



**PORTAGE BAY SHELLFISH PROTECTION DISTRICT  
ADVISORY COMMITTEE MEETING**

**MEETING SUMMARY**

Date: January 12, 2005  
 Time: 10:00 a.m. – 1:00 p.m.  
 Place: 1000 N. Forest St. (WSU Cooperative Extension Bldg.) Conference Room

**AGENDA**

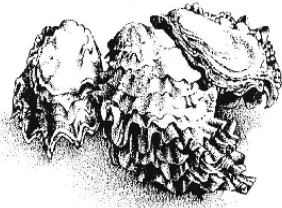
1.	10:00	Introductions
2.	10:10	Review Agenda and Previous Meeting Summary
3.	10:15	Introduction to USGS – Staff and similar projects
4.	10:30	Nooksack TMDL Overview – Steve Hood
5.	11:00	Shellfish Growing Area/ Marine Water Quality Overview – Don Lennartson
6.	11:30	Shellfish District Issues/ Stakeholders' Questions <ul style="list-style-type: none"> <li>• Closure Response Strategy</li> <li>• Accomplishments</li> <li>• Needs</li> </ul>
7.	11:50	Discussion: How Can USGS Be Involved?
8.	12:50	Wrap-Up and Action Items

**MEETING ATTENDANCE**

Dorie Belisle –PBAC, Ten Mile Project	Geoff Menzies – Drayton Harbor SPD
George Boggs – Whatcom Conservation Dist.	Andy Ross – Lummi Natural Resources
Ken Carrasco – WSU Ext., UW Sea Grant	Sharon Roy–Whatcom County Council
Chris Clark – Whatcom Conservation District	Bas Scholten – Whatcom Conservation Dist.
Michael Cochrane – NW Indian College	Erika Stroebel – Whatcom Co. Water Res.
Steve Cox – USGS	Chuck Timblin – Whatcom Conservation Dist.
John Gillies – Natural Resource Cons. Serv.	Gary Turney – USGS
Mark Henderson – Dept. of Ecology	Christine Woodward – Portage Bay AC
Steve Hood – Department of Ecology	Kati Johnson – Whatcom Co. Water Res.
Don Lennartson – Department of Health	

**DOCUMENTS DISTRIBUTED**

- 01/12/05 Agenda
- 11/17/04 IFA Meeting Summary
- Draft TMDL data—4<sup>th</sup> quarter 1998 to 4<sup>th</sup> quarter 2004
- Map #3: Portage Bay Proposed Classification Boundaries
- Summary of Marine Water Data (SRS) for Portage Bay (7/16/02 to 11/10/04)



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

### MEETING CONTENTS

#### 1. Introductions

Christine Woodward opened the meeting. Attendees introduced themselves and noted which organization they represent. Erika Stroebel was introduced as the new Marine Resource Planner for Whatcom County. Christine Woodward announced her resignation as Portage Bay Shellfish Protection District Advisory Committee Chair. Since Bob Van Weerdhuizen, current vice-chair, is often out of town, Christine recommended that committee members consider someone else for the position of Chair. Interested parties may contact Erika Stroebel ([estroebe@co.whatcom.wa.us](mailto:estroebe@co.whatcom.wa.us)).

#### 2. Review Agenda and Previous Meeting Summary

Attendees made no corrections or additions to the agenda.

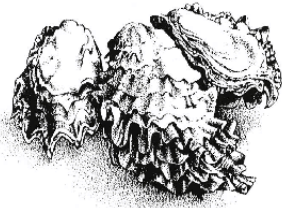
#### 3. Introduction to USGS

Gary Turney and Steve Cox from USGS attended the meeting. Gary noted that George Boggs contacted them regarding bacterial concerns in Portage Bay. Gary provided a summary of what USGS does; and, in particular, what their Water Science Center Office does.

USGS is a federal agency within the Department of Interior that works with such issues as mapping, water, biology, and geology. The Washington Water Science Center Office in Tacoma manages hydrologic studies and the stream gauge network in Washington. Water Offices are organized at the state level. USGS staff has expertise in a number of fields and have access to other states' data and expertise.

