning for protection, and restoration where appropriate, throughout the lake basin and along the entire length of the corridor from river headwaters to the mouth; and

(II) Regulating uses and development within lake basins and stream channels, associated channel migration zones, wetlands, and the flood plains, to the extent such areas are in the shoreline jurisdictional area, as necessary to assure no net loss of ecological functions, including where applicable the associated hyporheic zone, results from new development.

As part of a comprehensive approach to management of critical freshwater habitat and other lake, river and stream values, local governments should integrate master program provisions, including those for shoreline stabilization, fill, vegetation conservation, water quality, flood hazard reduction, and specific uses, to protect human health and safety and to protect and restore lake and river corridor ecological functions and ecosystem-wide processes.

Applicable master programs shall contain provisions to protect hydrologic connections between water bodies, water courses, and associated wetlands. Restoration planning should include incentives and other means to restore water connections that have been impeded by previous development.

Master program provisions for lake basins and river and stream corridors should, where appropriate, be based on the information from comprehensive watershed management planning where available.

WAC 173-26-221(2)(c)(iv)(C)

Standards. Master programs shall implement the following standards within shoreline jurisdiction:

> (I) Provide for the protection of ecological functions associated with critical freshwater habitat as necessary to assure no net loss of ecological functions.
> (II) Integrate protection of critical freshwater, riparian and associated upland habitat, protection with flood hazard reduction and other lake, wetland, river and stream management provisions.
> (III) Include provisions that facilitate authorization of appropriate restoration projects.
> (IV) Provide for the implementation of the principles identified in (c)(iv)(B) of this subsection.

Conditional Use Permit Required for New Geoduck Aquaculture

WAC 173-26-241(2)(b)(ii)

(ii) If master programs permit the following types of uses and development, they should require a conditional use permit:

> (A) Uses and development that may significantly impair or alter the public's use of the water areas of the state.
> (B) Uses and development which, by their intrinsic nature, may have a significant ecological impact on shoreline ecological functions or shoreline resources depending on location, design, and site conditions.
> (C) Development and uses in critical saltwater habitats.
> (D) New commercial geoduck aquaculture as described in (3)(b) of this section.

Aquaculture Shoreline Use Standards

WAC 173-26-241(3)(b)

(i) General provisions.

> (A) Aquaculture is the culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.
>
> This activity is of statewide interest. Properly managed, it can result in long-term over short-term benefit and can protect the resources and ecology of the shoreline. Aquaculture is dependent on the use of the water area and, when consistent with control of pollution and prevention of damage to the environment, is a preferred use of the water area. Local government should consider local ecological conditions and provide limits

and conditions to assure appropriate compatible types of aquaculture for the local conditions as necessary to assure no net loss of ecological functions.

(B) Potential locations for aquaculture are relatively restricted due to specific requirements for water quality, temperature, flows, oxygen content, adjacent land uses, wind protection, commercial navigation, and, in marine waters, salinity. The technology associated with some forms of present-day aquaculture is still in its formative stages and experimental. Local shoreline master programs should therefore recognize the necessity for some latitude in the development of this use as well as its potential impact on existing uses and natural systems.

(C) Aquaculture should not be permitted in areas where it would result in a net loss of ecological functions, adversely impact eelgrass and macroalgae, or significantly conflict with navigation and other water-dependent uses. Aquacultural facilities should be designed and located so as not to spread disease to native aquatic life, establish new nonnative species which cause significant ecological impacts, or significantly impact the aesthetic qualities of the shoreline. Impacts to ecological functions shall be mitigated according to the mitigation sequence described in WAC 173-26-201 (2)(e).

(D) Local government should ensure proper management of upland uses to avoid degradation of water quality of existing shellfish areas.

(ii) Siting considerations for commercial geoduck aquaculture.

In addition to the siting provisions of (b)(i) of this subsection, commercial geoduck aquaculture should only be allowed where sediments, topography, land and water access support geoduck aquaculture operations without significant clearing or grading.

(iii) Shoreline substantial development permits for geoduck aquaculture.

