

Fact Sheet

Project Title:

North Totten Inlet Mussel Farm

Location:

Totten Inlet is located in South Puget Sound, west of Olympia, between Hammersley Inlet on the north and Eld Inlet on the south. The proposed mussel farm site is located approximately 600 feet waterward of MLLW west of the Steamboat Island shoreline, between approximately 85th Avenue NW and 90th Avenue NW, in the SE ¼ of Section 5, Township 19 North, Range 2 West, WM, Thurston County, Washington.

Brief Description of the Proposal:

Taylor Shellfish Company, Inc. (Taylor) proposes to develop and operate an additional floating mussel aquaculture facility along the east shore of Totten Inlet, within Thurston County, Washington. This EIS constitutes environmental review of Taylor's 1996 Shoreline Substantial Development Permit application for the proposed action. The tidelands adjacent to the proposed mussel farm site are part of a farm 1.6 miles in length owned and operated by Taylor that includes the existing Gallagher Cove mussel farm. The proposed North Totten Inlet mussel farm raft would be located approximately mid-way through the length of Taylor's tideland ownership, and would require a new Aquatic Lands Lease from the Washington Department of Natural Resources. The species to be cultivated is *Mytilus edulis galloprovincialis*. Taylor has cultivated this species of mussel at its two existing farms within Totten Inlet since 1992 (Gallagher Cove) and 1994 (Deepwater Point).

Purpose and Objectives:

The purpose and objectives of the North Totten Inlet Mussel Farm proposal are to:

- Cultivate "Mediterranean" (also known as "Gallo") mussels (*Mytilus edulis galloprovincialis*) for harvest, sale, and distribution in local, State, national and international commercial shellfish markets, using mussel raft culture practices.
- Construct an economically viable addition to the existing Taylor North Totten Inlet mussel farm within Totten Inlet.

Principal Alternatives:

The EIS evaluates three alternatives:

Alternative 1 (Preferred): a 58-raft proposal that would occupy approximately 1.36 acres within an Aquatic Lands Lease area approximately 11.25 acres in size.

Alternative 2: (Two-Row): A 50-raft alternative with a management strategy that would relocate the rafts every 3 years into the adjacent gap between rafts within the Aquatic Lands Lease area to allow any build-up beneath the rafts to assimilate at a faster rate.

Principal Alternatives, *continued*

Alternative 3 (No Action): No new mussel farm at the North Totten Inlet site.

Project Proponent:

Taylor Shellfish Company, Inc., Shelton, WA

Schedule for Implementation:

Full development of the North Totten Inlet mussel farm will occur over a period of approximately 5 years or less, to commence as soon as practicable after all permits and approvals are acquired. The first phase will likely consist of 12 to 24 rafts, depending on the availability of mussel “seed” to start the first crop, market demand, and the availability of financial resources to construct and initiate the farm.

Lead Agency:

Thurston County Resource Stewardship Department

Thurston County Project File No.

SEPA-96-1372
SSDP-96-1372

**SEPA Responsible Official,
project information contact person,
and person to whom to direct
comments:**

Michael Kain, Manager
Robert Smith, Senior Planner
Thurston County Resource Stewardship Department
Land Use and Environmental Review Section
Thurston County Courthouse, Building 1
2000 Lakeridge Drive
Olympia, WA 98502

Permits and Approvals Required:

Thurston County

Shoreline Substantial Development Permit

U.S. Army Corps of Engineers

Individual Section 10 Permit

National Marine Fisheries Service and
U.S. Fish and Wildlife Service

Endangered Species Act (ESA) and Magnuson-Stevens
Fishery Conservation and Management Act Compliance
Determination

U.S. Coast Guard

Aids to Navigation Compliance

Washington Dept of Natural Resources

Aquatic Lands Lease

**EIS Authors and
Principal Contributors:**

Vicki Morris Consulting Services
Vicki Morris, *EIS Primary Author and Editor*

Mark Pedersen, Margenex International
Affected Environment Biological Issues

Draft EIS Date of Issue:

May 26, 2010

Draft EIS Comment Period:

May 26 through July 12, 2010

Address Comments to:

Robert Smith, Senior Planner
Thurston County Resource Stewardship Department
Land Use and Environmental Review Section
Thurston County Courthouse, Building 1
2000 Lakeridge Drive, Olympia, WA 98502
360.754.4023
smithr@co.thurston.wa.us

Location of copies of the Draft EIS and Technical Reports for Review:

Thurston County Resource Stewardship Department
Thurston County Courthouse, Building 1
2000 Lakeridge Drive, Olympia, WA 98502

Online at: www.co.thurston.wa.us/permitting

Availability of Copies of the Draft EIS and Technical Reports to the Public:

Everyone on the Distribution List (Chapter 5) was sent a CD of electronic files of the entire contents of the Draft EIS and Final Technical Reports. These files can be viewed electronically, or can be printed for hard-copy review.