Gary noted that the Water Science Center Office operates on "soft funding" (i.e., they do not have discretionary funds). There are three categories of funds. The first is direct federal funds that are used for large-scale issues with a national relevance. The second category is reimbursable work for federal or non-federal agencies. Projects receiving this type of funding must have some federal interest and further broaden the understanding of hydrologic science. The third category of funds, which would be best suited for Portage Bay, is via the cooperative water program. This program is controlled by the local office and is subject to approval. A project with this type of funding would require the development of a scope of work of mutual interest between USGS and the other agency (e.g., Portage Bay SPD). USGS would provide one-half of the funding for the project and the agency would provide the other half. USGS staff would conduct the work for the project. Gary noted that, for example, USGS and Whatcom County worked together to study mercury levels in Lake Whatcom in a project with cooperative water program funding.

Christine provided a brief overview of Portage Bay water quality issues. The shellfish protection district has been working for the past seven to eight years to clean up the fecal coliform in the Nooksack River, which empties into Portage Bay onto tribal shellfish beds.



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

There have been several downgrades due to poor water quality. Since August 2004, fecal coliform (FC) numbers have increased and there is a more urgent need to find out why the numbers are increasing. The State Department of Health, which is in charge of shellfish bed classification, is looking at downgrading a portion of the shellfish beds. If there is a downgrade, the county must, by state law, form a shellfish protection district within 180 days of the downgrade to improve water quality.

George noted that since the Portage Bay shellfish protection district has not been able to explain the recent trends in water quality, USGS was asked to help solve the problem. Gary noted that he and Steve attended this meeting to better understand the water quality issues facing Portage Bay and to see if there was a need for USGS to become involved. Christine noted that Drayton Harbor shellfish protection district has seen some recent increases in FC and might benefit from some assistance from USGS as well.

#### 4. Nooksack TMDL Overview – Steve Hood, Ecology

Steve Hood provided an overview of the Nooksack TMDL based on preliminary results from the fourth quarter of 2004. He distributed a packet of tables and graphs. The table figures are the geometric mean of the last 30 samples of fecal coliform colony forming units per 100 mL (cfu/100mL).

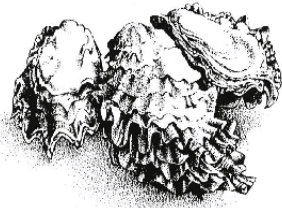
Steve noted that the three forks of the Nooksack River are doing well. In general, increases in fecal coliform (FC) levels are being seen where there have not always been problems. Most of the incoming tributaries are failing to meet interim goals for FC levels. Steve noted that at the last sampling station, near the Lummi Reservation at Marine Drive, the fresh water flow has been toward the marine water. From that station, the direction the water flows into Bellingham Bay depends on the tides.

Steve noted that if the latest numbers met the interim goals, there would be only a small margin of safety for the shellfish beds.

Steve explained that the interim goals for each station were obtained by taking the difference between the cfu/100mL figure for a station at the beginning of the TMDL (1998) and the ultimate target goal and setting the interim goals at a constant rate of reduction through the anticipated end of the study (2005).

Steve noted that overall the numbers leveled off in 2002 and were below interim targets. This trend began to change in the last half of 2004, as noted in the graphs. Some of the stations have increased and are now near or above their interim targets. For example, Bertrand was hovering below its interim target since the end of 1999 until the last few months of 2004. It is now above its interim target.

Steve focused some discussion on the Fishtrap Creek and the upper Tenmile Creek results. There have been some big improvements at the T3 station with newer numbers being much better than in previous months. Steve noted that Dorie Belisle and the local landowners have been working to improve the conditions in the area. Additional sampling has been



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

done in Fishtrap to try to find sources of FC. Steve noted that Ecology has used some traditional approaches and identified some septic problems. He also noted that some animal access issues had been removed and resulted in some improvements.