As determined by Attorney General Opinion 2007 No. 1, the planting, growing, and harvesting of farm-raised geoduck clams requires a substantial development permit if a specific project or practice causes substantial interference with normal public use of the surface waters, but not otherwise.

(iv) Conditional use permits for commercial geoduck aquaculture.

(A) Conditional use permits are required for new commercial geoduck aquaculture only. Where the applicant proposes to convert existing nongeoduck aquaculture to geoduck aquaculture, the requirement for a conditional use permit is at the discretion of local government.

(B) All subsequent cycles of planting and harvest shall not require a new conditional use permit.

(C) Conditional use permits must take into account that commercial geoduck operators have a right to harvest geoduck once planted.

(D) A single conditional use permit may be submitted for multiple sites within an inlet, bay or other defined feature, provided the sites are all under control of the same applicant and within the same shoreline permitting jurisdiction.

(E) Local governments should minimize redundancy between federal, state and local commercial geoduck aquaculture permit application requirements. Measures to consider include accepting documentation that has been submitted to other permitting agencies, and using permit applications that mirror federal or state permit applications.

(F) In addition to complying with chapter 173-27 WAC, the application must contain:

(I) A narrative description and timeline for all anticipated geoduck planting and harvesting activities if not already contained in the federal or state permit application or comparable information mentioned above.

(II) A baseline ecological survey of the proposed site to allow consideration of the ecological effects if not already contained in the federal or state permit application or comparable information mentioned above.

(III) Measures to achieve no net loss of ecological functions consistent with the mitigation sequence described in WAC-173-26-201 (2)(e).

(IV) Management practices that address impacts from mooring, parking, noise, lights, litter, and other activities associated with geoduck planting and harvesting operations.

(G) Local governments should provide public notice to all property owners within three hundred feet of the proposed project boundary, and notice to tribes with usual and accustomed fishing rights to the area.

(H) Commercial geoduck aquaculture workers oftentimes need to accomplish on-site work during low tides, which may occur at night or on weekends. Local governments must allow work during low tides but may require limits and conditions to reduce impacts, such as noise and lighting, to adjacent existing uses.

(I) Local governments should establish monitoring and reporting requirements necessary to verify that geoduck aquaculture operations are in compliance with shoreline limits and conditions set forth in conditional use permits and to support cumulative impacts analysis.
(J) Conditional use permits should be reviewed using the best scientific and technical information available.
(K) Local governments should apply best management practices to accomplish the intent of the limits and conditions.
(L) In order to avoid or limit impacts from geoduck aquaculture siting and operations and achieve no net loss of ecological functions, local governments should consider the following:

(I) The practice of placing nursery tanks or holding pools or other impervious materials directly on the intertidal sediments.
(II) Use of motorized vehicles, such as trucks, tractors and forklifts below the ordinary high water mark.
(III) Specific periods when limits on activities are necessary to protect priority habitats and associated species. The need for such measures should be identified in the baseline ecological survey conducted for the site.
(IV) Alterations to the natural condition of the site, including significant removal of vegetation or rocks and regrading of the natural slope and sediments.
(V) Installation of property corner markers that are visible at low tide during planting and harvesting.
(VI) Mitigation measures such as buffers between commercial geoduck aquaculture and other fish and wildlife habitat conservation areas as necessary to ensure no net loss of ecological functions.
(VII) Use of predator exclusion devices with minimal adverse ecological effects and requiring that they be removed as soon as they are no longer needed for predator exclusion.
(VIII) Use of the best available methods to minimize turbid runoff from the water jets used to harvest geoducks.
(IX) Number of barges or vessels that can be moored or beached at the site as well as duration limits.
(X) Public rights to navigation over the surface of the water.
(XI) Good housekeeping practices at geoduck aquaculture sites, including worker training and regular removal of equipment, tools, extra materials, and all wastes.
(XII) Where the site contains existing public access to publicly owned lands, consider recommendations from the department of natural resources or other landowning agencies regarding protection of the existing public access.

Appendix B: Example language for cities

Ecology suggests the following definition, policy and regulatory language for cities. It is especially suitable for cities where aquaculture doesn't currently exist.

