

1 **SHORELINES HEARINGS BOARD**
2 **STATE OF WASHINGTON**

3 TAYLOR SHELLFISH COMPANY, INC.,

4 Petitioner,

5 v.

6 THURSTON COUNTY,

7 Respondent.

8 and

9 ASSOCIATION FOR THE PROTECTION
10 OF HAMMERSLY, ELD AND TOTTEN
11 INLETS,

Respondent Intervenor.

SHB No. 12-012

FINDINGS OF FACT, CONCLUSIONS OF
LAW, AND ORDER

12 The Shorelines Hearings Board (Board) held a hearing in this matter on April 22, 2013, at
13 the Board's office in Tumwater, Washington.

14 The Board was comprised of Board Members Kathleen D. Mix, Chair; Tom McDonald;
15 Pamela Krueger; Grant Beck; and Peter Philley.¹ Administrative Appeals Judge Kay M. Brown
16 presided for the Board. The petitioner and applicant, Taylor Shellfish Company, Inc. (TSF) was
17 represented by Attorneys Samuel W. Plauché and Michael P. Witek. Respondent Thurston
18 County (County) was represented by Senior Deputy Prosecuting Attorney Elizabeth Petrich.
19 Respondent Intervenor Association for the Protection of Hammersly, Eld, and Totten Inlets
20 (APHETI) was represented by Attorney David S. Mann.

21 _____
¹ The 6th member of the Board, William H. Lynch, recused himself.

1 The Board received sworn testimony of witnesses, exhibits, and arguments on behalf of
2 the parties. Having fully considered this record, the Board enters the following:

3 FINDINGS OF FACT

4 A. Procedural Background

5 1.

6 TSF's application for a shoreline substantial development permit (SSDP) for the
7 establishment of a new mussel farm in North Totten Inlet (NTI Farm) has a long and complicated
8 history. TSF applied on November 13, 1996, for an expansion of its existing mussel farm in
9 Gallagher Cove in North Totten Inlet, and also to develop a new mussel farm (108 mussel rafts)
10 in North Totten Inlet. After County review, including a number of public meetings, TSF
11 eliminated the proposal to expand the farm at Gallagher Cove and reduced its proposal for the
12 NTI Farm to 58 rafts. *Ex. P-1*, pp. 18, 19; *Ex. P-3*, pp. 1-1 through 1-3.

13 2.

14 The SSDP for the proposed NTI Farm was subject to review under the State
15 Environmental Policy Act (SEPA). On September 14, 1998, the County issued a determination
16 of significance (DS) and required preparation of an Environmental Impact Statement (EIS) to
17 address impacts to bottom-dwelling organisms (benthic community), the surrounding water
18 column, the phytoplankton resource, and marine navigation, as well as to consider the
19 consequences from the potential escapement of mussels. TSF appealed the County's DS to the
20 County Hearing Examiner. The Hearing Examiner affirmed the DS on June 18, 1999. *Ex. P-1*,
21 pp. 19, 20; *Ex. P-3*, pp. 1-1 through 1-3.

1 3.

2 The County and TSF spent the years between 1999 and 2010 gathering scientific
3 information on the identified environmental issues for the proposal, and preparing a Draft
4 Environmental Impact Statement (DEIS). As part of that process, after an extensive search and
5 with input from TSF and APHETI, the County selected an Independent Technical Review
6 Committee (ITRC) to review and comment on all technical documents and reports prepared by
7 TSF's consultants. The members of the ITRC were all recognized experts in their respective
8 fields, and they operated independently from TSF. The ITRC identified topics for scientific
9 review and reviewed TSF consultants' technical reports. As a result, the Hearing Examiner
10 described the TSF proposal as “. . . one of the most thoroughly reviewed proposals that has been
11 presented to Thurston County. The presence of an expert and independent technical review
12 panel is unique in this Hearing Examiner's experience.” *Ex. P- 1*, p. 20; *P-3*, pp. 1-1 through 1-4;
13 *P-6*, p. 1-6.

14 4.

15 On May 26, 2010, the County issued the DEIS. *Ex. P-3*. The DEIS and the final
16 Technical Reports prepared for the NTI Farm were circulated for a 45-day comment period, after
17 which the County held a public hearing. The County received numerous comments. *Ex. P-3*,
18 Cover memo; *Ex. P-6*, Cover memo.

19 5.

20 On November 7, 2011, the County issued a Final EIS (FEIS). The FEIS contained a
21 chapter summarizing comments on the DEIS and responding to them. Responses to technical or

1 scientific comments were written by the ITRC. *Ex. P-6*, Cover Memo and Chapter 2. The
2 County concluded in both the DEIS and FEIS² that TSF's NTI Farm would not result in
3 significant unavoidable adverse impacts to bottom-dwelling organisms (benthic community), the
4 surrounding water column, the phytoplankton resource, and marine navigation, nor adverse
5 impacts from the escapement of mussels. *Ex. P-3*, p. 1-14; *Ex. P-6*, pp. 1-15 through 1-22. The
6 FEIS also contained additional analysis on the "carrying capacity" of North Totten Inlet for
7 shellfish aquaculture. The "carrying capacity" analysis is a cumulative impacts analysis that
8 studied the chemical and biological water column in Totten Inlet over a period of several years to
9 determine effects from aquaculture. The County concluded in the FEIS that no significant
10 unavoidable adverse impacts to the carrying capacity of Totten Inlet from aquaculture were
11 identified. The FEIS states "[T]here is no scientific basis that the alleged cumulative water
12 quality impact of shellfish aquaculture in Totten Inlet will result in a cumulative impact to forage
13 fish or general water quality in Totten Inlet." *Ex. P-6*, pp. 1-23 through 1-30.

14 6.

15 Subsequently, the Hearing Examiner held hearings on February 13 and 17, 2012. At the
16 hearing, the Hearing Examiner admitted 55 exhibits and heard the testimony of 35 witnesses.
17 *Ex. P-1*, p. 1-12. As part of the hearing process, the Thurston County Resource Stewardship
18 Department (Stewardship Department) recommended to the Hearing Examiner that he approve
19 the SSDP with conditions. *Ex. P-11*, pp. 10, 11. The Hearing Examiner issued a decision on

20 _____
21 ² The FEIS states that the DEIS is a companion document to the FEIS, and is not replaced by the FEIS. *Ex. P-6*,
Cover Memo. Therefore, in the remainder of this decision, the Board refers to either the FEIS or the DEIS, or both
documents, depending on the location of the specific analysis the Board is referencing.

1 July 19, 2012, concluding that the analysis of cumulative impacts in three areas (dissolved
2 oxygen, the benthic community, and the potential spreading of Gallo Mussels) was inadequate
3 with respect to the requirements of the Shoreline Management Act (SMA) and Thurston County
4 Shoreline Master Program (SMP). He also concluded that the County needed additional
5 information to determine whether the proposal's effect on benthic life and the potential for
6 spreading of Gallo Mussels was consistent with the SMP. *Ex. P-1*, pp. 89-91. The Hearing
7 Examiner concluded that:

8 In all other areas, the proposal complies with the standards noted above. The
9 evidence properly considers cumulative impacts in these other areas and no
further analysis of cumulative impacts is required for them.