One attendee wondered if sampling was conducted on a schedule or randomly. Steve noted that sampling was conducted on a fixed monthly schedule; sometimes aligned with DOH sampling. Another attendee wondered if there has been a correlation between FC levels and rainfall or flow. Steve explained that he gets the FC numbers from Northwest Indian College and had not looked to see if there is a correlation. Andy Ross added that there have not been any patterns found between rainfall and FC counts. There have been high FC numbers in August when the weather is very dry.

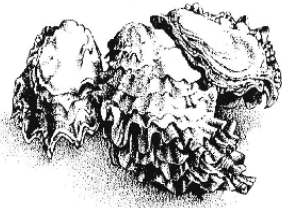
Steve noted that for the last two years, there has been special attention on water quality during the Northwest Washington Fair, held in August. There has been an effort to improve the protection of storm drains and to monitor sewage hookups. In 2004, potential issues were identified with animal wash down water flowing into storm drains. In 2004, the weather turned very wet near the end of the fair and it is likely that some bacteria escaped in the runoff. Steve noted that Ecology would continue to monitor water quality during the fair.

Gary wondered if there were any sampling stations in the Nooksack near sewage treatment plant (STP) outfalls. There are three STP outfalls: Ferndale, Lynden, and Everson. John Gillies noted that there was not an increase in STP discharge at the Lynden STP during the 2004 fair, which had an estimated 30,000 visitors per day. Steve noted that the fair is plumbed into the STP so it does not make sense that there was no increase in STP discharge. Steve added that since the fair takes place during the dry season that the animal wash water that would go to the storm drain would drain into the sump and not make it to the stream.

Gary wondered if high FC counts correlated with the time of year when the lagoons are full. Steve noted that there are some small areas with septic problems, based on high FC counts in dry weather. There are also some cases of failing septic systems or no septic tanks at all. George noted that there are 30,000 septic systems in the county and there are similar problems in other areas of the county.

Steve noted that there are a lot of dairies in the county as well as other animals on hobby farms. Ecology has looked into hobby farms more in the last year. They have gone into the field and found small operations where animals are too close to the water. George noted that of all the livestock operations in the county (2500 total), less than half are commercial. He also noted that the Sumas drainage has a high dairy concentration but consistently low FC numbers.

Gary wondered what caused an increase in FC counts over the first year of the TMDL. Steve explained that the higher numbers were a result of the sampling not being as random as it is now.



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

Gary wondered what the general decrease in FC counts in the last few years could be attributed to. Steve cited the dairy nutrient management plans and Whatcom Conservation District education. George cited STP improvements and a County law to follow best management practices. Chris Clark noted good enforcement. The EPA was here; then Ecology had two staff members doing dairy inspections and enforcement. Steve added that the Ecology inspectors took a watershed approach and would refer problems to other agencies. Ecology lost its dairy program in 2002.

Gary noted that since 2001 and 2002 the implementation of nutrient management plans could account for the improvement of FC counts, but the increase in FC over the last six months has been widespread. Don Lennartson explained that there are no longer two inspectors in the County. The inspection program was shifted to the Department of Agriculture in July 2002 and there is one inspector for five counties.

Gary wondered if there were any other changes (e.g., environmental changes) that may be causing an increase in FC counts. Andy noted that 2003 was drier than 2004. George noted that high FC counts have been found when farmers have not been applying manure to their fields. He suggested that there might be some cross-boundary issues as well. Steve noted that one horse in a creek on a hobby farm results in higher FC counts than manure applied to 40 acres of field too close to a buffer.

Gary noted that the recent increases have been slow and may be an artifact of the geometric mean. Don noted that there has been a similarly increasing trend in the marine waters.

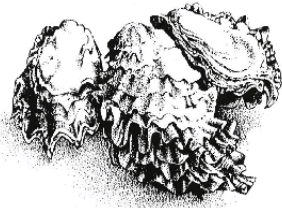
Steve noted that all Ecology data is now on the Ecology's ftp site. After receiving comments, the data Steve presented at the meeting would be final. He will send out a link to the ftp site.

