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From: Vicki Morris

Re: **Hearing Examiner Findings of Fact, Conclusions of Law and Decision in the Matter of the Taylor Resources Proposal for Expansion of Mussel Culture in Totten Inlet**

Date: August 28, 2001 Number of Pages (including cover sheet): 16

The Findings and Conclusions of the Thurston County Hearing Examiner (June 1999) in the appeal of the SEPA Determination of Significance on the North Totten Inlet Mussel Culture expansion proposal is the guidance for the technical work to be performed for the EIS. In case you have not previously received a copy of this document, I am faxing it to you now, as I would like to briefly discuss it during the conference call tomorrow.

If you have a limited amount of time to review the Hearing Examiner's report, you can focus on the Findings of Fact (pages 6 through 13) and Conclusions (pages 13 and 14), or the Conclusions only. It is Conclusion #9 on page 15 that specifies the information to be generated for the impact analysis. This is the purpose of the aquatic environment technical studies. Your guidance is requested to be sure these studies produce information that will answer these questions.

cc: Roger Giebelhaus

**BEFORE THE HEARING EXAMINER  
OF THURSTON COUNTY**

In re the Matter of the Administrative Appeal	)	
	)	NO. AAPL-98-0809
of the	)	
	)	FINDINGS OF FACT,
Taylor Resources, Inc.	)	CONCLUSIONS OF LAW
_____	)	AND DECISION

**SUMMARY OF DECISION**

Thurston County's administrative decision of the environmental threshold Determination of Significance requiring Taylor Resources, Inc. to prepare an Environmental Impact Statement in conjunction with application for a shoreline substantial development permit for the construction and expansion of two mussel raft installations on Totten Inlet is affirmed.

**INTRODUCTION**

Taylor Resources (Appellant) operates a mussel farm operation in the waters of Totten Inlet in the lower reaches of Thurston County. On November 13, 1996 the Appellant applied to Thurston County for approval of a Shoreline Substantial Development Permit (SSDP) for expansion of the operation. The expanded operation included retention of twenty-one existing mussel rafts (the existing site) and fifty-eight rafts located north of Gallagher Cove within Totten Inlet (North Totten file). The resulting operation will have seventy-nine rafts.

After state, federal and local input the County assumed the role of lead agency for the State Environmental Policy Act (SEPA) review. On September 14, 1998, the County issued a Determination of Significance (DS) which required preparation of an Environmental Impact Statement (EIS) for the proposed project. On September 28, 1998, a timely appeal of the DS was filed by the Appellant.

Numerous pre-hearing conferences were held in this matter (October 7, 1998, December 16, 1998, and March 19, 1999). Among the issues considered prior to the hearing was a motion of intervention by an organization identified as the Association for the Protection of Hammersley, Eld and Totten Inlets (APHETI). Upon a showing of standing APHETI was made a party to the hearing. *Exhibit 1, Attachment cc.*

After the pre-hearing conferences and scheduling were complete, three days of hearing were held March 22, 1999 through March 24, 1999.

**COPY**

**SENT**  
DATE: 6-21-99 AB

At the hearing the following presented testimony and evidence:

Robert Giebelhaus of Development Services  
Jeff Fancher, Thurston County Prosecuting Attorney  
David Mann  
Dr. Michael Polluck  
Bill Dewey  
Robert Johnson  
Diane Cooper  
Dr. Kenneth Brooks  
Robert Sizemore  
Richard Dame  
Captain Raymond Holstad  
Diane Cooper  
Sal Elguera  
Cindy Pitcher  
Anita Woodnutt  
Dr. John Pitts  
Don Larson  
Lee Ruddy  
Julia Walker  
Francis Walker  
David McMillin  
Dr. Gene Blaney  
Alan Jangard  
Dave Losey  
Don Atchinson  
Charlie Stevens  
Rex McDowell  
Jim Gibbins  
Vern Morgus  
Jack Ziemke  
Irene Degler  
Peter Frobe

At the hearing the following exhibits were submitted and were admitted as part of the official record:

Exhibit 1:       Development Services Report  
          Attachment a:   Notice of Public Hearing  
          Attachment b:   Appeal of Determination of Significance  
          Attachment c:   Determination of Significance  
          Attachment d:   Environmental Checklist