10 *Ex. P-1*, p. 91. The Hearing Examiner then gave TSF the option of either providing the
11 additional information to show compliance with the SMP, or declining to provide it and
12 receiving a denial of the SSDP. TSF chose not to provide the additional information, and on
13 September 14, 2012, the Hearing Examiner denied the SSDP. *Ex. P-2*.³

14 7.

15 TSF appealed the Hearing Examiner's decision to the Thurston County Board of
16 Commissioners, which issued a decision on November 16, 2012, denying TSF's appeal and
17 affirming the Hearing Examiner's decision. *Ex. R-1*. On December 17, 2012, TSF appealed the
18 County's decision to this Board. APHETI moved to intervene into the case. The Board's
19 presiding officer conducted a pre-hearing conference in which APHETI participated. At the

20 ³ P-2 was identified as an exhibit for the hearing, but not offered or admitted. The Board notes that it is attached to
21 the petition for review, and is the decision being appealed from, and therefore the Board takes official notice of this
document. WAC 461-08-520.

1 conference, the parties stipulated to intervention by APHETI and agreed to the establishment of
2 three issues for the appeal. These issues were limited to the areas of deficiency identified by the
3 Hearing Examiner and do not include a challenge to the DEIS and FEIS.⁴

4 B. The NTI Farm and other TSF farms in Totten Inlet.

5 8.

6 TSF proposes to construct the NTI Farm in the northern portion of Totten Inlet on 1.36
7 acres within an aquatic area leased from Washington State Department of Natural Resources
8 (DNR). TSF plans to cultivate the *Mytilus edulis galloprovincialis* (Western Gallo mussel). The
9 NTI Farm will consist of 58 separate rafts grouped together in rows and anchored to the sea
10 floor. Each raft will be 30 feet by 34 feet in size. The rafts will be attached end to end, with two
11 feet in between, in two lines of eight rafts each and six lines of seven rafts each. There will be
12 approximately 720 grow-out lines per unit. TSF seeds the grow-out lines with immature mussels
13 that require approximately 14 to 18 months to reach harvestable size. Full development of the
14 NTI Farm will occur over a period of 5 years. *Ex. P-11*, p. 2; *Ex. P-1*, pp. 12-13, 15; *Ex. P-3*, pp.
15 1-1 through 1-4.

16 9.

17 TSF has two existing mussel farms within Totten Inlet. Both cultivate the Western Gallo
18 Mussel. *Ex. P-3*, p. 1-1. Both are located farther from the mouth of Totten Inlet than the
19 proposed NTI Farm. Gallagher Cove Farm, which is the existing farm closest to the proposed
20 NTI Farm, is approximately 1 mile to the south and west. *Ex. P-3*, Figure 2-3; *Ex. P-26*, p. 14.

21 _____
⁴ The issues are set out in full in Conclusion of Law 2. *See infra*, CL 2, p. 22

1 It is located within a cove and therefore has reduced circulation. *Ex. P-26*, p. 27. The second
2 TSF mussel farm, Deepwater Point, is located in Southern Totten Inlet, and is 3.8 miles from the
3 proposed NTI Farm. *Ex. P-3, Figure 2-3; Ex. P-26*, pp. 2, 14. Southern Totten Inlet is mostly
4 shallow, warm, subject to lower dissolved oxygen conditions, and has less active circulation than
5 Northern Totten Inlet. Deepwater Point has a raft configuration that is very similar to the
6 proposed NTI Farm, with 8 rafts of 6 units and 720 lines per unit. The total length of line
7 harvested at the proposed NTI Farm will be comparable to the lines at Deepwater Point. *Ex. P-5*,
8 *No. 9*, p. 4.

9 10.

10 Totten Inlet is home to a significant amount of commercial aquaculture. Approximately
11 85% of Totten shorelines are under commercial aquaculture lease. The amount of acreage put
12 into and taken out of geoduck culture in the Inlet has remained relatively stable since 2003.
13 There are no pending applications for floating aquaculture facilities in Thurston, Mason or Pierce
14 Counties. *Ex. P-1*, p. 18, *Ex. P-6*, pp. 1-24 to 1-30.

15 C. Spread of Gallo Mussels

16 11.

17 The NTI Mussel Farm presents the risk of escapement and propagation of the cultivated
18 mussel, resulting in a negative environmental impact. This potential impact was extensively
19 analyzed in the DEIS (pp. 3-36 to 3-38); the FEIS (pp. 1-19, 2-5 to 2-7), and in an additional
20 expert report prepared by Kenneth Brooks, entitled *The Frequency of Mytilus Edulis*
21 *Galloprovincialis Alleles in Washington State Marine Waters Where the Species is*

1 *Commercially Cultivated*, which was used in the preparation of the DEIS and FEIS. *Exs. P-3; P-*
2 *5, No. 5; P-6*. The Hearing Examiner made extensive factual findings in his decision on the
3 issue of the possible spreading and/or hybridization of Gallo mussels, based on the exhibits and
4 testimony at the hearings before him, and also entered related conclusions of law. *Ex. P-1*, pp.
5 46-50, 86-87. At the hearing before this Board, TSF presented the testimony of Ralph A. Elston,
6 Ph.D., a recognized expert in shellfish biology, and introduced into evidence a report Dr. Elston
7 prepared specifically addressing the concerns raised by the Hearing Examiner regarding the
8 potential for dissemination of the cultivated mussel. *Elston Testimony; Exs. P-21 and P-22*.

9 12.

10 The native mussel in Puget Sound is the *Mytilus edulis Trossulus* (Trossulus Mussel).
11 The mussel TSF will cultivate at NTI is the Western Gallo Mussel. The origin of the Western
12 Gallo Mussel TSF will cultivate is unknown, but its presence in Puget Sound predated
13 aquaculture production here. The scientific evidence supports the conclusion that the Western
14 Gallo Mussel was established on the Pacific coast of North America hundreds to thousands of
15 years ago. It has been a resident of the Pacific coast of North America for a long period of time,
16 and has coexisted with the Trossulus Mussel over that time period. *Elston Testimony; Ex. P-22*,
17 pp. 4-5.

18 13.

19 *Mytilus galloprovincialis* (Mediterranean Gallo Mussel) is considered an invasive
20 species, at least in South Africa. The Mediterranean Gallo Mussel is genetically significantly
21 different from the Western Gallo Mussel, and therefore the fact that the Mediterranean Gallo

1 Mussel can be invasive in some geographic locations is not relevant to the behavior of the
2 Western Gallo Mussel. A letter, written by United States Fish and Wildlife (USFW) to the Army
3 Corp of Engineers, and quoted in a comment on the DEIS, expresses concern that the cultivation
4 of Mediterranean Gallo Mussel in the Puget Sound could lead to the displacement of the
5 Trossulus mussel. However, TSF will be cultivating the Western Gallo Mussel (*Mytilus Edulis*
6 *Galloprovincialis*) and not the Mediterranean Gallo Mussel (*Mytilus galloprovincialis*).⁵ Based
7 on the testimony of Dr. Elston, the Board finds that the Western Gallo Mussel is distinct from the
8 Mediterranean Gallo Mussel, and therefore USFW’s comment does not identify a risk posed by
9 TSF’s proposed NTI Farm. *Elston Testimony; Ex. P-22*.