- *Action:* Steve Hood will distribute a link to Ecology's ftp site containing the most recent TMDL data once the data is finalized.

### 5. Shellfish Growing Area / Marine Water Quality Overview – Don Lennartson, DOH

Don introduced himself and explained briefly what his office does. He is from the State Department of Health Office of Food Safety and Shellfish. The goal of this office is to protect public health from food-borne illness. In 1925 there was a nation-wide typhoid epidemic that came from raw oysters in Long Island Sound. The shellfish industry was not regulated at that time and STPs filtered out only the "big pieces". In 1926, the National Shellfish Sanitation Program was founded.

The Growing Area Classification Program evaluates all commercial shellfish growing areas in the state to determine their suitability for harvest. Since shellfish are pumpers, they can self-clean after a period of time. Don briefly explained the four levels of classification. *Approved* classification allows for commercial harvest for direct marketing. *Conditionally Approved* means the area meets *Approved* classification but only during certain conditions



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

(e.g., dry weather). The area is closed when standards are not met and reopened after a predetermined amount of time. A *Restricted* classification indicates the area does not meet the *Approved* standards but only a limited degree of pollution is from non-human sources. Shellfish from a *Restricted* area must be moved to an *Approved* area to cleanse themselves before being sold. A *Prohibited* area means that the presence of poisonous or harmful substances may pose a health risk if the shellfish are eaten. Harvesting is not permitted in *Prohibited* areas.

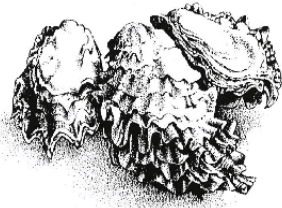
Don noted that the classification rating determines the sampling frequency. However, he is currently sampling monthly in Portage Bay (*Approved* status requires only bi-monthly sampling) because of current restoration efforts. Don explained that to meet the *Approved* standard, a station must have at least 30 samples and the geometric of the 30 most recent samples must not be greater than 14 organisms/100 mL; and an estimate of the 90<sup>th</sup> percentile must not be greater than 43 organisms/100 mL.

Don distributed copies of the *Summary of Marine Water Data for Portage Bay 7/29/02 to 12/31/04* and a map of Portage Bay showing the sampling stations and classification boundaries. Station 271 is currently restricted because it does not yet have 30 samples. Station 53 has the lowest 90<sup>th</sup> percentile at 10. Station 52's 90<sup>th</sup> percentile is 39. Don noted that since it is so close to 43, he is hesitant to upgrade it from restricted. He also noted that the 90<sup>th</sup> percentile is a volatile statistic. The geometric mean is more forgiving and damps high numbers.

Stations 50 and 51, which are currently approved, have 90<sup>th</sup> percentiles of 43 and 44, respectively. Don explained that there would be a voluntary closure for these two areas instead of a downgrade (which would, by law, require the County to form a shellfish protection district within 180 days of a downgrade) because the next numbers to drop from the calculation are high. If the next two samples at these stations yield low FC levels, they can remain *Approved*. If, however, the next two samples are too high, there may need to be a downgrade. Erika noted that the shellfish protection district has been extended to 2007. Attendees were not sure what would be required of the County if there were a downgrade when a shellfish protection district was already in place.

One attendee wondered if all samples are counted, even though DOH is sampling twice as frequently as what is required. Don noted that all samples are counted. Another attendee wondered how sampling was conducted. Don explained that GPS is used to identify the precise location of a station. A sealed 100mL bottle collects water six inches below the surface. The sample goes on ice and is sent to the lab. The time, tide, salinity and temperature are also recorded. At the lab, the sample must be less than 10° Celsius; if it exceeds this temperature, the sample is discarded. The lab uses MPN methodology (most probable number). Don added that he has not seen a pattern with tides and FC levels.

Gary wondered if DOH sampling protocol had recently changed. Don noted that it had not. Gary wondered if lab procedures had recently changed. Steve noted the TMDL study had been using the lab at Northwest Indian College since 1999 and the only change at the lab had been with personnel.