Additional copies of the CD can be obtained from the Thurston County Resource Stewardship Department at no charge.

Public Meeting during the Draft EIS Comment Period:

A public meeting / open house will be scheduled at least 15 days following the Draft EIS date of issue. Notice will be mailed to agencies, Tribes, organizations, and persons on the Distribution List, and will be published in *The Olympian*.

Next Steps in the EIS Process:

Following the close of the Draft EIS comment period, the County will review and respond to all comments received. All comments and responses will be published in the Final EIS. Everyone on the Draft EIS Distribution List (Chapter 5) and persons who comment on the Draft EIS will receive notice of availability of the Final EIS and/or a CD of electronic files of that document.

Reader's Guide for this Draft EIS

An Environmental Impact Statement (EIS) attempts to strike a balance between the technical information and format required by the State Environmental Policy Act (SEPA), and readability for persons interested in the project, who may be unaccustomed to this manner of organizing the document. The Reader's Guide highlights the contents of this Draft EIS, and suggests locations where information of interest can most readily be found.

The **Table of Contents** provides a complete list of the subjects covered in the document. Lists of figures and tables are also a key to the location of topics of interest.

Chapter 1 describes the history and background of the North Totten Inlet Mussel Farm application (1996 to present), provides an overview of SEPA procedures that have been and will be followed, and describes the Independent Technical Review of technical reports prepared for the project. Chapter 1 briefly summarizes the description of the mussel farm proposal and the alternatives considered. Potential impacts of implementing the project, and measures to avoid or minimize these impacts (mitigation measures) are summarized in a table in Chapter 1. The reader is encouraged to review more detailed information in Chapters 2 and 3 on any topic summarized in Chapter 1, to gain a more complete, "in-context" understanding.

Chapter 2 describes principal features of the proposed mussel farm and alternatives, and includes graphic illustrations of the alternative raft configurations. A table at the end of Chapter 2 provides a comparison of the potential environmental impacts of the different alternatives considered.

Chapter 3 is the real substance of the environmental review presented in the Draft EIS. This chapter is organized by the elements of the environment required for study: Water, Marine Plants, Animals, and Navigation. The biological elements of the environment each have several subheadings. Existing environmental conditions are described for each of these elements, under the heading Affected Environment. Following the description of the environmental setting, Potential Impacts are described for conditions during construction as well as operational conditions of the project. Each impact analysis is followed by a description of proposed, required, and other possible mitigation measures that could be implemented to avoid or minimize potentially adverse impacts of the project. With the exception of the Navigation element, Chapter 3 text sections are summarized from reports prepared by technical experts. A list of the final technical reports is provided in the Table of Contents.

The final chapters of the Draft EIS include **Chapter 4**, References, and **Chapter 5**, Distribution List. Best Management Practices for mussel aquaculture are described in **Appendix A**, the Taylor Shellfish Farms Environmental Code of Practice (pages 6 through 8).

The County's contact person is Robert Smith, Senior Planner, Thurston County Planning and Development Services. His contact information is provided in the Fact Sheet that precedes this Reader's Guide. Instructions for submitting written comments also appear in the Fact Sheet and Cover Memo. An open house public meeting will be held during the Draft EIS comment period for the purpose of receiving comments on the Draft EIS and proposed action from interested individuals. The date, time and location of these meetings will be announced in the local area newspaper.

Table of Contents

Fact Sheet	i
Reader's Guide	iv
Glossary	G-1
1.0 Summary	1-1
1.1 Purpose and Objectives of the Proposed Action	1-1
1.2 History and Background, SEPA Procedures and Public Involvement	1-1
1.3 Technical Report Preparation and Independent Technical Review	1-3
1.4 Description of the Proposed Action	1-4
1.5 Alternatives Considered	1-5
1.6 Significant Impacts and Mitigation Measures	1-6
1.7 Major Issues, Significant Areas of Controversy and Uncertainty, and Issues to be Resolved	1-14
2.0 Description of the Proposal and Alternatives	2-1
2.1 Project Proponent	2-1
2.2 Purpose and Objectives of the Proposal	2-1
2.3 Location	2-2
2.4 Alternative 1, the Preferred Alternative	2-6
2.5 Other Alternatives Considered	2-14
2.6 Comparison of Environmental Impacts	2-18
2.7 Benefits and Disadvantages of Reserving Project Implementation for Some Future Time	2-25
3.0 Affected Environment, Potential Impacts, and Mitigation Measures	3-1
3.1 Water	3-2
3.1.1 Circulation	3-2
3.1.2 Water Quality	3-14
3.2 Marine Plants	3-24
3.2.1 Phytoplankton	3-24
3.2.2 Macroalgae	3-26
3.3 Animals	3-30
3.3.1 Invertebrates	3-30
3.3.2 Fish	3-39
3.3.3 Birds	3-44
3.3.4 Mammals	3-45
3.3.5 Protected, Endangered and Threatened Species	3-47
3.4 Navigation	3-55