- Attachment e: August 17, 1998 Comment Letter from Department of Fish and Wildlife
- Attachment f: October 2, 1998 Comment Letter from Department of Fish and Wildlife
- Attachment g: October 22, 1998 Comment Letter from United States Environmental Protection Agency
- Attachment h: October 15, 1998 Comment Letter from United States Department of the Interior
- Attachment i: June 24, 1998 Letter to Taylor Resources from Development Services
- Attachment j: June 26, 1998 Letter from Taylor Resources
- Attachment k: July 8, 1998 Letter to Taylor Resources from Development Services
- Attachment l: September 1, 1998 Letter to Taylor Resources from Development Services
- Attachment m: Visual Impact and Ecological Concerns Assessment for the Totten Inlet Mussel Rafts Project prepared by EDAW (Planning/Environmental consulting firm) dated January 1998
- Attachment n: Marine Mussels: Their Ecology and Physiology, edited by B.L. Bayne. This report has other attachments that include: other reports, scientific articles, and letters
- Attachment o: Totten Inlet Mussel Raft Project Update prepared by Diane Cooper which includes a Scope of Services document and various letters with a beginning date of August 1997
- Attachment p: Memorandum of Official Comments divided into two separate reports and analysis. The first report was prepared by Michael M. Pollack of Gamma Environmental and the second report prepared by Anita Woodnut of APHETI, dated May 18, 1998
- Attachment q: Visual Impact Analysis and Navigation Concerns Assessment prepared by APHETI on May 22, 1998.
- Attachment r: Comments on the proposed Totten Inlet Mussel Raft Project expansion and Visual Impact and Ecological Concerns Assessment for the Totten Inlet Mussel Rafts Project prepared by Michael M. Pollock Ph.D. Gamma Environmental Analysts, dated June 1998
- Attachment s: Environmental Report: Causes For Concern Regarding Tidal Flushing Carrying Capacity Waste Production with Expanded Mariculture In South Puget Sound prepared by Anita Woodnut, Environmental Committee, dated May 2, 1997
- Attachment t: Environmental Report Addendum: Ecological Change Mussel Colonization Incompatibilities Intervention submitted by Anita Woodnut dated May 22, 1997
- Attachment u: October 12, 1998 Pre-hearing Order
- Attachment v: November 4, 1998 Letter from Francis Walker

- Attachment w: November 9, 1998 Thurston County's Motion to Dismiss Appeal
- Attachment x: November 20, 1998 Memorandum in Response to Motion to Dismiss from Robert Johnson
- Attachment y: November 24, 1998 Thurston County's Rebuttal to Taylor Resources' Responsive Memorandum
- Attachment z: January 14, 1999 Pre-hearing Order
- Attachment aa: January 11, 1999 Disclosure of Witnesses
- Attachment bb: January 19, 1999 Motion of APHETI to Intervene In Administrative Appeal
- Attachment cc: January 25, 1999 Hearing Examiner Order
- Attachment dd: January 27, 1999 Hearing Examiner Order
- Attachment ee: February 2, 1999 Motion to Extend Time of Filing Pre-hearing Statement
- Attachment ff: February 17, 1999 Appellant's Pre-hearing Statement
- Attachment gg: February 26, 1999 APHETI's Motion for clarification of Scope of Review and/or Continuance
- Attachment hh: February 26, 1999 Appellant's Response to Motion for clarification and/or Continuance
- Attachment ii: February 28, 1999 Comment Letter from Francis Walker
- Attachment jj: March 2, 1999 Designation of Supplemental Documents for Appeal
- Attachment kk: March 3, 1999 Order Denying Motion of Clarification of Scope of Review and Motion for Continuance
- Attachment ll: Comment Letters from Agencies Submitted after the Determination of Significance
- Attachment mm: Comment Letters from Members of APHETI Submitted after the Determination of Significance
- Attachment nn: Comment Letter from Citizens Submitted after the Determination of Significance
- Exhibit 2 APHETI's Pre-hearing Statement, Dated March 10, 1999
- Exhibit 3 Designation of Supplemental Documents for Appeal
- Exhibit 4 March 21, 1999 Letter from Fritz Mondau
- Exhibit 5 March 21, 1999 Letter from Barbara Mondau
- Exhibit 6 March 21, 1999 Letter from Patrick McHale
- Exhibit 7 March 15, 1999 Letter from Chris Mondau with July 31, 1997 Letter from Department of Fish and Wildlife and July 28, 1997 Letter from Chris Mondau to Department of Fish & Wildlife Attached
- Exhibit 8 March 16, 1999 Letter from Jackie White
- Exhibit 9 March 16, 1999 Letter from Greg and Cindy Pitcher
- Exhibit 10 March 15, 1999 Letter from Don and Irene Degler
- Exhibit 11 March 17, 1999 Letter from Byron Skaurud
- Exhibit 12 March 18, 1999 Letter from Terry Olson
- Exhibit 13 March 15, 1999 Letter from Douglas and Zella Honeyford

