



**JEFFERSON COUNTY
BOARD OF COUNTY COMMISSIONERS**

AGENDA REQUEST

TO: Board of County Commissioners
Philip Morley, County Administrator

FROM: Al Scaif, Director – Department of Community Development 
Stacie Hoskins, Planning Manager/Shoreline Administrator
Michelle McConnell, Associate Planner 

DATE: April 18, 2011

SUBJECT: Continued Discussion: Status of Additional Information on Finfish Aquaculture – For Preparation of the Draft Jefferson County Response to Ecology on Changes to the *Locally Approved Shoreline Master Program* (MLA08-475)

ATTACHED: Finfish Bibliography

STATEMENT OF ISSUE: During February and March of this year, the Board of County Commissioners reviewed the *DRAFT Jefferson County Response to Ecology on Changes to the Locally Approved SMP* ('Draft County Response'). While the Board has provided direction on most of the 61 possible changes to the *Locally Approved SMP*, additional discussion is needed on provisions for finfish/net pen aquaculture. On March 21, 2011, the Board directed staff to collect and review additional scientific, technical and policy guidance literature to assist the preparation of an alternative proposal for management of finfish aquaculture use/development within the County's shoreline jurisdiction. Staff has collected some 60 documents to support continued Board discussion on the topic. A Finfish Bibliography of those documents is submitted with this request.*

ANALYSIS/STRATEGIC GOALS/PROS and CONS:

Ecology's approval is regarding the December 7, 2009 *Locally Approved SMP*, submitted to Ecology on March 1, 2010 as Exhibit A of Jefferson County Resolution 77-09 (erroneously referenced in Ecology documents as 'Ordinance Number 77-09') as the proposed amendments to the Jefferson County Comprehensive Plan and Jefferson County Code. This SMP Comprehensive Update (MLA08-475) is required by law and must be completed by December 2011.

In March 2010, the County submitted a *Locally Approved Shoreline Master Program* (SMP) to the Washington Department of Ecology (Ecology) for final review and approval, per RCW 90.58 and WAC 173-26. After a public review process, Ecology reviewed the County's proposed SMP update for consistency with state statutory and rule requirements.

On January 26, 2011 Ecology determined that the County has met the procedural and policy requirements of the Shoreline Management Act and the SMP Guidelines, pending some required changes. A letter from Ecology's director with three attachments outlines their conditioned approval, findings and conclusions, required and recommended changes. The County needs to consider the

required changes and respond as to whether to accept or propose alternatives to those changes as part of the process for final adoption by the state and by local ordinance.

Staff reviewed the required and recommended changes and provided guidance to the Board on whether to agree, further study, decline or propose alternative changes, including numerous revisions proposed for clarification to correct various errors in the document prior to final adoption. The Board discussed the DCD Recommendation on February 22, February 28 and March 7, 2011 providing feedback to staff on each item for the County's response to Ecology. The Board reviewed and discussed the Draft County Response on March 14 and 21, but additional information and discussion is needed on the topic of finfish aquaculture.

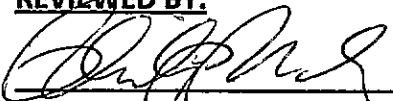
FISCAL IMPACT/COST-BENEFIT ANALYSIS:

Grant funding for the SMP Update ended in June 2009. Department of Community Development staff work is covered by the department's annual budget.

RECOMMENDATION:

Staff recommends the Board discuss their review of, and provide staff with any questions about, the additional literature on finfish aquaculture.

REVIEWED BY:


Phillip Morley, County Administrator

April 13, 2011
Date

How to Access Finfish Aquaculture Bibliography Documents Online

Documents from the Finfish Bibliography are being posted on the County's website. As of April 13, documents FF.001 through FF.021 are posted. Additional Finfish materials will be posted to Laserfiche as they get scanned.

Review posted Finfish materials via the Laserfiche WebLink, using the instructions below:

1. Open the Laserfiche WebLink at <http://test.co.jefferson.wa.us/weblinkext/Browse.aspx?dbid=1>
2. Click on "Permits"
3. Click on "Long Range Planning"
4. Click on "SMP"
5. Click on "Finfish Aquaculture Information"

Note: Documents are provided in PDF and many files are very large.