Table of Contents, continued

4.0	References	4-1
5.0	Distribution List	5-1
	Appendix A: Taylor Shellfish Farms Environmental Code of Practice	A-1
	Technical Appendices (separate documents):	
1	BioAquatics International. 2009. Macroalgae Survey for Proposed Mussel Farm, North Totten Inlet, Thurston County.	
2	Brooks, K.M. 2005a. Baseline Information Describing Sediment Physiochemistry of Totten Inlet and the Macrobenthos of the Proposed North Totten Inlet Mussel Farm.	
3	Brooks, K.M. 2005b. Benthic Response at the Deepwater Point Mussel Farm in Totten Inlet, Puget Sound, Washington State, USA.	
4	Brooks, K.M. 2007. Executive Summary – Totten Inlet Baseline Studies Completed in 2002 and 2003.	
5	Brooks, K.M. 2008. The Frequency of <i>Mytilus edulis galloprovincialis</i> alleles in Washington State Marine Waters Where the Species is Commercially Cultivated.	
6	Evans-Hamilton, Inc. 2006. Totten Inlet Circulation Study.	
7	Evans-Hamilton, Inc. 2008. Totten Inlet Mussel Farm Drogue Study	
8	Margenex International. 2009. Taylor Shellfish Old Plant Site Characterization, Field Report.	
9	Newfields. 2009. An Assessment of Potential Water Column Impacts of Mussel Raft Culture in Totten Inlet.	

List of Figures

2-1	Vicinity Map	2-3
2-2	Location Map	2-4
2-3	Taylor Shellfish Company Tidelands Ownership within Totten Inlet	2-5
2-4	Principal Features of Proposed North Totten Inlet Mussel Farm (Alternative 1)	2-7
2-5	Cross-Section Appearance of Proposed Mussel Rafts	2-8
2-6	Typical Concrete Anchor Block	2-9
2-7	Principal Features of Two-Row Raft Alternative (Alternative 2)	2-16
3-1	Hydraulic Linkages between Totten Inlet and surrounding Water Bodies in South Puget Sound, Washington	3-3
3-2	North Totten Inlet Over-the-Side Acoustic Doppler Current Profiler (OTS-ADCP) Transect, and Acoustic Doppler Profiler (ADP) Locations	3-5
3-3	Location of Proposed Mussel Farm in North Totten Inlet, Washington	3-6
3-4	X-Shaped Drogue of Rip-Stop Nylon	3-8
3-5	Current Velocity in a String of Six Rafts Based on Current Velocity	3-10
3-6	Modeled Current Velocities in the Vicinity of the Deepwater Point Raft Arrays Based on an Incoming Velocity of 25 cm/sec	3-10
3-7	Modeled Current Velocities in the Vicinity of the Proposed North Totten Inlet Mussel Raft Arrays Based on an Incoming Velocity of 5 cm/sec	3-12
3-8	Modeled Current Velocities in the Vicinity of the Proposed North Totten Inlet Mussel Raft Arrays Based on an Incoming Velocity of 15 cm/sec	3-12
3-9	Modeled Current Velocities in the Vicinity of the Proposed North Totten Inlet Mussel Raft Arrays Based on an Incoming Velocity of 25 cm/sec	3-13
3-10	Near-Bottom Dissolved Oxygen Levels (mg/L) for South Puget Sound in September	3-16
3-11	Contour Map of the Estimated Areal Coverage of Predominately Fixed and Unattached or Drift Macroalgae within the Proposed North Totten Inlet Mussel Farm Site	3-27
3-12	Classed Map of Percent Total Macroalgae Coverage within the Proposed North Totten Inlet Mussel Farm Site	3-28

List of Tables

1.6-1	Summary matrix of environmental impacts and mitigation measures associated with the North Totten Inlet Mussel Farm proposal	1-7
2.6-1	Comparison of the environmental impacts of the alternatives	2-19
3.3-1a	Genotypes observed in non-random samples of <i>Mytilus</i> collected in Totten Inlet: Non-random samples with <i>M. galloprovincialis</i> shell morphology (Brooks 2008).	3-37
3.3-1b	Summary of species and hybrid identification based on genetic markers (Brooks 2008) of numbers of randomly collected mussels from two locations near raft cultures of <i>M. galloprovincialis</i> and at Little Skookum Inlet, a control station in Totten Inlet, Washington.	3-38