- Exhibit 14 March 17, 1999 Letter from Chris and Jenny Schmidt
- Exhibit 15 March 19, 1999 Letter from Elizabeth Mrkvicka
- Exhibit 16 March 16, 1999 Letter from Economic Development Council of Mason County
- Exhibit 17 March 15, 1999 Letter from Gayle and Rich Hammermaster
- Exhibit 18 March 15, 1999 Letter from Peter White
- Exhibit 19 March 16, 1999 Letter from Andy and Jerry Holen
- Exhibit 20 March 20, 1999 Letter from Jack and Hyon Cha Ziemke
- Exhibit 21 March 14, 1999 E-mail Letter from Frank Dare
- Exhibit 22 March 11, 1999 Letter from Lou and Willi Schmidt
- Exhibit 23 March 10, 1999 Letter from Natural Resources
- Exhibit 24 March 15, 1999 Letter from Virginia Biscay
- Exhibit 25 March 15, 1999 Letter from Sally Jo Hancock
- Exhibit 26 March 13, 1999 Letter from Ward and Rita Willits
- Exhibit 27 March 15, 1999 Letter from John Jordan
- Exhibit 28 March 19, 1999 Comment from Gary Rauser
- Exhibit 29 March 19, 1999 Comments Submitted by Jim Stein
- Exhibit 30 March 21, 1999 Letter from Margaret Frederick
- Exhibit 31 March 15, 1999 Letter from Chuck Lyden
- Exhibit 32 March 21, 1999 Letter from Ray and Martha Johnston
- Exhibit 33 March 15, 1999 Letter from Janet Nakamura
- Exhibit 34 Observation by Fritz Mondau (no date)
- Exhibit 35 Jack Ziemke Statement
- Exhibit 36 Aerial Photograph of Totten Inlet (will be kept by Taylor Resources)
- Exhibit 37 Site Specific Proposals
- Exhibit 38 March 15, 1999 Letter from Cooper Point Association
- Exhibit 39 March 22, 1999 Letter from Dr. Gene Blaney
- Exhibit 40 April 15, 1997 Letter from Taylor Resources, with Several Attachments
- Exhibit 41 Nautical Chart of South Puget Sound (to be kept by APHETI)
- Exhibit 42 Navigational Light (to be kept by Taylor Resources)
- Exhibit 43 March 18, 1999 Letter from Professor Roger Mann
- Exhibit 44 Diving Map of Elguera
- Exhibit 45 Photographs Submitted by Cindy Pitcher
- Exhibit 46 Nitrogen Chart for Puget Sound
- Exhibit 47 Map of Puget Sound
- Exhibit 48 Graph of Water Sills in Puget Sound
- Exhibit 49 May 5, 1998 Memorandum from Ray Buckley to Dave Knutzen of Department of Fish and Wildlife
- Exhibit 50 March 20, 1999 Letter from Kevin Gilge
- Exhibit 51 Designation of Supplemental Documents for Appeal Submitted by Robert Johnson for Taylor Resources
- Exhibit 52 March 18, 1999 E-mail Letter from Dr. Michael Pollock to Randy Shuman and the March 22, 1999 response
- Exhibit 53 Packet of Information Submitted by Anita Woodnut
- Exhibit 54 March 17, 1998 Letter from John Pitts

- Exhibit 55 Department of Ecology South Puget Sound Model Nutrient Study
- Exhibit 56 Correspondence that Diane Cooper Testified to
- Exhibit 57 APHETTI's Photographic Evidence
- Exhibit 58 Petition to the Department of Commerce from Fish & Wildlife Relating to Herring
- Exhibit 59 E-mail Submitted by Julia Walker
- Exhibit 60 March 22, 1999 Letter from Olympia Oyster Company
- Exhibit 61 March 22, 1999 Written Testimony of Dr. Gene Blaney
- Exhibit 62 Photographs Submitted by Dave Losey
- Exhibit 63 March 15, 1999 Letter from Mary Ann Gentle
- Exhibit 64 March 16, 1999 Written Testimony with Two Pictures Attached Submitted by Vern Morgus
- Exhibit 65 Written Comments from Darlene Ruddy
- Exhibit 66 December 23, 1998 Letter from Department of Fish & Wildlife to Bill Taylor
- Exhibit 67 Information Provided During Slide Presentation as Part of by Bill Dewey
- Exhibit 68 Objections to Exhibits Submitted by Settle & Johnson

Based upon the testimony and evidence submitted at the public hearing, the following constitute the Findings of Fact that have been developed by the review of the administrative record in this matter.