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

Don showed overheads of the 30 most recent samples and a graph of FC levels for stations 50, 51, 52 and 271. If the Nooksack River was the cause of elevated FC counts, one would expect to see low salinity with the high FC counts at station 50. This is not the case. Don noted that the next sample number to drop from the calculation is 2/100mL and the one after that to drop is 240/100mL, which is why there will be a voluntary closure at stations 50 and 51. The graph for station 50 showed how, over time, the FC counts have jumped around a lot; not yielding any recognizable pattern.

The 30 most recent samples at station 51 were shown next. There were a few high numbers in June and August 2004; both had low salinity. Don noted that the circulation pattern in Portage Bay might have yielded different numbers if sampling was done at another time. The graph for station 51 showed that the 90th percentile had been well below 43 but had increased in the last six months, as with many of the other stations.

The number to drop from station 52's calculation the time after next will be 130/100mL. The graph for station 52 showed that the 90<sup>th</sup> percentile was around 50 to 60 in 2002. Since then, the numbers were generally declining until the end of 2004 when they increased toward 43.

Don showed the chart for station 271 and noted that this station was added to find out what was going on north of stations 50 and 51, closer to the river. This station has only 26 samples and is restricted until there are 30 samples.

The graph for station 53, which is buffered by Brant Point consistently has 90<sup>th</sup> percentile figures between eight and fifteen. This station had a small upward trend at the end of 2004.

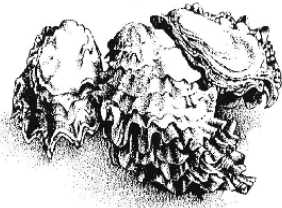
One attendee wondered if there was a way for DOH to test for the source of FC (e.g., human, bovine, etc.). Don noted that RNA-typing technology that DOH endorses is not currently available.

Don noted that the FC counts had been on the path to approving all of Portage Bay and the TMDL targets were being met in the Nooksack watershed. Don added that he hopes USGS can shed some light on the recent increases in numbers to get Portage Bay back on track for approval.

### 6. Shellfish District Issues

Christine noted that some shellfish protection issues had already been discussed and asked if there were any other comments or questions.

Dorie noted that she could not explain the improvements at station T3 on Tenmile Creek. She noted that the FC counts do not make sense. That is, the numbers fall in a wide range and do not appear to be indicative of septic problems. One landowner moved where he prepared cows for milking to another location further away from the creek. Dorie also noted



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

that more people are moving into the county, and farmland is converted to fifteen, ten, and five-acre lots, especially in the Tenmile Creek area.

### 7. Discussion: How can USGS be involved?

Christine asked what the stakeholders' needs were and how USGS could help them with those needs. George wondered if the WCD should engage in adaptive management and look beyond bigger buffers. He wondered if more information needed to be collected and other possible sources of FC identified.

Gary noted that progress has been made in the watershed and the focus should remain on why there have been recent increases in FC counts before changing management practices. There have been increases throughout the system, even in once-pristine marine areas (i.e., station 53). Gary suggested focusing on two issues: What is going on in the freshwater and what is going on in the Nooksack River as it relates to Portage Bay?

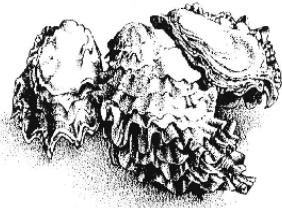
Andy noted that the circulation in Portage Bay usually goes from station 271 to 51 and out the Portage at low tide. At high tide, a gyre is created. Stations 50 and 51 are the first to fail due to the tidal circulation. Stations 49 and 55, in the southwest of Portage Bay, fail when the Portage is flooded and when it is not. Andy noted that FC counts are elevated in the fall, when there is low flow. He also noted that there has been some recent erosion of Brant Spit near station 58, causing some Bellingham Bay water to mix in. Don added Brant Spit overflowing at high tide has been a recent change.

Steve Cox wondered if there had been any recent changes in organic matter on the shorelines, which could harbor bacteria. Andy noted that this was unknown. Though development practices along the shore have improved, archive sediment samples have not been analyzed.