Science Considered for Finfish Aquaculture Policies & Regulations

	CITATION
FF.001	Weston, D. Science Applications International Corporation. December 1986. Recommended Interim Guidelines for the Management of Salmon Net-Pen Culture in Puget Sound. WA Department of Ecology. 54 pp.
FF.002	Aquaculture Siting Study. October 1986. Prepared by EDAW Inc. and CH2M/Hill for WA Dept. of Ecology. 104 pp.
FF.003	Boyce, J. A. December 1988. WA Department of Ecology: Use Conflicts and Floating Aquaculture in Puget Sound. 43 pp.
FF.004	Washington Department of Fisheries. January 1990. Final programmatic environmental impact statement: Fish culture in floating net pens. Prepared by Parametrix. 161 pp. [Volume 1 of 3]
FF.005	Washington Department of Fisheries. January 1990. Final programmatic environmental impact statement: Fish culture in floating net pens - Response to Comments. Prepared by Parametrix. 529 pp. [Volume 2 of 3]
FF.006	Washington Department of Fisheries. January 1990. Final programmatic environmental impact statement: Fish culture in floating net pens - Technical Appendices. Prepared by Parametrix. 312 pp. [Volume 3 of 3]
FF.007	Nash, C. E. (editor). 2001. NOAA Technical Memorandum NMFS-NWFSC-49: The net-pen salmon farming industry in the Pacific Northwest. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 125 pp.
FF.008	Waknitz, F.H. et al. 2002. NOAA Technical Memorandum NMFS-NWFSC 53: Review of Potential Impacts of Atlantic Salmon Culture on Puget Sound Chinook Salmon and Hood Canal Summer-Run Chum Salmon Evolutionarily Significant Units. 98 pp.
FF.009	Nash, C.E., P.R. Burbridge, and J.K. Volkman. December 2005. NOAA Technical Memorandum NMFS-NWFSC-71: Guidelines for Ecological Risk Assessment of Marine Fish Aquaculture; Prepared at the NOAA Fisheries Service Manchester Research Station International Workshop April 11 - 14, 2005. 105 pp.
FF.010	US Department of Commerce. Aquaculture Policy. May 2005. 2 pp.
FF.011	US Department of Commerce. Aquaculture Policy - Draft for Public Comment. February 2011. 2 pp.
FF.012	National Oceanic and Atmospheric Administration Draft Aquaculture Policy - Draft for Public Comment. February 2011. 11 pp.
FF.013	National Aquaculture Act of 1980. Act of September 26, 1980, Public Law 96-362, 94 Stat. 1198, 16 U.S.C. 2801, et seq. 16 pp.
FF.014	Goldburg, R. J., M. S. Elliott, R. L. Naylor. 2001. Marine Aquaculture in the United States: Environmental Impacts and Policy Options. Pew Oceans Commission, Arlington, Virginia. 42 pp.
FF.015	WA Invasive Species Council. 2008. Invaders at the Gate: Invasive Species Strategic Plan. WA State Recreation and Conservation Office. 78 pp.