**FINDINGS OF FACT**  
History of Application

1. The Appellant operates a mussel farm, a commercial shellfish operation, in Totten Inlet which is located in the lower reaches of Puget Sound. On November 13, 1996 the Appellant applied to the County for approval of a Shoreline Substantial Development Permit for expansion of the existing mussel farm site from twenty-one rafts to forty-two rafts (existing site). In addition, the Appellant requested development of a second new mussel growing site on fifty-eight rafts proposed to be located at the north of Gallagher Cove within Totten Inlet (North Totten site). With expansion the structure of the existing site would cover an area of 3.13 acres. The new raft structure at the North Totten site would cover 3.38 acres. *Giebelhaus Testimony; Exhibit 1, Staff Report; Exhibit 1, Attachment c, Determination of Significance.*
  
2. The proposed mussel operation includes two sites in the Totten Inlet: the North Totten site and the existing site. The North Totten site was originally proposed to be 108 rafts, but in August 1997 the design was reduced and reconfigured with 58 rafts aligned in a single row extending waterward. The rafts at this site are projected to be 30 feet by 35 feet covering an area of approximately 1.4 acres. As part of the realignment the site was moved slightly southwest of the original site in order to mitigate potential impacts to the Washington Department of Natural Resources managed geoduck beds. *Giebelhaus Testimony; Mann Testimony.*

The existing site remains with the 21 rafts which have been redesigned to address Department of Fish & Wildlife concerns. All of the rafts will have a hard bottom plate that will allow the Appellant to directly regulate the depths of the nets in order to protect the substrate environment. *Exhibit 1, Attachment o; Cooper Testimony.*

3. After the Appellant submitted its application for the SSDP, and, pursuant to *RCW 43, Chapter 21(c)*, provided the SEPA checklist material to the County (*Exhibit 1, Attachment d*), meetings were held with the public to explain the proposal and obtain feedback. During the period of time that the public meetings were being held the County requested further assessment of the project to address potential impacts related to specific ecological concerns. The Appellant responded to the County's request by: preparing a Visual Impact and Ecological Concerns Assessment Report authored by EDAW, Inc. (*Exhibit 1, Attachment m*); moving the North Totten site to a lower bank area in order to reduce visual impact; and to reduce the size of the project from the 108 rafts to 58 rafts. A phasing of the project was also proposed.<sup>1</sup> *Giebelhaus Testimony; Exhibit 1, Staff Report.*
4. In the EDAW report discussion of the Gallo mussel was presented. In order to address issues relating to the Gallo mussel (see Finding No. 8 herein) the County requested information from appropriate State of Washington authorities about the capacity of the Totten Inlet to support the Gallo mussel, and what impact, if any, tidal flushing would have on it. The County was informed that no comprehensive studies have been conducted to establish the tidal flushing rate or the carrying capacity of the Totten Inlet system. *Exhibit 1, Attachment n.*
5. APHETI provided information by qualified experts to evaluate the claims of the experts of the Appellant. Upon receipt of this material, on May 4, 1998, the County issued a Notice of Revised Application requiring additional information to be submitted by the Appellant. At the same time the County contacted State agencies to obtain information relating to the Gallo mussel. In addition, a public hearing was held on May 18, 1998 for input regarding the Gallo mussel issue. *Giebelhaus Testimony.*
6. On June 26, 1998 the Appellant requested an early notice of the threshold determination from Thurston County. On July 8, 1998 the County submitted a letter to the Appellant identifying potential impacts associated with the revised mussel raft project (Finding No. 3 herein) and indicating that it was leaning toward an Environmental Impact Statement and a Declaration of Significance for the proposed project. Additional correspondence

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<sup>1</sup> The reduction of the initially proposed 108-raft structure north of the existing site to fifty-eight rafts was the result of negotiations that the Appellant had with APHETI. APHETI's concerns included aesthetic issues, the location of the proposed new raft on low bank waterfronts and other visual matters. In an attempt to address these aesthetic concerns, the location of the new raft was moved southwest of its original proposed location in a manner that would be adjacent to the low bank waterfront where rafts would be less visible. *Giebelhaus Testimony; Exhibit 1, Staff Report.*

between the County and the Appellant proved to be of no avail and the County ultimately issued the DS for the proposed project. *Giebelhaus Testimony; Exhibit 1, Staff Report.*

7. On September 14, 1998, Roger Giebelhaus, acting as the environmental review officer for Thurston County issued a DS for the proposed project. Mr. Giebelhaus and the County determined that the proposal had a “probable significant adverse impact on the environment and an environmental impact statement is required pursuant to RCW 43.21C.030(2)(c).” The decision was based upon a review of the environmental checklist submitted by the Appellant and other information filed with the County. *Exhibit 1, Attachment c.* On September 28, 1998, a Notice of Appeal was filed by the Appellant contending that the environmental review and the DS were in error and contrary to law for specific reasons. *Exhibit 1, Attachment b.*