Gary wondered if freshwater flow correlations have been examined. Mike Cochrane noted that NWIC has flow data at some of the stations but it has not been analyzed.

Christine wondered if there was the potential for bacteria to move into and out of the groundwater system. Steve Cox noted that he had previously looked at this and found no input of e-coli to discharge streams. Though the groundwater system is porous, he did not find any evidence of bacteria traveling into and out of the system.

Don wondered if the absence of monitoring in the field has caused the degradation of farmers' practices. George noted that he was not in the field and Bob Van Weerdhuizen might know. John Gillies noted that the Dairy Federation wanted the inspectors to stay in the field and compared the presence or absence of inspectors to the speed limit. If there were fewer inspectors, farmers might become more lax in regulating their manure. George noted that he would like to look into other possible causes for the increase in FC counts such as environmental factors, land use changes, STPs and extending manure applications.



## PORTAGE BAY SHELLFISH PROTECTION DISTRICT ADVISORY COMMITTEE MEETING

---

Steve Cox suggested that the initial drops in the TMDL, attributed to better management practices, could be overshadowing background natural oscillations. Now, these natural oscillations are showing up again through increased FC counts.

One attendee wondered if using bacterial source tracking (BST) would help focus efforts to identify sources of FC. Steve Cox noted that some methods are better than others, but most are not very good. One attendee noted that BST could show that there are multiple sources of FC, which could lead to less “finger pointing” and more cooperation.

Geoff Menzies noted that since a downgrade in Drayton Harbor ten years ago, the Drayton Harbor shellfish protection district advisory committee has worked to achieve a *Conditionally Approved* status for the harbor. The beds are closed for five days following one-half inch of rain or more in a 24-hour period. Since August 2004, the beds have been closed to harvest 65 of 156 days. Geoff noted that more wet weather sampling will be done and more investigation into how on-site septic systems, dairies, land use, etc. affect water quality. The watershed is mostly rural and issues in the upper watershed need to be addressed.

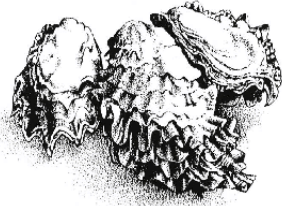
Christine noted that though Whatcom County has lost a lot of farms, the number of animals per acre has increased. Since the land available for applying manure has decreased, Gary wondered if the application amounts were still the same. Chuck Timblin noted that the quality of applications has improved (e.g., fewer applications in the non-growing season) but there was still the same amount of manure.

Andy noted that there was plenty of room for improvement in the Portage Bay watershed and asked Gary and Steve Cox how USGS could help. They noted that an analysis of the data already available and looking at the bigger picture would help point to where to look more closely. Gary recommended looking at stream flows and climatic issues because correlations between these and FC increases would be easier to rule out. He recommended to then address changes in land use and growth.

Gary noted that a cooperative agreement (not a contract) with a non-federal funding agency would be possible, as mentioned in item 3, above. It would be easier to sign an agreement with one party, though it would be possible to do it with multiple parties. USGS would work formally with one party and informally with the others.

Erika suggested that since USGS has the information, that Gary and Steve Cox could come back to the shellfish protection district with recommended directions that could be considered. Gary noted that he and Steve would provide some general approaches to addressing several of the questions brought up during the meeting. The advisory committee could discuss these recommendations among themselves and contact USGS for specific information. USGS will provide general recommendations to Erika. Erika will distribute the document when it is received.

- *Action:* Gary Turney and Steve Cox will provide Erika Stroebel with some general approaches to addressing several of the questions concerning recent increases in



**PORTAGE BAY SHELLFISH PROTECTION DISTRICT  
ADVISORY COMMITTEE MEETING**

---

fecal coliform counts in the Portage Bay watershed that were brought up during the meeting. Erika will distribute the document to the advisory committee.

8. Wrap Up and Action Items

The advisory committee agreed to meet again in February to discuss the USGS recommendations. The date of the meeting was not scheduled.