10 14.

11 Several studies have been conducted on hybrid mussels in the Puget Sound. These
12 studies have arrived at a wide range of hybridization rates. After reviewing all of these studies,
13 Dr. Elston concludes that the variation in rates can be accounted for by differences in sampling
14 methods and analysis methods. For example, some studies relied on non-random samples.
15 Another study relied on visual inspection of mussels, which is not a reliable method. Dr. Elston
16 concludes that these studies do not establish that there is a trend in increasing hybridization.
17 This is true even in areas of intensive aquaculture activities. *Elston Testimony; Ex. P-22*, pp. 8-
18 10. Dr. Elston’s opinion is consistent with the determination reached by the authors of the DEIS
19 that:

20
21 ⁵ The confusion regarding what mussel would be cultivated is due in part to the description of the *Mytilus Edulis Galloprovincialis* as the “Mediterranean” mussel in the FEIS, *Ex P-6*, pp. i and 1-1.

1 Based on the studies described above, the risk of *M.e. galloprovincialis* to
2 displace or ‘genetically pollute’ *M. e. trossulus* stocks in Puget Sound is low,
and it is unlikely that the proposed project will have a significant adverse effect.

3 *Ex. P-3*, p. 3-38.

4 D. Dissolved Oxygen

5 15.

6 The Hearing Examiner raised another area of potential impact from the proposed NTI
7 Mussel Farm: impact to dissolved oxygen (DO) levels. This potential impact was extensively
8 analyzed in the DEIS (pp. 3-14 to 3-17); the FEIS (p. 1-15); and an additional expert report
9 prepared by William Gardiner entitled *Assessment of Potential Water Column Impacts of Mussel*
10 *Raft Culture in Totten Inlet* (NewFields report), which was used in the preparation of the DEIS
11 and FEIS. *Exs. P-3; P-5*, No. 9; *P-6*. The Hearing Examiner made extensive factual findings on
12 DO levels at and around the project site, based on the exhibits and testimony at the hearings
13 before him, and entered related conclusions of law. *Ex. P-1*, pp. 27-31, 73. At the hearing
14 before this Board, TSF presented the testimony of William Gardiner, an expert in the assessment
15 of marine communities and toxicology, and introduced into evidence a report which Mr.
16 Gardiner helped prepare that specifically addressed the concerns raised by the Hearing Examiner
17 regarding dissolved oxygen levels at the project site and cumulatively within Totten Inlet.
18 *Gardiner Testimony; Exs. P-24, P-26*.

19 16.

20 The DEIS evaluated DO concentrations in Totten Inlet using direct measurements at the
21 proposed NTI Farm, as well as studies at the existing Deepwater Point mussel rafts. DO

1 concentrations at the Deepwater Point site ranged from 4.5 to greater than 10 mg/L ppm. DO
2 concentrations at the proposed NTI site, as well as from the west side of the Inlet, ranged from
3 7.1 to 14.7 ppm at the surface and 5.9 to 13.0 ppm at the maximum depth sampled. The lowest
4 DO concentrations were observed during the months of August to November. The biological
5 stress concentration benchmark for DO begins at 5.0 ppm. This means that as DO drops below
6 about 5.0 ppm, organisms become more stressed. Higher DO concentrations allow organisms to
7 thrive. In general, Totten Inlet, especially Northern Totten Inlet, has the best conditions in all of
8 South Puget Sound for near-bottom DO. *Ex. P-3*, pp. 3-14, 3-15.

9 17.

10 As water moves through a mussel raft, DO decreases because of respiration by mussels
11 and associated epifauna. The lowest DO concentrations occur at the center portion of the raft.
12 *Ex. P-5*, No. 9, pp. 21-23. Once the water exits the raft, it will likely recover to ambient DO
13 concentrations. The DEIS used existing data and predictive modeling to conclude that “although
14 DO may be significantly reduced within the proposed 58-raft mussel farm, it will generally
15 remain above the biological stress concentration of 5.0 milligrams per liter (mg/L)(parts per
16 million [ppm]).” *Ex. P-3*, p. 3-15. The DEIS goes on to state:

17 During periods of low ambient DO (late August and early September), dissolved
18 oxygen concentrations below 5.0 mg/L (ppm) would be expected to persist some
19 distance down-current from the raft edge. However, once the water exits the
20 raft, it will likely recover to ambient DO concentrations within 70 to 200 m (230
21 to 656 ft.) or less, due to entrainment of surrounding waters and from increased
mixing caused by turbulence from the presence of the raft structure (NewFields
2009).

1 *Id.* The DEIS concludes that “[t]here would be no significant unavoidable adverse impacts to
2 dissolved oxygen as a result of the proposed project” *Ex. P-3*, p. 3-17.

3 18.

4 The Hearing Examiner disagreed with the conclusion reached in the DEIS. The Board
5 observes that questioning the adequacy of the EIS (under SEPA) was beyond the scope of the
6 Examiner’s jurisdiction on the hearing of the SSDP because the EIS was at that point final and
7 had not been appealed. He reasoned that the data from the Deepwater Point Farm established
8 that in August ambient, incoming water at flood tide at Deepwater Point would have an average
9 DO ranging from 9.5 to over 10 mg/L, with a minimum DO level of 4.5. Then, still using the
10 Deepwater Point data, the Hearing Examiner concluded that at the center of the raft array at
11 flood tide, there would be an average decrease in DO of 44% and a maximum decrease of 70%.
12 To arrive at a potential worst case scenario at the proposed NTI Farm, the Hearing Examiner
13 performed a mathematical calculation and applied the average 44% reduction found at
14 Deepwater Point under the rafts to the minimum incoming DO of 4.5 at Deepwater Point, and
15 concluded that the DO leaving the proposed rafts at the proposed NTI Farm could be as low as
16 2.52. The Hearing Examiner also concluded that the low DO conditions at NTI could persist for
17 a full tidal cycle (up to 6 hours) and that it could extend up to 656 feet from the raft. *Ex. P-1*, p.
18 28-29; *P-26*, pp. 2-3.

19 19.

20 The expert testimony of William Gardiner, and the report authored by Dr. Jack Rensel in
21 collaboration with William Gardiner and Jack Word, refute the Hearing Examiner’s analysis.

1 These experts opined that “while it is possible that DO levels inside the proposed mussel raft
2 could fall slightly below 5 mg/L for short periods of time in an infrequent, worst case condition,
3 the spatial and temporal extent of the decline at a comparison mussel raft at Deepwater Point
4 were demonstrably minor.” *Ex. P-26*, p. 2. The experts concluded that there were several
5 scientific flaws in the Hearing Examiner’s worst case scenario.

6 20.