#### Findings Relating to Mussels

8. Within the Totten Inlet different types of mussels exist including those in the Mytilid complex. The Baltic mussel (*mytilus edulis trossulus*), the Mediterranean mussel (*mytilus edulis gallo provincialis* – commonly called the “Gallo” mussel), and the Blue mussel (*mytilus edulis edulis*) are all part of the Mytilid complex. *Dame Testimony.* The Gallo mussel is less common in Puget Sound waters and is the type proposed to be farmed at the Appellant’s rafts. *Exhibit 1, Attachment n.*
9. The Gallo mussel and the Blue mussel are preferred aquaculture species that are sometimes found on the west coast of North America. The Gallo mussel is commonly found in the Mediterranean Sea at approximately 55° N, as well as on the west coast of North America in areas such as San Diego. It has also been found in sampling sites in British Columbia with an overall frequency on some studies of 6.2% of all mussels. There is, however, very little data that the Gallo mussel is native to the Washington shorelines. There have been some Gallo mussels found in Puget Sound, but they are not commonplace. No significant studies of the Gallo mussel in Puget Sound have been conducted. *Brooks Testimony; Exhibit 1, Attachment n.* The proposed rafts would significantly increase Gallo mussels in the Sound.
10. According to an expert (Dr. Ken Chew of the University of Washington) the Gallo mussel has been observed in small numbers in south Puget Sound since 1976.<sup>2</sup> The observations of Dr. Chew predate the mussel use in aquaculture in Washington State. Dr. Kenneth Brooks, the Appellant’s expert, testified that he had sampled the sands of Totten Inlet and it included samplings from eight locations. He indicated that this is not a significant number of samples, but it does provide enough information to determine that the impacts to the system will be insignificant. He described the area as “not a luxurious botanical area”. *Brooks Testimony; Exhibit 1, Attachment n.*

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<sup>2</sup> Apparently Dr. Chew’s observations were relayed to the Appellant’s expert, Dr. Brooks, by personal communication.

11. Dr. Brooks submitted that the calculations of Dr. Richard Dame, an aquatic environmental expert, in determining that the cleansing time of Totten Inlet of 8.8 days were appropriate. He, however, had no specific data with regard to this process. *Brooks Testimony.*
12. According to Dr. Brooks, observations of the Gallo mussel in British Columbia “suggest” that the mussel has the ability to reproduce in small numbers throughout the Pacific Northwest. Dr. Brooks stated that the accumulated evidence from northern Europe and the east coast of Canada “is” that while hybridization and gene flow can occur, competing members of the Mytilid complex (including Gallo mussels) do not dominate each other. He submitted that given what we know about the Mytilid complex it appears that the fluctuating salinity of Totten Inlet and the temperature, particularly during spawning, will not inhibit recruitment nor interfere with reproduction. *Brooks Testimony.* This according to Dr. Brooks “suggests” that the genetic integrity of the parental populations (the Mytilid complex) remain intact with a small to moderate amount of gene flow between them. *Exhibit 1, Attachment a.*
13. According to the Appellant’s experts, data from the Department of Ecology was used to interpret the ability of the Gallo mussel to thrive in the Totten Inlet. The material included a water quality database of the Washington Department of Ecology which was maintained at a sampling station in the vicinity of Windy Point on Totten Island for water temperature and salinity. The water quality database indicates that temperature extremes in the vicinity of Windy Point in Totten Inlet can be as low as 5.1° centigrade in January and February to 19.6° centigrade in July and August. According to the Appellant’s expert these temperatures are within the range that are tolerated by the Gallo mussel. *Brooks Testimony, Exhibit 1, Attachment n.* In Puget Sound, except for the coldest months of January and February, the average temperatures appear to be within the range of 12° to 15° centigrade. Although these temperatures are not optimum growth temperatures for the Gallo mussel, they do not present an obstacle to growth. *Exhibit 1, Attachment n; Brooks Testimony.*
14. Salinity in Totten Inlet has been measured to be lowest in late winter (25.05 parts per 1000) and highest in August and September (29.7 parts per 1000). According to Dr. Brooks, the winter salinities in the vicinity of Windy Point remain stable at 25 to 29 parts per 1000 throughout the year. He opined that the degree of salinity in the waters of Totten Inlet will not inhibit growth or reproduction. *Brooks Testimony.*
15. Dr. Brooks concluded that there is no “thermal or salinity blocks to the successful production of the *M.E. Gallo Provincilis* in Totten Inlet.” The expert submitted that the twenty-five year presence of the Gallo mussel in Puget Sound indicates that it can survive. The witness submitted that the presence of the complex is not considered a “test” project in Totten Inlet, but has the potential of becoming a delicacy that can be part of the aquaculture of the area. *Brooks Testimony.*