Conditional use permits are only required for new commercial geoduck aquaculture [WAC 173-26-241(3)(b)(iv)]. The use table goes beyond this minimum requirement and requires a conditional use permit for all types of aquaculture. Cities may find this an appropriate approach given the potential for water pollution, use conflicts, and other factors in an urban setting.

Definition, per WAC 173-26-020(6)

> *Aquaculture means the culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.*

Policy, with first sentence from WAC 173-26-241(3)(b)(A)

> *Aquaculture is dependent on the use of the water area and, when consistent with control of pollution and prevention of damage to the environment, is a preferred use of the water area. Future aquaculture uses are not anticipated within the City's shoreline jurisdiction; however, some scale or form of aquaculture may be appropriate.*

Use table example:

	Shoreline Environment Designation		
	Urban Conservancy	**High Intensity**	**Aquatic**
C = Conditional use subject to polices and regulations of this Program X = Prohibited use (1) A conditional use permit is required for new commercial geoduck aquaculture.			
Uses			
Aquaculture	X	X	C (1)

Regulations

Aquaculture is allowed as a conditional use in the Aquatic environment where it can be located, designed, constructed, and managed to avoid all of the following:

- A net loss of shoreline ecological functions.
- Spreading diseases to native aquatic life.

- Adversely impacting native eelgrasses and macroalgae species.
- Significantly conflicting with navigation and public access.

Aquaculture facilities are required to identify and use best management practices to minimize impacts such as light and noise from the construction and management of the facilities.

New aquatic species that are not previously cultivated in Washington State shall not be introduced into City waters without prior written approval of the Director of the Washington Department of Fish and Wildlife and the Director of the Washington Department of Health.

Aquaculture wastes shall be disposed of in a manner that will ensure compliance with all applicable governmental waste disposal standards, including but not limited to, the Federal Clean Water Act, Section 401, and Chapter 90.48 RCW, Water Pollution Control. No garbage, wastes, or debris shall be allowed to accumulate at the site of any aquaculture operation.

The rights of treaty tribes to aquatic resources within their usual and accustomed areas shall be addressed through direct coordination between the project proponent and the affected tribe(s) through the permit review process.

Appendix C: Information Sources

Policy

- Washington State Shellfish Initiative http://www.psp.wa.gov/shellfish.php

- Shellfish Aquaculture Policy of the Northwest Indian Fisheries Commission. http://nwifc.org/about-us/shellfish/shellfish-aquaculture-policy-of-the-northwest-indian-fisheries-commission/

- Attorney General Opinion 2007, No. 1. Washington State Office of the Attorney General, January 4, 2007. http://www.atg.wa.gov/AGOOpinions/Opinion.aspx?section=archive&id=10248

Map features

- DNR Aquatic Land Ownership Parcels by County. http://www.dnr.wa.gov/ResearchScience/Topics/AquaticHabitats/Pages/aqr_nrsh_eelgrass_monitoring.aspx

- City Boundaries and UGA's, Driftcells, FEMA Flood Data, WA State Levy Inventory, SMA Streams and River Points, SMA streams and Rivers Arcs, SMA Lakes and Wetlands Polygons, Suggested Points, Suggested Shoreline Arcs, Suggested Shoreline Polygons Impervious Surfaces – data can be accessed at http://www.ecy.wa.gov/services/gis/data/data.htm

- WA State Department of Health Office of Shellfish and Water Protection
    a. http://www.doh.wa.gov/ehp/sf/default.htm
    b. Growing Area Classification http://www.doh.wa.gov/ehp/sf/grow.htm
    c. Recreational Shellfish map http://ww4.doh.wa.gov/scripts/esrimap.dll?name=bioview&Cmd=Map&Step=1

Federal and State Permitting - Finfish

- Washington Department of Fish and Wildlife - finfish
    - Aquaculture Chapter 220-76 WAC http://apps.leg.wa.gov/wac/default.aspx?cite=220-76
    - Aquaculture disease control RCW 77.115 http://apps.leg.wa.gov/rcw/default.aspx?cite=77.115
    - Aquaculture disease control Chapter 220-77 WAC http://apps.leg.wa.gov/wac/default.aspx?cite=220-77