7 First, the experts felt that while the proposed raft configuration at NTI Farm is similar to
8 the existing raft configuration at Deepwater Point and therefore data from Deepwater Point is
9 useful for analysis at NTI Farm, it is scientifically incorrect to directly extrapolate the data from
10 Deepwater Point to the NTI Farm. This is because there are major differences in DO, water
11 temperature, sediment quality, and tidal current velocity between the two locations. *Id.*, p. 2.
12 The North Totten Inlet where the proposed NTI Farm is to be located is the most well
13 oxygenated of all of the South Puget Sound Inlets, with DO levels rarely dropping below 9.0
14 mg/L. *Id.*, p. 7. A close analysis of the best available data from the proposed NTI site indicate
15 that persistently high DO concentrations occur in the critical September period, when low DO
16 values tend to occur in other deep water areas of Puget Sound. *Id.*, p. 10. *Gardiner Testimony*.

17 21.

18 Second, based on a re-evaluation of the data used in the NewFields report from
19 Deepwater Point, the experts concluded that DO consumption in the rafts was directly related to
20 ambient DO. From this relationship, the experts predicted that a large percentage consumption
21 of DO in the rafts will occur only when the ambient DO concentrations are already high.

1 Therefore, it is scientifically incorrect to apply a large percent consumption rate to low ambient
2 DO conditions, as the Hearing Examiner did in his worst case scenario analysis. *Gardiner*
3 *Testimony; Ex. P-26*, pp. 5-6.

4 22.

5 Third, the experts concluded that the temporal and spatial dimensions of the Hearing
6 Examiner's worst case scenario are scientifically incorrect. The majority of the data from
7 Deepwater Point support the conclusion that the DO concentrations rebound to background
8 concentrations within 230 feet. While there is a single measurement from Deepwater Point
9 where the DO measurement did not rebound within 230 feet, the experts conferred and agreed
10 that use of this data point was scientifically invalid because water measured at this distance from
11 the raft may or may not have passed through the mussel rafts or could have been flowing in
12 laterally from another direction. *Id.*, pp. 11-12. Further, the experts clarified based on analysis
13 of meter data from the proposed NTI Farm, that slack tides are extremely rare at this site and
14 average only 40.3 minutes per day, or 10 minutes per tidal change. *Id.*, p. 12. Therefore the
15 experts contradicted the conclusion of the Hearing Examiner that areas of depressed DO from the
16 NTI proposal could extend for 656 feet and could last up to 6 hours. *Id.; Gardiner Testimony.*

17 23.

18 Another area of the Hearing Examiner's findings disputed by the experts involved the
19 possibility of areas of low DO from the proposed NTI Farm overlapping with areas of low DO
20 from other existing farms, and the impacts this could have on fish. *Ex. P-1*, p. 57-58. The
21 experts explained that the 5 mg/L stress level cited in the FEIS is a "'threshold' gradual, gradient

1 effect level that increases in severity with both increasing time of exposure and numerical
2 departure to values less than the 5.0 mg/L threshold.” *Ex. P-26*, p. 13. The nature of exposure to
3 low DO from a mussel raft, however, is not a chronic occurrence, but instead is an ephemeral
4 condition which fish can swim around. *Id.* pp. 13-14. Further, the experts disagreed with the
5 Hearing Examiner’s contention that pockets of low DO were a risk at the proposed NTI Farm.
6 As stated in the expert report “There is no risk of dissolved oxygen reduction interactions among
7 sites nor is it possible for the effect to reemerge at some distance in a remote location (i.e. the
8 ‘pockets’ hypotheses of the Examiner).” *Id.*, p. 14. As further explained by the experts:

9 Dissolved oxygen in seawater is highly dynamic due to oxygen diffusion,
10 dispersion, atmospheric oxygen pressure, and oxygen production by marine plants
11 and algae and respiration by aquatic animals. So low DO zones in surface waters
12 (the so called ‘mixed layer’ of the sea) do not persist in Puget Sound or create
13 ‘pockets’ of low DO surface water as does occur occasionally along the Oregon
14 Coast, from upwelling of deep oceanic waters.

15 *Id.*, p. 14; *Gardiner Testimony*.

16 24.

17 A final area of concern raised by the Hearing Examiner involves potential impacts to
18 forage fish spawning from low DO concentrations. The Hearing Examiner concluded that the
19 evidence he was presented did not address the proximity of the proposed NTI Farm to sand lance
20 and surf smelt spawning areas. *Ex. P-1*, p. 73. In response, the experts performed additional
21 analysis from existing data and concluded based on the current direction in the area and the
distance to sand lance and surf smelt spawning areas that:

1 It is hard to envision a situation where spawning forage fish could be
2 significantly or even marginally influenced by low dissolved oxygen from the
proposed facility operation.

3 *Ex. P-2*, p. 17; *Gardiner Testimony*.

4 E. Benthic Community

5 25.

6 A third area of potential impact from the proposed NTI Farm that the Hearing Examiner
7 raised was to the benthic community⁶ beneath the proposed site. This potential impact was
8 extensively analyzed in the DEIS (pp. 3-32 to 3-36); the FEIS (pp. 1-18, 1-19), and three
9 additional expert reports prepared by Kenneth Brooks which were used in the preparation of the
10 DEIS and FEIS. *Exs. P-3; P-5*, Nos. 2, 3, and 4; *P-6*. The Hearing Examiner made extensive
11 factual findings on the question of potential harm to the benthic community, based on the
12 exhibits and testimony at the hearings before him, and entered related conclusions of law. *Ex. P-*
13 *1*, pp. 35-39 and 73-74. At the hearing before this Board, TSF presented the testimony of Dr.
14 Jack Word, an expert marine scientist and sediment toxicologist, and introduced into evidence a
15 report which Dr. Word helped prepare that specifically addressed the concerns raised by the
16 Hearing Examiner regarding the potential for impacts on the benthic community. *Word*
17 *Testimony; Exs. P-23, P-26*.

18 26.

19 The DEIS concluded that:

20
21 ⁶ The benthic community consists of the macroinvertebrates living on the bottom of the ocean. *Ex. P-1*, p. 19; *Ex. P-3*, p. G-1.

1 The environmental response of benthic organisms to intensive aquaculture, such
2 as the proposed additional mussel farm in North Totten Inlet, depends on
3 numerous factors such as the depth of water, local currents (direction and
speed), sediment grain size, dissolved oxygen concentrations in the benthic
boundary layer, and other currently recognized factors.

4 *Ex. P-3*, p. 3-34.

5 To characterize likely effects at the proposed NTI Farm, the drafters of the DEIS and
6 FEIS considered sampling information from the Deepwater Point Mussel Farm and the Gallagher
7 Cover Mussel Farm. The experts considered the Deepwater Point Mussel Farm to be similar, but
8 not identical, to the proposed NTI farm. *Word Testimony. Ex. P-3*, p. 3-34 and 3-35; *Ex. P-26*, p.
9 26.

10 27.

11 Dr. Brooks studied the Deepwater Point site in 2002 using a sampling program and video
12 recordings. He concluded that there were minor benthic effects associated with the intensive
13 mussel farming activities. He reached this conclusion based on the moderately high
14 concentrations of sulfide observed in July 2002, and the very high sulfide concentrations
15 observed in November 2002. These elevated levels were observed up to 148 feet from the
16 perimeter of the raft in July 2002, and 197 feet from the perimeter of the raft in November 2002.
17 However, low sulfide concentrations were measured under the rafts in March of 2002, which was
18 the beginning of the 2002 mussel production cycle, suggesting that chemical remediation was
19 essentially completed during the three month fallow period following the previous harvest. From
20 this, Dr. Brooks concluded that any adverse effects arising from the proposed NTI Mussel Farm
21 would not be long-term. *Ex. P-3*, pp. 3-34, 3-35; *Ex. P-26*, pp. 26, 27.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

28.