	CITATION
FF.016	Ladenburg, C. and S. Sturges. May 1999. Potential Offshore Finfish Aquaculture in the State of Washington; WA Dept. of Natural Resources Technical Report, Aquatic Resources Division. 67 pp.
FF.017	Environmental Protection Agency: Compliance Guide for the Concentrated Aquatic Animal Production Point Source Category. March 1995. 292 pp.
FF.018	Food and Agriculture Organization of the United Nations (FAO): Code of Conduct for Responsible Fisheries. 1995. 49 pp.
FF.019	Food and Agriculture Organization of the United Nations (FAO): Technical Guidelines for Responsible Fisheries 5. Aquaculture Development. 1997; Reprinted 2004. 47 pp.
FF.020	Washington State Department of Health; Fish Facts for Healthy Nutrition; Wild vs. Farmed Salmon [webpage]. Last Updated December 2010. 3 pp.
FF.021	WA Department of Fish & Wildlife. April 2008. Aquatic Farm Registration Form. 2 pp.
FF.022	Alvarez, D. 2011. Outline of '86 "Recommended Interim Guidelines for the Management of Salmon Net Pen (aqua) Culture". 7 pp.
FF.023	Amos, K. 2003. Disease Interactions in Wild and Atlantic Salmon [slideshow]; Pacific States Marine Fisheries Council Conference. 59 pp.
FF.024	Amos, K.H. and Appleby, A. September 1999. Atlantic Salmon in Washington State: A fish management perspective. Washington Department of Fish and Wildlife. 13 pp.
FF.025	Beamish, R. J., S. Jones, CE. Neville, F. Sweeting, G. Karreman, S. Saksida, and E. Gordon. 2006. Exceptional marine survival of pink salmon that entered the marine environment in 2003 suggests that farmed Atlantic salmon and Pacific salmon can coexist successfully in a marine ecosystem on the Pacific coast of Canada. ICES Journal of Marine Science, Vol. 63. Pp. 1326 - 1337.
FF.026	Beardslee, K. June 2007. Wild Fish Conservancy comment letter to WA Dept. of Ecology re: Draft Renewal NPDES Permits, American Gold Seafoods Marine Net Pens. 17pp.
FF.027	Benbrook, C.M. February 2002. Antibiotic drug use in U.S. aquaculture. The Institute for Agriculture and Trade Policy. 18 pp.
FF.028	Buschmann, A. H., V. A. Riquelme, M. C. Hernandez-Gonzalez, D. Varela, J. E. Jimenez, L. A. Henriquez, P. A. Vergara, R. Guinez, L. Filun. 2006. A review of the impacts of salmonid farming on marine coastal ecosystems in the southeast Pacific. ICES Journal of Marine Science. Vol. 63. Pp. 1338 - 1345.
FF.029	Conners, B. M., M. Krkosek, J. Ford, and L. M. Dill. 2010. Coho salmon productivity in relation to salmon lice from infected prey and salmon farms. Journal of Applied Ecology, Vol. 47. Pp. 1372 - 1377.
FF.030	Gardner, J. and D. L. Peterson. January 2003. Making Sense of the Salmon Aquaculture Debate - Executive Summary; Analysis of issues related to netcage salmon farming and wild salmon in British Columbia; Pacific Fisheries Resource Conservation Council. 12 pp.

	CITATION
FF.031	Gardner, J. and D. L. Peterson. January 2003. Making Sense of the Salmon Aquaculture Debate; Analysis of issues related to netcage salmon farming and wild salmon in British Columbia; Pacific Fisheries Resource Conservation Council.
FF.032	Icicle Acquisition Subsidiary LLC, DBA American Gold Seafoods. June 2009. Fin Fish Aquaculture Compliance Procedures ['WDFW Operations Permit']. 27 pp.
FF.033	Jefferson County Resolution No. 89-86. Emergency Moratorium on Filing and Processing Substantial Development Permits for the Growth and Culture of Fish in the Marine Waters of Jefferson County (Fish Farms), November 10, 1986. 1 p.
FF.034	Kerwin, J. 2003. The Role of the Washington Department of Fish and Wildlife in Atlantic Salmon Management [slideshow]; Pacific States Marine Fisheries Council Conference. 45 pp.
FF.035	Krkosek, M., A. Morton, J. P. Volpe, and M. A. Lewis. 2009. Sea lice and salmon population dynamics: effects of exposure time for migratory fish. Proceedings of the Royal Society, Vol. 276. Pp. 2819 - 2828.
FF.036	Krkosek, M., J. S. Ford, A. Morton, S. Lele, M.A. Lewis. December 19, 2008. Response to Comment on "Declining Wild Salmon Populations in Relation to Parasites from Farm Salmon". Science, Vol. 322. 2 pp.
FF.037	Krkosek, M., J. S. Ford, A. Morton, S. Lele, R.A. Myers, M. A. Lewis. December 14, 2007. Declining Wild Salmon Populations in Relation to Parasites from Farm Salmon, Science, Vol. 318. Pp. 1772 - 1775; Plus Science; Corrections - Erratum, Posted December 19, 2008. Pp. 1 - 2.
FF.038	Krkosek, M., M. A. Lewis, A. Morton, L. N. Frazer, and J. P. Volpe. October 17, 2006. Epizootics of wild fish induced by farm fish. PNAS, Vol. 103, No. 42. Pp. 15506 - 15510.
FF.039	Krkosek, M., M. A. Lewis, J. P. Volpe, and A. Morton. 2006. Fish Farms and Sea Lice Infestations of Wild Juvenile Salmon in the Broughton Archipelago - A Rebuttal to Brooks (2005). Reviews in Fisheries Science, Taylor & Francis Group, Vol. 14. 11 pp.
FF.040	LeVander, L. October 2007. Response to Comments for the 2007 Draft Marine Salmon Net Pen NPDES Permits for American Gold Seafoods [8 Puget Sound locations]. WA Department of Ecology, Northwest Regional Office, Water Quality Section, Industrial Unit. 103 pp.
FF.041	McCreery, S. July 2002. Whatcom County Marine Resources Committee advisory letter to Whatcom County Council, Natural Resources Committee. 4 pp.
FF.042	Naylor, R., K. Kindar, I. A. Fleming, R. Goldberg, S. Williams, J. Volpe, F. Whoriskey, J. Eagle, D. Kelso, and M. Mangel. May 2005. Fugitive Salmon: Assessing the Risks of Escaped Fish from Net-Pen Aquaculture. BioScience, American Institute of Biological Sciences, Vol. 55 No. 5. Pp. 427-437.
FF.043	Pitts, J. L. 2009. Aquaculture Issues [email attachment]. 1 p.
FF.044	Pitts, J. L. 2009. Negative Net Pen in SMPlan (4) [email attachment]. 5 pp.
FF.045	Pitts, J. L. 2009. Negative Net Pen in SMPlan [email attachment]. 4 pp.
FF.046	Pitts, J. L. 2009. Net Pen History in WA marine waters [email attachment]. 4 pp.
FF.047	Pitts, J. L. 2009. Stats Myths and Books on Aquaculture [email attachment]. 1 p.