16. A deep-sea scuba diver from the Strait & Sound Marine Consulting participated in a dive at the location of the proposed mussel rafts on February 7, 1979 and January 26, 1979. These included dives at the location of the proposed transect no. 1 (length of 400 feet); a dive at transect no. 2 (length of 500 feet); a dive at transect no. 3 (length of 500 feet); and a dive at transect no. 4 (length of 600 feet). Based on these dives the diver, Lynn Goodwinn, concluded that the bed at the bottom throughout the entire area is flat. *Exhibit 1, Attachment n, (attachments D and E).*
17. The diver also observed thirteen separate polychaete worm tube patches along the entire area. These patches varied from one foot to twelve feet in diameter, with an average of 40 percent cover of the area. The worm tubes provide food for spawning herring and if disrupted by debris from the mussel rafts feeding patterns of the herring may be impacted. This feeding disruption in turn could impact salmon feedings. *Exhibit 1, Attachment n, (attachments D and E).*
18. Based on the scuba dives that were conducted on site, the Appellant submitted a letter to the Washington Department of Fish & Wildlife addressing issues that were discovered by the diver. In the letter the Appellant stated that there is a scouring of the substrate as a result of the weighted nettings used in the current mussel operation. As mitigation to impacts, it agreed periodically to remove all debris associated with ongoing mussel operation, including items such as net fragments, weights, gloves and ropes. To ensure that the netting does not impact the benthos of the existing project or the proposed project, the Appellant agreed that all weighted nets will be adjusted to clear the bottom of the substrate at a mean water level. Anchors would also be set to avoid worm tubes and potential worm tube impacts. Where worm tube patches have been identified, net weights will clear the bottom at all times and at all tidal elevations. The clearance of the bottom in areas of worm tube patches would be at least five feet above mean level. *Exhibit 1, Attachment n, Letter of March 11, 1997 to Robert Burkal to Diane Cooper.*
19. The Appellant submitted testimony by Dr. Dame, Ph.D. of Conway, South Carolina. Dr. Dame, an aquatic environmental expert from the Department of Marine Science of the Coastal Carolina University, testified as to the general qualities of the mussel habitat and in particular, the general qualities of the Gallo mussel habitat. *Dame Testimony.* Dr. Dame did not conduct specific studies or tests on the Totten Inlet site. All of his information was based on general data of mussel species that has been accumulated throughout the world. Dr. Dame did not visit the site nor had no firsthand knowledge of mussel activity on site. *Dame Testimony.*
20. APHETI submitted testimony, witnesses and evidence to support the County's Determination of Significance. APHETI identified potential environmental impacts resulting from the proposed aquacultural expansion. Among the impacts identified were: (1) the physical degradation of the habitat, including potential damage to herring spawning grounds; (2) the degradation of water quality from the production of soluble

mussel waste and from the massive release of mussel waste products during harvest operations; (3) the destruction of the trophic interactions in the marine food web and the depletion of the plankton resource; (4) the damage from the release of the "exotic" Gallo mussel into Puget sound; and (5) the degradation of habitat for threatened and endangered species, including the Chinook salmon. *Exhibit 1, Attachment d; Pollock Testimony.*

21. APHETI submitted that the physical alteration of the habitat includes impacts resulting from change of water circulation. According to the group the rafts will be nonporous and will result in a change in the water circulation pattern and the flushing process of Totten Inlet. This in turn could change the terpedity of the water and impact the balance of the ecosystem. Because Totten Inlet is a shallow, poorly circulating body of water, the sediment will be deposited on the base, the group contended that the sediment deposition of the mussel operation will be significant. This will result in accumulation of waste products including the feces and pseudo feces, as well as the shells from the operation. This type of deposit could have a degradation of the herring spawning habitat because the worm tubes at the base of the inlet would be smothered. As a result the worm tubes would not be available as a food source for the herring, and this in turn would impact the feeding habits of the Chinook salmon. *Pollock Testimony; Exhibit 1, Attachment r.*
22. APHETI submitted tidal flushing data of Totten Inlet is important in determining the parameters for carrying capacity of the water and the ability of the water to remove pollutants. According to APHETI the material submitted by the Appellant is inconclusive as to the residence time of water in Totten Inlet and the flushing process that occurs. APHETI questioned whether the ten day estimate as provided by the Appellant as the residence time for the water was accurate and submitted that is probably much greater. If the water residence time is greater there is less flushing and greater possibility for further contaminants and deposition of waste materials on the bay bottom. *Exhibit 1, Attachment r.*
23. Plankton is a critical link in the aqua food chain and is a key nutrient for species in Puget Sound. The Appellant submitted that the plankton reduction as the result of the location of the rafts is minimal. According to the Appellant's experts the plankton reduction will be 14 percent or less at the location of the rafts. This, according to the Appellant, is insignificant and will not have impact on any of the feeding systems within this area. *Brooks Testimony.*
24. A ship pilot (Raymond Hulstead) submitted that he had been a tug boat captain on all the waters of Puget Sound and knew the waters quite well. He contended that during his career he had noticed aquacultural rafts but they created no hardship to commercial traffic or to navigation. *Hulstead Testimony.*
25. An employee of the Washington State Fish and Wildlife Department submitted that he was aware of shellfish that had been imported to the State of Washington. He first

encountered the Gallo mussel in 1986. When reviewing a new species he considers the disease risk and whether or not it was a pest or a predator. He also measures its impact on other fish. Based on his evaluations and his knowledge of Gallo mussels he was aware of no "red flags". He also submitted that based on his dives within the Totten Inlet that he was unaware of any adverse productive problems as a result of the Gallo mussel. *Sizemore Testimony*. Upon cross-examination Sizemore submitted that he did not receive, however, any specific requests for work on the proposed project.