Dr. Brooks also observed that diverse and abundant surface-living megafauna dominated the benthic community under the Deepwater Point rafts. He concluded that the megafaunal community was likely enhanced by the residual organic material present in the particulate waste released from the mussel cultures. Dr. Word further elaborated in testimony at the hearing about the significance of the presence of a diverse and flourishing benthic community along with elevated sulfide concentrations. He explained that sulfide is a generic term, and that there are many different types of sulfides, some of which are toxic and some not. The presence of a diverse benthic community despite the high level of sulfide concentrations means that the organisms that were surviving were not “seeing” (i.e., not being detrimentally impacted by) the type of sulfides that were present. *Word Testimony, Ex. P-3, p. 3-34, 3-35. Ex. P-26; p. 26-27.*

29.

The FEIS, which relied on the Brooks studies, concluded:

Low sulfide and total volatile solids concentrations observed at Deepwater Point indicate that natural attenuation of substrate chemistry toward baseline conditions occurred very quickly with no evidence of cumulative effects. This suggests there would not be an adverse long-term effect on benthic invertebrates arising from the North Totten Inlet mussel farm.

Ex. P-6, p. 1-18.

30.

The Hearing Examiner questioned this conclusion, primarily because of evidence of the discovery of a white bacterial mat of *Beggiatoa* under the Gallagher Cove mussel rafts in November 2006. *Ex. P-1, p. 35.* The Hearing Examiner considered the development of

1 Beggiatoa under the Gallagher Cove mussel rafts an indication that Beggiatoa mats could
2 develop under the rafts at the proposed NTI Farm. He concluded that the County and TSF had
3 presented inadequate evidence at the County hearing because the area under other raft facilities
4 in Totten Inlet had not been examined for Beggiatoa. He was also concerned about the high
5 levels of sulfide concentrations measured at the Deepwater Point Mussel Farm. *Ex. P-1*, pp. 35-
6 39, 58-59, 83.

7 31.

8 Beggiatoa mats are composed of proteobacteria, a type of anaerobic bacteria. Both
9 aerobic and anaerobic bacteria are present at all times in all seabed sediments but their relative
10 abundance shifts with organic carbon input rates. Beggiatoa mats occur when there is excess
11 deposition of organic carbon beyond what the normally present aerobic bacteria can process.
12 Development of Beggiatoa indicates a decrease in biodiversity of the species in the benthic
13 community, which is considered an adverse impact. *Ex. P-26*, pp. 20, 21, 24-26.

14 32.

15 The expert testimony of Dr. Word, along with the expert report authored by Dr. Jack
16 Rensel in collaboration with Dr. Word, refutes the Hearing Examiner's conclusion that the
17 presence of Beggiatoa mats under mussel rafts in Gallagher Cove means they are likely to
18 develop under the proposed NTI Farm rafts. These experts, along with the other members of the
19 ITRC, did not consider impacts at the Gallagher Cove Farm to be indicative of the probable
20 effects of the proposed NTI Farm because the two sites are very different. *Word Testimony, Ex.*
21 *P-26*, p. 24. Instead, the ITRC team concluded that the Deepwater Point location more closely

1 resembled the proposed NTI Farm. *Id.*, p. 26. When Dr. Brooks examined the Deepwater Point
2 location on July 7, 2002, there were no *Beggiatoa* mats under the Deepwater Point rafts. As Dr.
3 Rensel observed in his report, this is the time of year when the mussels are near maximum size,
4 and *Beggiatoa* mats would occur if they were going to occur. *Id.*

5 33.

6 Dr. Word acknowledged that mussel rafts can have either positive or adverse impacts on
7 the underlying benthic community. In response to the Hearing Examiner’s concerns, Dr. Word
8 performed additional modeling addressing the likely effect of the proposed NTI Farm on the
9 benthic community beneath the proposed raft. His modeling takes into account the amount of
10 organic material that will be produced by the mussels, the existing benthic conditions at the
11 proposed NTI Farm, and the near bottom current conditions at NTI. Based on this model, he
12 concluded that the proposed NTI Farm is an optimal location for mussel rafts, and that it will
13 likely increase the biomass and diversity of species in the benthic community. Dr. Word also
14 relied on conclusions drawn by Dr. Brooks, which were based on studies done on currents at the
15 proposed NTI Farm, that “the North Totten Inlet site is very well flushed . . .” and that “waste
16 will be well dispersed. . . .” *Ex. P-5, No. 4, p. 3.* Dr. Brooks concluded that “assuming that
17 Taylor Resources continues to intercept mussel fall-off in horizontal nets, these results suggest
18 that any benthic effects would be ephemeral at peak biomass and minor in nature.” *Id.* Based on
19 his experience, Dr. Word does not expect that *Beggiatoa* mats will occur at or anywhere near the
20 proposed NTI site as a result of the proposed mussel rafts. *Word Testimony, P-26, p. 20-23, 26;*
21 *P-5, No. 4, p. 3.*

1 34.

2 There is information in other reports by Dr. Brooks that appears inconsistent with the
3 conclusion that the proposed NTI site is well flushed. In one report, Dr. Brooks describes the
4 subtidal areas of the NTI site as a “muddy bowl.” *See Ex. P-5, No. 4, p. 2.* In another, Dr.
5 Brooks characterizes sediment under the proposed NTI Farm as between 37.94 and 56.91 percent
6 fines, which seems inconsistent with the conclusion that the proposed NTI Farm is well flushed.
7 *Ex. P-5, No. 2, p. 7.* Dr. Word explained, however, that these numbers are not inconsistent, but
8 merely reflect samples at individual locations. The overall mean percentage of fines at the NTI
9 Farm based on an average of 24 locations was determined to be approximately 22 percent. *Ex.*
10 *P-5, No. 4, p. 3.* Further, current speeds at the proposed NTI Farm site were measured in the
11 2006 Evans Hamilton report. Peak currents were measured from 25 to 50 cm/sec, with the depth
12 averaged velocity generally ranging from 5 cm/sec to 25 cm/sec. *Ex. P-5, No. 9, p. 8; Word*
13 *Testimony.* Weight is given to Dr. Word’s analysis and hearing testimony, and the Board finds it
14 sufficient to address the apparent inconsistencies raised by Dr. Brooks’ analysis.

15 F. Cumulative impacts

16 35.

17 The Hearing Examiner identified a final area of concern--the potential for cumulative
18 impacts from the proposed NTI Farm, along with other aquaculture operations in Totten Inlet on
19 DO, benthic life, and from the spread of Gallo Mussels. *Ex. P-1, p. 89.* While the FEIS did not
20 contain a separate cumulative impacts analysis section, it did consider cumulative impacts
21 through a “carrying capacity” analysis of Totten Inlet. *Ex. P-6, pp. 1-24 through 1-30.*

1 36.