- Fact sheets and permits for net pens. National Pollutant Discharge Elimination permits can be found through the Ecology Water Quality Program database PARIS at: http://www.ecy.wa.gov/programs/wq/permits/wwdischargepermits.html

Federal and State Permitting - Shellfish

- US Army Corps of Engineers, Nationwide Permit 48, Seattle District's permit guidebook. http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook.aspx *User's Guide for Nationwide Permits in Washington State*, June 15, 2012. http://www.nws.usace.army.mil/Portals/27/docs/regulatory/NWPs/2012%20NWP%20Users%20Guide.pdf
- Washington Department of Ecology 401 Water Quality Certifications for new commercial geoduck aquaculture http://apps.ecy.wa.gov/permithandbook/permitdetail.asp?id=43

Net Pens

- *Final Report: Recommended Interim Guidelines for the Management of Salmon Net-Pen Culture in Puget Sound*. Prepared by Science Applications International Corporation for Washington Department of Ecology in conjunction with the Departments of Fisheries, Agriculture and Natural Resources. December 30, 1986.

- *Final Programmatic Environmental Impact Statement Fish Culture in Floating Net Pens*. Prepared by Parametrix, Inc. for Washington Department of Fisheries, January 1990.

- *The Net-pen Salmon Farming Industry in the Pacific Northwest*, NOAA Technical Memorandum NMFS –NWFSC-49, September 2001. http://www.nwfsc.noaa.gov/publications/techmemos/tm49/tm49.pdf

Eelgrass and Kelp

Data Sources

- DNR Shorezone Inventory. This data covers all of Washington's saltwater shorelines from the Canadian border to the mouth of the Columbia River. Wetland grasses, intertidal algae, and subtidal vegetation such as eelgrass or kelp, are also mapped. For more information, visit: http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html

- DNR Kelp monitoring data. http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html

- WDFW Priority Habitats and Species data and maps. WDFW maintains GIS data that includes documented forage fish habitat, kelp and eelgrass beds, wetlands, and other indicators of priority nearshore habitat. The list is a non-regulatory tool intended to communicate WDFW's priorities for conservation. For more information, visit: http://wdfw.wa.gov/conservation/phs/maps_data/

- *White Paper - Protection of Marine Riparian Functions in Puget Sound, Washington.* WDFW, June 15, 2009. Online: http://wdfw.wa.gov/publications/pub.php?id=00693 Summary of the current science and management recommendations to inform protection of ecological functions of marine riparian areas.

- *Kelp, Eelgrass (Zostera marina) and Geoduck Aquaculture: Considerations for Siting and Operation. Presentation to SARC by Blain Reeve*s, DNR, March 10, 2008. http://www.ecy.wa.gov/programs/sea/shellfishcommittee/pdf/Reeves_3-10-08_SARC_FINAL.pdf

Japanese eelgrass

- General information and written findings from the state Noxious Weed Control Board. http://www.nwcb.wa.gov/detail.asp?weed=173

- *Written Findings of the Washington State Noxious Weed Control Board, Draft, September 1, 2011*. Table 1 provides details on distribution of *Zostera japonica* along the Washington Coast and in Puget Sound. http://www.nwcb.wa.gov/siteFiles/Zostera%20japonica%20draft%20written%20findings_1_Sept_2011.pdf

- Washington Department of Ecology Japanese eelgrass management permit for commercial clam beds in Willapa Bay. http://www.ecy.wa.gov/programs/wq/pesticides/eelgrass.html

Industry best management practices

- Pacific Coast Shellfish Growers Association, *Environmental Code of Practices for Pacific Coast Shellfish Aquaculture,* June 2012. Contact PCSGA for copy: http://www.pcsga.net/about-pcsga/contact-pcsga/

Other Sources

- Documents and Programs to Protect and Restore Salmon and Bull Trout http://www.mrsc.org/subjects/environment/esa/esa-docs.aspx

- Puget Sound Restoration Fund projects http://www.restorationfund.org/projects

- Washington Department of Fish and Wildlife, *Plan for Rebuilding Olympia Oyster (Ostrea lurida) Populations in Puget Sound with a Historical and Contemporary Overview*, June 2012.