26. APHETI submitted that an environmental impact statement is necessary because of the lack of information on many issues related to the proposed expansion. As evidence they cited that there is no exact flushing rate of south Puget Sound that has been determined; there has been no determination as to what the exact carrying capacity for mussels in the south Puget Sound is; and, there has been no review of the process used for the phytoplankton rate in south Puget Sound. *Pollack Testimony*.
27. APHETI submitted testimony addressing the impact on phytoplankton, a key element in the food chain of Totten Inlet. Specifically the witness (Pollock) questioned whether there was enough phytoplankton for all the oysters, mussels and geoducks in the Totten Inlet, as well as the fin fish. Because phytoplankton is limited by a lack of nitrogen or nutrients, the source of nitrogen must be identified and calculated. If it comes from an ocean flow, and if the ocean flow is limited or altered, there is a potential for damage to the phytoplankton. APHETI submitted that the impact of the rafts and the flow of phytoplankton must be determined in the SEPA process. *Pollock Testimony; Exhibit 46*.
28. APHETI's expert submitted a determination of the flushing rate of Totten Inlet is necessary and mandates an environmental impact statement. The EDAW report established the flushing rate as forty days. If the flushing rate as identified by the EDAW is inaccurate, then it must be determined what the flushing rate is. According to witnesses the flushing rate could be up to 180 days or as little as ten days. The flushing rate is important because it provides the nutrients that sustain the life in the inlet. *Pollock Testimony*.
29. The Appellant submitted through its experts that monitoring growth rates would be an effective method to determine if the mussel rafts were having an impact on the Inlet. If the monitoring showed a significant decrease in growth rates the project could be scaled down. This according to the Appellant would be a far more accurate indicator than an EIS. *Dame Testimony*.
30. Witnesses submitted testimony with regard to the proposed expansion. The testimony included contentions that the mussels that were being observed in the area were bigger and were impacting other shellfish; and, that the mussels were growing on oysters and impacting the development of oysters. *Pitcher Testimony; Woodnut Testimony*.

31. A witness (John Pitts) submitted that he was on the state aquaculture commission from 1988 to 1993. He contended that he worked with the County shoreline plan at Penn's Cove. (Penn's Cove is in the northern reaches of Puget Sound.) He testified that he was never able to determine abnormal growth on beaches and did not see any change with the shellfish rafts in the area. However, a witness (Don Larsen) submitted that he had lived on Penn Cove from 1958 through 1998. When the mussel raft was developed at the Cove he started having noise and odor problems, and the water became a definite problem. He submitted that when the mussel operation started in 1970 and increased in 1997, the increase in odors and the disruption from mussels increased. *Pitts Testimony; Larsen Testimony.*
32. The president of APHETI submitted it is "common sense" to require additional environmental studies under the proposed development. He described Totten Inlet as a "bottle" that has thirty miles of shoreline with about twenty-eight miles of aquaculture activity. Because the activity is now moving offshore Totten Inlet is going to be even further impacted by this industry. He testified that large mussels have become more common in the past five years and that the debris from the aquaculture operations have tended to settle at the bottom thus impacting the food chain. He also contended that there were impacts to navigation and just impacts for aesthetic values. *Ruddy Testimony.*

### CONCLUSIONS

1. The Appellant operates a mussel farm, a commercial shellfish operation, in Totten Inlet which is located in the lower reaches of Puget Sound. On November 13, 1996 the Appellant applied to the County for approval of a Shoreline Substantial Development Permit for expansion of the existing mussel farm site from twenty-one rafts to forty-two rafts (existing site). In addition, the Appellant requested development of a second new mussel growing site on fifty-eight rafts proposed to be located at the north of Gallagher Cove within Totten Inlet (North Totten site). With expansion the structure of the existing site would cover an area of 3.13 acres. The new raft structure at the North Totten site would cover 3.38 acres. *Finding of Fact No. 1.*
2. The proposed mussel farms will have a probable significant adverse environmental impact to the Totten Inlet and to the waters of Puget Sound. The probable significant adverse impact relates to the establishment of the Gallo mussel as a common form of mussel within the Puget Sound waters and the impacts related to said introduction. *Findings of Fact Nos. 8 - 26.*
3. Not enough information on the impact of the Gallo mussel to the waters and life of Puget Sound, especially Totten Inlet has been presented. While there appears to be much scientific data on the study of Gallo mussels (*Finding of Facts No. 9*), and the qualities of Puget Sound (*Findings of Facts Nos. 13 & 14*), there is little, if any, information on the scientific data of the impact of the Gallo mussel in Totten Inlet. *Finding of Fact No. 9.* All opinions are based on speculation. *Findings of Fact Nos. 11 & 12.* Other than general knowledge of the Gallo mussel, there has been minimal research as to what

impact, if any, Gallo mussels will have on other mussels commonly found in Puget Sound or the aquaculture environment of Puget Sound and Totten Inlet.