2 The carrying capacity analysis of Totten Inlet for shellfish aquaculture involved studying
3 the chemical and biological water column effects over a period of several years to identify the
4 anticipated effects of the addition of the proposed NTI Farm to existing environmental
5 parameters within Totten Inlet. The ITRC peer reviewed the results of this analysis. *Ex. P-6*, p.
6 1-24. The FEIS concluded that no significant unavoidable adverse impacts to the carrying
7 capacity of Totten Inlet were identified. The experts opined that when the NTI Farm is at full
8 production, Totten Inlet will be at approximately 10 percent of its predicted carrying capacity for
9 suspension feeders. *Id.*, p. 1-29. Further, the experts concluded that water quality in Totten Inlet
10 has not declined in the last 10 years, and in 2008 it achieved the highest water quality rating from
11 the Department of Ecology. *Id.* pp. 1-27, 1-28. The FEIS concluded “[t]here is no scientific
12 basis that the alleged cumulative water quality impact of shellfish aquaculture in Totten Inlet will
13 result in a cumulative impact to forage fish or general water quality in Totten Inlet.” *Id.*, p. 1-30.

14 37.

15 The DO demands of other aquaculture practices in Totten Inlet were also considered
16 because the DO data that was collected and analyzed for the proposed NTI Farm included the
17 DO affects from all aquaculture ongoing at that time. As stated by the experts, “[i]n this manner,
18 the cumulative effects of all aquatic animal respiration was necessarily considered.” *Ex. P-26*, p.
19 15; *Gardiner Testimony*.

20 38.

21 Any Conclusion of Law deemed to be a Finding of Fact is hereby adopted as such.

1 CONCLUSIONS OF LAW

2 1.

3 The Board has jurisdiction over this matter pursuant to RCW 90.58.180. TSF has the
4 burden of proof. RCW 90.58.140(7). The scope and standard of review for this matter is *de*
5 *novo*. WAC 461-08-500(1).

6 2.

7 The parties have identified three narrowly drawn, technical issues for the Board to
8 address.

- 9 1. Did Thurston County err in denying a shoreline substantial development permit
10 for the proposed Taylor Shellfish North Totten Inlet Mussel Farm on the basis
11 that a formal cumulative impacts analysis should have been performed pursuant to
12 the Shoreline Management Act, specifically regarding dissolved oxygen, the
13 effects on benthic life of *Beggiatoa* and sulfide levels, and the spreading of or
14 genetic pollution by Gallo mussels, particularly considering an Environmental
15 Impact Statement prepared for the mussel farm concluded the mussel farm would
16 not result in any significant adverse environmental impacts?
- 17 2. Did Thurston County err in denying a shoreline substantial development permit
18 for the proposed Taylor Shellfish North Totten Inlet Mussel Farm on the basis
19 that additional information regarding the mussel farm's potential effects on
20 benthic life through sulfide levels, deposition of organic material and generation
21 of *Beggiatoa* was required, particularly considering an Environmental Impact
Statement prepared for the mussel farm concluded the mussel farm would not
result in any significant adverse environmental impacts?
3. Did Thurston County err in denying a shoreline substantial development permit
for the proposed Taylor Shellfish North Totten Inlet Mussel Farm on the basis
that additional information regarding the mussel farm's potential spread or
hybridization of Gallo mussels was required, particularly considering an
Environmental Impact Statement prepared for the mussel farm concluded the
mussel farm would not result in any significant adverse environmental impacts?

1 A. Issue No. 1: Cumulative Impacts

2 3.

3 Thurston County denied the SSDP on the basis that the County had not properly
4 considered cumulative impacts of this project and other projects on DO, benthic life, and the
5 potential for the spread of Gallo Mussels. TSF challenges this decision.

6 4.

7 While processing the SSDP for the NTI Farm proposal, the County conducted a SEPA
8 review, which resulted in the preparation of a DEIS and FEIS. These documents analyzed,
9 among other questions, the potential environmental impacts from the proposed NTI Farm on DO,
10 benthic life, and the potential for the spread of Gallo Mussels. The DEIS and FEIS reached
11 conclusions in all of these areas that the proposal would not cause significant unavoidable
12 adverse impacts.

13 5.

14 The FEIS also addressed whether a cumulative impacts analysis was legally required
15 under SEPA for this proposal. WAC 197-11-060(4)(d)-(e)(noting the impacts to be analyzed in
16 an EIS include, direct, indirect, and cumulative impacts). Under SEPA, the scope of any required
17 cumulative impacts analysis has been found to be bounded by the interrelationship of the
18 proposal with other existing or future proposals that are not hypothetical or speculative. See,
19 e.g., *Gebbers v. Okanogan County Public Utility District No. 1*, 144 Wn. App. 371, 380, 183
20 P.3d 324 (2008); *Boehm v. City of Vancouver*, 111 Wn. App. 711, 720, 47 P.3d 137 (2002).
21 Applying this limitation, and based on the fact that the NTI Farm proposal was not in an area

1 affected by any other existing or planned proposal nor was any other proposal dependent on the
2 NTI Farm, the County concluded that there were no cumulative impacts to evaluate under SEPA
3 related to the proposed mussel farm. *Id.*

4 6.

5 While the scope of the formal cumulative impacts in the FEIS was based only on meeting
6 the requirements of SEPA, the DEIS and FEIS did consider cumulative impacts more broadly in
7 other parts of the analysis. For example, the DEIS and FEIS specifically addressed the carrying
8 capacity of Totten Inlet for shellfish aquaculture. The purpose of this inquiry was to provide
9 decision makers with information about the Inlet’s overall capacity “given the large number of
10 existing shellfish operations in North Totten Inlet and the potential for shellfish aquaculture uses
11 to increase.” *Ex. P-6*, p. 1-24. The FEIS concluded there were no significant unavoidable
12 adverse impacts to the carrying capacity of Totten Inlet. The FEIS also concludes that “there is
13 no scientific basis that the alleged cumulative water quality impact of shellfish aquaculture in
14 Totten Inlet will result in a cumulative impact to forage fish or general water quality in Totten
15 Inlet.” *Ex. P-6*, p. 1-30.

16 7.

17 The adequacy of the DEIS and FEIS, and therefore its analysis and assumptions
18 regarding potential impacts and the proper scope of cumulative impacts analysis under SEPA,
19 were not appealed by any party and therefore must be accepted by the Board for purposes of the
20 SEPA analysis in this case. *See* WAC 197-11-680(3)(a)(v) (Challenge to the adequacy of an
21 FEIS must be raised at the same time as the administrative appeal of the underlying

1 governmental action). However, this does not limit the Board’s authority to grant or deny the
2 SSDP “based on environmental impacts reviewed under legislation other than SEPA.” *Bellevue*
3 *Farm Owners Association v. SHB*, 100 Wn. App 341, 352, 353. 997 P.2d 380 (2000), *rev.*
4 *denied*, 142 Wn. 2d 1014 (2000). As the SHB clarified in another case involving noise impacts:

5 [T]he adequacy of noise analysis under SEPA and whether the noise impacts of
6 a project complies with a shoreline master program and SMA are different
7 questions. SEPA review does not preclude environmental review under different
8 statutory schemes, and should not be used as a substitute for other land use
9 planning and environmental requirements. *See Bellevue Farm Owners*
10 *Association v. Shorelines Hearings Board*, 100 Wn. App. 341, 354-355 (2000).

