

Nestucca Bay Watershed

**TOTAL MAXIMUM DAILY LOAD (TMDL)
& WATER QUALITY MANAGEMENT PLAN (WQMP)**

Response to Public Comments

**Prepared by:
Oregon Department of Environmental Quality
April 2002**

Introduction

This Response to Public Comments addresses comments received regarding the Draft Nestucca Bay Watershed Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) dated December 2001. Written comments were received during a public comment period that extended from December 11, 2001, through February 8, 2002. Oral comments were received during a public hearing held on January 15, 2002 at the Nestucca High School in Cloverdale, OR.

List of Comments provided on Nestucca Bay Watershed TMDL

The following individuals provided comments on the TMDL during the Public Comment Period. Oral comments were received and recorded at a public meeting at Nestucca High School in Cloverdale, OR on January 15, 2002.

Commentator	Affiliation	Address
Written Comments		
Helen Rueda	EPA – Region 10	811 SW 6 th Ave., Portland, OR 97204
Dana Shuford	BLM – Tillamook Res. Area	4610 Third St. Tillamook, OR, 97141
Nan Evans	DLCD	800 NE Oregon St. #18, Portland, OR 97232
Chris Jarmer	OFIC	1201 Court St., Suite 300, Salem, OR 97301
Carol Whitaker	Georgia Pacific Corporation	349 NW 7 th Ave., Camas, WA 98607
Llewellyn Matthews	NW Pulp and Paper Assoc.	1300 114 th Ave. SE, Suite 200, Bellevue, WA 98004
Marvin Lewallen	Weyerhaeuser	PO Box 244, Tualatin, OR 97062
Tony Owen	Pacific City Joint Water and Sewer Authority	34005 Cape Kiwanda Dr., Pacific City, OR 97135
Charles Hurliman	Tillamook County Commissioner	201 Laurel Ave., Tillamook, OR 97141
Paul Hanneman	Tillamook County Commissioner	201 Laurel Ave., Tillamook, OR 97141
Carol Bickford	Nestucca-Neskowin Watershed Council	31525 Hwy 22, Hebo, OR 97122
Andy Dufner	Nestucca Sanctuary	PO Box 670, Pacific City, OR 97135
Oral Comments		
Charles Hurliman	Tillamook County Commissioner	201 Laurel Ave., Tillamook, OR 97141

Responses to the comments

Following this Introduction is an index to the comments and DEQ’s responses to those comments. The comments are summarized in the index to give context to the reader. The summarized comment may not represent the entire comment, or the entire response, but will give the reader some guidance as to what the subject is. The number associated with each comment in the index is actually the number of the response to that comment. This was done because some comments have multiple parts and are not easily identified within the text. Following the index, each of the comments is included in its entirety, organized by commentator. We have included the full text of comments to guard against confusion over intent of the comment or the response. Responses immediately follow each comment and are in *italic* font to avoid confusion.

Changes to the Draft TMDL

Changes were made to portions of the TMDL based on comments received from those listed above. Where changes have been made based on a comment, the change is indicated in the response to that comment. Significant Changes to Allocations Resulting from Comments

1. Temperature allocations for wastewater discharges remain the same as in the Draft document. However, two dischargers that do not discharge to an impaired waterbody are not given allocations. Neskowin Regional Sewer Authority has no summer discharge and does not discharge to a waterbody listed as water quality limited. Further, recent data does not indicate its receiving water (Neskowin Creek) should be listed for temperature. It has been reiterated in the final document that this discharge may not cause a measurable increase in temperature outside of its mixing zone. Similarly, Pacific City Joint Water and Sewer Authority discharges to the Nestucca River estuary at river mile 1.5. The water quality standard is different for marine and estuarine waters and this section of the river is not water quality limited relative to this standard. It has been reiterated in the final document that this discharge may not cause a significant increase above natural background temperatures outside of its mixing zone.

2. A requirement that forestry operations would have to “ensure that rates forestry related landslides be controlled at measured background conditions” has been deleted. This was not intended to be included as an allocation.

Bacterial Allocations have changed slightly for both point sources and nonpoint sources.

3. Point source allocations were based on the higher of two possible concentrations calculated for varying flow, temperature, and seasonal regimes. This allowed discharge during some flow regimes at a concentration that might not be protective of water quality standards. We have changed the allocations by adopting the lower, more restrictive limit as the allocation in each season.
4. Nonpoint source runoff allocations for agricultural lands were higher than the estimated current condition in the Nestucca watershed during summer. This was a result of modeling that balanced runoff volumes, temperatures, river flow and distance from the river mouth in determining the load of bacteria entering the river without exceeding the target at the river mouth. Allowing a higher concentration than is entering the river under current conditions would be contrary to antidegradation policy of the Department. Therefore, we have limited the runoff concentration in these circumstances to the estimated current runoff concentration from agricultural lands.