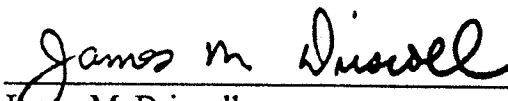
4. A significant environmental impact that must be considered is what impact the mussel rafts will have on worm tubes. Worm tubes are a feeding source of herring, which in turn are a feeding source of salmon and have potential of being impacted by the Gallo mussel deposits. Insufficient information has been presented and insufficient knowledge is available at this time to determine what the probable adverse impacts will be. An environmental impact statement is needed to address these issues. *Finding of Fact No. 17.*
5. The Washington courts have held that SEPA mandates that governmental bodies exercise their substantive discretion in protecting the environment "to the fullest extent possible". *Eastlake Community Council v. Roanoke Associates*, 82 Wn.2d 475, 496. With limited information available on the Gallo mussel in Puget Sound and especially in Totten Inlet, the environmental impacts have not been addressed to the fullest extent possible.
6. Although the Appellant's expert (Dr. Brooks) has studied limited mussel activity in the Puget Sound, much of his data is based on suggestions or suppositions. *Findings of Facts Nos. 12 & 13.* Most of the information provided for the Gallo mussel (*Mytilis Edulis Gallo Provincilis*) is based on worldwide data. This data includes preferred optimum temperatures and preferred optimum salinity. However, there is little, if any, historical data available on the Gallo mussel and its ability to live in the Puget Sound, and especially the Totten Inlet. Clearly there has not been enough information to establish a method of protecting the environment to the fullest extent possible.
7. An EIS is needed. The "suggestions" of Dr. Brooks are not contested. They are, however, not sufficiently supported to reduce or remove any questions of potential environmental impacts as a result of the introduction or the increase of the Gallo mussel activity in Totten Inlet. While there has been evidence that Gallo mussels may thrive in Puget Sound, there are no studies that have been conducted on this esoteric issue. Further, there is little, if any, testimony or evidence or data to contest whether the Gallo mussel would cause any detrimental or significant environmental impact not only to other mussel and aquaculture in the area, but to the Puget Sound itself.
8. The information provided by Dr. Dame is not specific enough to adequately address the probable environmental impacts resulting from the mussel farms and rafts. While Dr. Dame's credentials and graphs of the issues are impressive, his opinions are not based on specific studies, but on conclusions from general information gathered from waters throughout the world. Further Dr. Dame's proposal of monitoring and cutting back if there are impacts begs the issue. One of the purposes of SEPA is to promote efforts which will *prevent* or eliminate damage to the environment. *RCW 43.21C.010 (2)*. To allow the rafts and then monitor them to correct deficiencies does not prevent environmental damages.

9. The gap of information of Gallo mussels in Puget Sound creates scientific uncertainty concerning the impacts of the mussel farm. What is not provided is adequate information on the impact of the Gallo mussel to other shellfish in Totten Inlet; the water turbidity within the inlet; the flushing of the water in the inlet; and the impact of the Gallo mussel on the tube worms and the feeding chain involved therein. Without such information the County cannot exercise its discretion in protecting the environment to the fullest extent possible.
10. When there are gaps in relevant information or scientific uncertainty concerning significant impacts, agencies shall make clear that such information is lacking or that substantial uncertainty exists. The County has properly done so and has required an EIS. Shoreline Substantial Development permits for proposals of any magnitude are almost always conceded or held to be environmentally significant, probably because of the premise of the act is the special ecological sensitivity, societal value and vulnerability of the shorelines of the State. (See Washington State Environmental Policy Act: A Legal and Policy Analysis, Richard Settle, page 106.)
11. SEPA policy is to ensure through a detailed environmental impact statement the *full disclosure of environmental information* so that it can be considered during decisionmaking. *Sisley v. San Juan County*, 89 Wn.2d 78, 84; *Barrie v. Kitsap County*, 93 Wn.2d 843, 854. Disclosure of the environmental information relating to the Gallo mussel and its impact on Totten Inlet must be provided.

#### DECISION

Based upon the preceding Findings of Facts and Conclusions of Law, and the testimony and evidence submitted at the public record, Thurston County's administrative decision of the environmental threshold Determination of Significance requiring Taylor Resources, Inc. to prepare an Environmental Impact Statement in conjunction with application for a shoreline substantial development permit for the construction and expansion of two mussel raft installations on Totten Inlet is affirmed.

Dated this 18<sup>th</sup> day of June, 1999

  
James M. Driscoll  
Thurston County Hearing Examiner