11 *Preserve our Islands v. King County*, SHB No. 04-009, 04-010 (2004)(CL 15).

12 8.

13 The parties raised the issue of cumulative impacts in this case (Issue No. 1) under the
14 Shoreline Management Act (SMA) and not under SEPA. Therefore, the conclusions in the DEIS
15 and FEIS documents are not binding on the Board for purposes of its analysis of cumulative
16 impacts under the SMA. However, the Board cannot ignore as an evidentiary matter that the DEIS
17 and FEIS contain a wealth of peer-reviewed scientific analysis focused specifically on the expected
18 impacts from the NTI Farm. Therefore this information must be considered, along with other
19 scientific evidence offered at the hearing, to analyze the question of cumulative impacts under the
20 SMA.

21 9.

Consideration of cumulative impacts is not a listed requirement for review of an SSDP as
it is for shoreline conditional use permits and variances. *See WAC 173-27-150, -160, -170.*

1 Further, the Board has stated that a cumulative impacts analysis is not required for an SSDP
2 approval under the SMA. *Coalition to Protect Puget Sound Habitat v. Pierce County*, SHB No.
3 11-019 (2012)(CL 15). However, the Board has also held that it is not precluded from
4 considering cumulative impacts in its review of an SSDP in some circumstances. *Fladseth v.*
5 *Mason County*, SHB No. 05-026 (2007)(CL 13).

6 10.

7 Some of the factors the Board has considered in determining whether a cumulative
8 impacts analysis is warranted include whether a shoreline of statewide significance is involved,
9 and whether there is potential harm to habitat, loss of community use, or a significant
10 degradation of views and aesthetic values. *Coalition*, at CL 15. In other cases, the Board has
11 considered whether a project would be a “first of its kind” in the area (*Roller v. Pierce County*,
12 SHB No. 06-016 (2006)(CL 9)); and whether there is some indication of additional applications
13 for similar activities in the area (*Franzen v. Snohomish Co.*, SHB Nos. 87-5 & 87-6(1988)(CL
14 16)). In a recent geoduck aquaculture case, the Board concluded that “each separate geoduck
15 aquaculture proposal will need to be reviewed on its own particular site characteristics” and then
16 rejected the need for a cumulative impacts analysis under the SMA, given the circumstances of
17 the particular site, which was not a shoreline of statewide significance, and where there was no
18 evidence that similar projects would be proposed or approved near the farm in that case.

19 *Coalition* at FF 21, CL 15.

11.

2 In this case, the proposed NTI Farm is in a shoreline of statewide significance because it
3 is seaward of the line of extreme low tide. RCW 90.58.030. There is little evidence in the
4 record, however, to support a showing that there is a risk of harm to habitat. The bulk of the
5 scientific evidence in the record comes from the DEIS and FEIS, which reached the conclusion
6 that there would not be significant adverse environmental impacts. In addition to the DEIS and
7 FEIS, the Board heard testimony from three well qualified experts addressing the potential for
8 both singular and cumulative effects based on impacts on DO, benthic life, and the potential for
9 Gallo dissemination. These experts all refuted concerns regarding adverse environmental
10 impacts from the mussel rafts, including adverse cumulative effects based on other shellfish
11 aquaculture in Totten Inlet. The DEIS, the FEIS, and the testimony of the experts does not
12 support a conclusion that there is a risk of harm to habitat. Further, the NTI Farm is not the first
13 of its kind in this area because there are two existing mussel rafts in Totten Inlet and Totten Inlet
14 hosts various other aquaculture facilities. There are also no other pending applications for
15 floating aquaculture facilities in the surrounding three-county area. Therefore, none of these
16 criteria the Board has considered in past decisions, with the exception of the fact that this is a
17 shoreline of statewide significance, points to the need for further cumulative impacts analysis
18 under the SMA.

12.

20 The Board also considers whether the local SMP requires a cumulative impacts analysis
21 be completed prior to the approval of an SSDP. In *Fladseth*, the Board found that the Mason

1 County SMP required a cumulative effects analysis as part of an SSDP for a pier or dock.

2 *Fladseth, at CL 14.* In this case, the Thurston County SMP Section 2, Chapter V, Regional

3 Criterion B (Criterion B) states:

4 Protection of water quality and aquatic habitat is recognized as a primary goal.
5 All applications for development of shorelines and use of public waters shall be
6 closely analyzed for their effect on the aquatic environment. Of particular
concern will be the preservation of the larger ecological system when a change
is proposed to a lesser part of the system, like a marshland or tideland.

7 This policy requires proposals in Thurston County to be analyzed for their effects on the aquatic
8 environment. If there had not been the type of analysis done in the DEIS and FEIS of carrying
9 capacity and dissolved oxygen, and the use of data which included existing environmental
10 parameters, the Board would have questions regarding whether Criterion B had been met.

11 However, the record before the Board contains extensive analysis of the potential for impacts on
12 water quality and aquatic habitat.

13 13.

14 Another consideration for the Board is the type of use being proposed, and whether it is a
15 favored or disfavored use. Here, aquaculture is a desired and preferred water-dependent use. In
16 the recent *Coalition* decision, the Board stated:

17 Aquaculture is a desired and preferred water-dependent use of the shoreline.
18 *Cruver v. San Juan County and Webb*, SHB No. 202 (1976). Aquaculture is of
19 statewide interest and benefit, and when properly designed and managed, does
not impose on navigation or recreational uses of nearshore waters and does not
20 interfere with shoreline and upland residential uses. *Penn Cove Seafarms v.*
Island County, SHB No. 84-4 (1984) at 9. The State identifies aquaculture as an
21 activity of statewide interest, and when properly managed, an activity that can
result in long term over short-term benefit and protection of the resources and
ecology of the shoreline. *Marnin and Cook v. Mason County and Ecology*, SHB

1 No. 07-021 (Modified Findings of Fact, Conclusions of Law, and Order, Feb. 6,
2008) (referencing WAC 173-27-241(3)(b)).

2 *Coalition at CL 12.*

3 14.

4 In this case there is a large quantity of scientific evidence contained in the unchallenged
5 DEIS and FEIS; an analysis in the DEIS and FEIS of the carrying capacity of the Inlet, which
6 took into account existing environmental parameters in the Inlet; and several expert opinions in
7 the record that there will not be significant impacts to DO, the benthic community, or to the
8 native *Trossulus* mussel from the mussel raft itself or on a cumulative basis, considering other
9 shellfish aquaculture in Totten Inlet. In contrast, there is no evidence including expert opinion to
10 support the need for a formal cumulative impacts analysis. Given these factors, and the preferred
11 water-dependent use at issue, the Board concludes that there is no need for additional cumulative
12 impacts analysis to comply with the requirements of the SMA.⁷

13 B. Issue No. 2: Benthic impacts

14 15.