	CITATION
FF.048	Rensel, J. E. 2001. Salmon net pens in Puget Sound: Rules, performance criteria and monitoring. An overview of Net pen permitting and monitoring in Washington State. <i>Global Aquaculture Advocate</i> 4(1), pp 66 -69.
FF.049	Rensel, J. E. November 2003. Water quality and sediment impact management of finfish net pens in Washington State; Pacific States Marine Fisheries Commission Conference [slideshow]. 34 pp.
FF.050	Rensel, J. E., D. A. Kiefer, J. R. M. Forster, D. L. Woodruff, and N. R. Evans. 2007. Offshore finfish mariculture in the Strait of Juan de Fuca. <i>Bulletin of Fisheries Research and Development Agency</i> No. 19. Pp. 113 - 129.
FF.051	Rensel, J. February 2009. Aquaculture Monitoring, modeling and performance standards for net pens. <i>Seriola and Cobia Aquaculture Dialogue (SCAD)</i> 19-20 February 2009, Seattle, WA [slideshow]. 63 pp.
FF.052	Skagit County Resolutions 14302, 14698 and 15188 - Regarding Extension of [1987] Fish Net Pen Moratorium. 1992/93. 8 pp.
FF.053	Silverman, H. 2002. Ever Wonder What's Being That Farmed Salmon Steak? Facts and Footnotes. Ecotrust. 6 pp.
FF.054	Susewind, K. Upland Fin-Fish Hatching and Rearing General Permit: A National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Discharges Associated with Upland Fin-Fish Hatching and Rearing Activities. WA Department of Ecology, Water Quality Program. 40 pp.
FF.055	Volpe, J. March 21, 2001. Science Friction: the incredible story of Atlantic salmon in BC [slideshow]. 47 pp.
FF.056	Volpe, J.P. 2001. Super unnatural: Atlantic salmon in B.C. waters. David Suzuki Foundation. 37 pp.
FF.057	Volpe, J.P., Anholt, B.R., Glickman, B.W. 2001. Competition among juvenile Atlantic salmon (<i>Salmo salar</i>) and steelhead (<i>Oncorhynchus mykiss</i>): relevance to invasion potential in British Columbia. <i>Canadian Journal of Fisheries and Aquatic Science</i> , v. 58, p. 197-207.
FF.058	Volpe, J.P., Taylor, E.B, Rimmer, D.W., and Glickman, B.W. June 2000. Evidence of natural reproduction of aquaculture escaped Atlantic salmon in a coastal British Columbia river. <i>Conservation Biology</i> : vol. 14, no. 3, p. 899-903.
FF.059	Waknitz, F. W., R. N. Iwamoto, and M. S. Strom. 2003. Interactions of Atlantic Salmon in the Pacific Northwest. IV. Impacts on the local ecosystems. <i>Fisheries Research</i> 62. Pp. 307-328
FF.060	Washington Fish Growers Association. Fall 2002. Code of Conduct: Saltwater Salmon Net-Pen Operations. 8 pp.
FF.061	Whatcom County Shoreline Management Program; Title 23. August 8, 2008. 246 pp.
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