15 Thurston County denied the SSDP on the basis that the evidence was insufficient to show
16 that the proposed NTI Farm would not have adverse impacts on the benthic community.
17 Therefore, the Hearing Examiner concluded that the proposal did not satisfy Criterion B, which
18 requires protection of water quality and aquatic habitat. TSF challenges this decision. The
19 evidence in the record supports TSF's position on this issue.

20 _____
21 ⁷ APHETI contends that the EIS predicts that the NTI Farm will violate water quality standards. The issue of compliance with water quality standards, however, is not one of the designated issues before the Board in this appeal.

1 16.

2 Mussel rafts can have either positive or adverse impacts on the benthic community
3 beneath the raft. The nature of the impact depends on how numerous factors such as the depth of
4 water, local currents (direction and speed), sediment grain size, and DO concentrations in the
5 benthic boundary layer. The evidence before the Board establishes that this issue was
6 thoroughly considered by qualified experts, and that they concluded there would not be adverse
7 impacts to the benthic community. In their opinion, the NTI Farm is in a well flushed area of
8 North Totten Inlet that is well suited for use as a mussel farm. No other experts refuted those
9 conclusions.

10 17.

11 The development of *Beggiatoa* mats under the mussel raft at Gallagher Cove is cause for
12 concern. While all of the expert opinion in the record supports a conclusion that the Gallagher
13 Cove location is different in significant ways from the proposed NTI Farm, and that because of
14 these differences, the proposed NTI Farm should not have an adverse impact on the benthic
15 community, there are comments and data in the record about the NTI Farm that are troubling.
16 For example, Dr. Brooks describes the subtidal areas of the NTI site as a “muddy bowl.” FF 34,
17 *supra*. There is also evidence that at least in some specific locations under the proposed NTI
18 Farm there is a high percentage of fines (37.94 to 56.91 percent) indicating slower currents. *Id.*
19 Other evidence in the record of concern is the high levels of sulfides reported under the
20 Deepwater Point mussel rafts, a site that is more similar to the proposed NTI Farm than the
21 Gallagher Cove site. FF 27, *supra*. These high sulfide levels at Deepwater Point were observed

1 when the mussels were near the end of the growing season, and the levels had dropped by the
2 start of the next mussel production cycle, which indicates that a natural chemical remediation
3 process has occurred. Further, there was still a diverse and abundant surface-living megafauna
4 dominating the benthic community under the Deepwater Point rafts. The Board gives weight to
5 Dr. Word's testimony explaining the concerns raised by Dr. Brooks' analysis while also
6 concluding that an additional condition that requires monitoring will best protect the shoreline
7 environment surrounding the mussel farm. Imposing such a condition is consistent with properly
8 protecting the shorelines in question under the SMA and SMP.

9 C. Mussel Genetics

10 18.

11 Thurston County denied the SSDP on the basis that the evidence was insufficient to show
12 that the proposed NTI Farm would not have adverse impacts on the native mussel by causing the
13 spread of the cultivated mussel. Therefore, the Hearing Examiner concluded that the proposal
14 did not satisfy Criterion B, which requires protection of water quality and aquatic habitat. TSF
15 challenges this decision.

16 19.

17 The Board concludes that the Western Gallo Mussel, which is the mussel TSF plans to
18 cultivate at the NTI Farm, is not an invasive species in Totten Inlet. The letter written by USFW
19 expressed concerns about the cultivation of the Mediterranean Gallo Mussel, which is genetically
20 different from the Western Gallo Mussel and is considered an invasive species in some places.
21 The letter, therefore, is not relevant to the NTI Farm. The Board concludes based on unrefuted

1 expert testimony that the proposed NTI Farm will not cause impacts due to dissemination of the
2 cultivated mussel.

3 20.

4 Any Finding of Fact deemed to be properly considered a Conclusion of Law is hereby
5 adopted as such.

6 Based upon the foregoing Findings of Fact and Conclusions of Law, the Board enters the
7 following:

8 ORDER

9 1. Thurston County's denial of the SSDP for the NTI Farm is reversed. The SSDP is
10 remanded to Thurston County for approval and issuance, with all conditions imposed by the
11 Thurston County Hearings Examiner at pp. 92 through 93 of his July 19, 2012 decision. *See P-1*,
12 pp. 92-93.

13 2. An additional condition shall be added to the approved SSDP as follows:

14 Prior to operation of the NTI Farm, the permittee shall submit to Thurston County for
15 approval a monitoring plan consistent with the Taylor Shellfish Farms Environmental
16 Code of Practice (which needs to be incorporated into and attached to the permit
17 issuance). The plan, at a minimum, shall include:

- 17 A. Annual benthic sampling under the mussel farm rafts to determine whether
18 any impacts to the benthic flora and fauna in excess of those anticipated in the
19 EIS have occurred.
- 18 B. Annual vertical profiles of the water column adjacent to mussel farms to
19 measure potential changes in dissolved oxygen concentrations for an extended
20 period in excess of those anticipated in the EIS.
- 20 C. Provisions for the periodic inspection and removal of mussel fall-offs and all
21 unnatural and non-biodegradable materials that accidentally fall from rafts and
work areas onto the seafloor, as well as periodic inspection and immediate
removal of any *Beggiatoa* that forms around any of the mussel rafts.

- 1 D. The plan shall also include specific measures designed to remediate
2 unanticipated impacts to the benthic community identified through the
3 implementation of the monitoring plan.
4 E. Monitoring shall include surveys that measure at a minimum the following
5 parameters: sulfides, REDOX potential, total volatile solids, sediment grain
6 size, presence or absence of gas bubbles, Beggiatoa, pseudofeces, feces, farm
7 litter, and benthic and infaunal biotic samples.
8 F. The monitoring plan shall address what actions TSF will be required to take to
9 minimize risks to aquatic life and habitat in excess of those anticipated in the
10 EIS.

11 All required monitoring shall be conducted by TSF or its consultants consistently
12 with accepted scientific standards and at a scientifically appropriate number of sites to
13 be determined in the approved monitoring plan that are located directly underneath,
14 adjacent to NTI Farms, and at least 1 km away from the actual NTI site.

15 TSF shall provide the results from the annual monitoring and surveys to Thurston
16 County Resource Stewardship Department (TCRSD) within 10 days of completion.
17 Thurston County shall review the information, and if it determines that the aquatic
18 habitat of Totten Inlet may be at substantial risk of adverse impacts on the benthic
19 community in the vicinity of the mussel farm or with respect to changes in dissolved
20 oxygen concentrations in excess of those anticipated in the EIS, based on the surveys
21 or other reports and analysis, Thurston County may impose additional conditions on
the operation of the NTI Farm. If the County determines that the annual reports
indicate no adverse impacts with respect to the monitored parameters and conditions
for five or more consecutive monitoring years, it may allow TSF to modify the plan to
allow for monitoring once every five years, rather than annually.

SO ORDERED this 17th day of June, 2013.

SHORELINES HEARINGS BOARD

KATHLEEN D. MIX, Chair

TOM MCDONALD, Member

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

PAMELA KRUEGER, Member

See Concurring Opinion
GRANT BECK, Member

PETER PHILLEY, Member

Kay M. Brown
Administrative Appeals Judge