Summary of Comments and Index of Responses

HELEN RUEDA: USEPA	7
EPA1: ADD SOLAR RADIATION IN LANGLEYS PER DAY TO FIGURE 12	7
EPA2: NEED TEMPERATURE ALLOCATION FOR THE PACIFIC CITY STP AND THE NESKOWIN STP	7
EPA3: EFFECTIVE SHADE CURVES COULD SERVE TO PRESENT THE TEMPERATURE LOAD CAPACITY	8
EPA4: HIGHER ALLOWABLE BACTERIA CONCENTRATIONS IN THE SUMMER MONTHS IS COUNTERINTUITIVE	8
EPA5: WHAT ARE EFFLUENT OR RUNOFF CONCENTRATIONS AT FLOW VOLUMES OTHER THAN IN ALLOCATION TABLE?	8
EPA6: ALLOCATIONS ALLOW RUNOFF CONCENTRATIONS HIGHER THAN CURRENT CONDITIONS	9
EPA7: STATE MEASURES WILL SERVE TO ESTABLISH WATER QUALITY TREATMENT CONTROLS AND STRATEGIES	9
EPA8: ADD A REASONABLE ASSURANCE SECTION INTO THE BODY OF THE TMDL DOCUMENT	9
EPA9: THE WQMP SHOULD REFERENCE THE NORTHWEST OREGON STATE FOREST MANAGEMENT PLAN	11
EPA10: CORRECTION SUGGESTED	11
DANA SHUFORD – BUREAU OF LAND MANAGEMENT	11
BLM1: SUGGESTED TEXT CHANGE	11
BLM2: STATE THE BASIS MOST SEDIMENT SOURCES BEING IN THE LOWER PORTION OF THE WATERSHED	11
BLM3: WHERE IN THE DOCUMENT HAVE YOU DISCUSSED FLOW MODIFICATION AND HABITAT MODIFICATION?	12
BLM 4: DISCUSSION OF MANAGEMENT SHOULD INCLUDE REFERENCE TO AQUATIC CONSERVATION STRATEGY	12
BLM5: IS PLANNING AT THE PROJECT LEVEL UP TO THE DMA’S TO DETERMINE?	12
BLM6: WHAT IS THE MECHANISM FOR DEVELOPING THE BENCHMARKS AND REPORTING THEM?	12
BLM 7: SUGGEST INSERTING A REFERENCE TO THE TOTAL AREA UNDER BLM MANAGEMENT	12
BLM8: ARE TEMPERATURE ALLOCATIONS OF SYSTEM POTENTIAL APPLIED WATERSHED WIDE?	13
BLM9: PLEASE CLARIFY THE RELATIONSHIP BETWEEN SURROGATE MEASURES AND SPECIFIC TARGETS	13
BLM10: HOW WAS “EXCESSIVE” DETERMINED WITH RESPECT TO STREAM WIDTHS?	13
BLM11: NEED TO CLARIFY HOW THE NSDZ WIDTHS WERE DETERMINED AND WHAT WERE THE SAMPLE SIZES	14
BLM12: THE DOCUMENT AS A WHOLE PUTS TOO MUCH EMPHASIS IN THE NARROWING OF STREAM CHANNELS	14
BLM13: HOW IS THE GIS SAMPLED NSDZ WIDTH DERIVED?	15
BLM14: IT IS NOT APPARENT WHAT LINE IN FIGURE 12 REFERS TO THE LOADING CAPACITY	15
BLM15: HOW ARE THE SURROGATE MEASURES INTENDED TO BE USED BY LAND MANAGERS?	15
BLM16: SHOULD EXPLAIN THAT EFFECTIVE SHADE IS BASED ON A REACH AVERAGE	15
BLM17: WHAT BACKGROUND CONDITIONS WILL BE COMPARED TO MANAGEMENT RELATED LANDSLIDES?	15
BLM18: ANOTHER PROBABLE SOURCE OF SEDIMENT IS THE MCGUIRE RESERVOIR	16
BLM19: WE CANNOT FIND REFERENCE TO THE 20% FINES IN PACFISH DOCUMENTATION	16
BLM20: WHERE IS LONG TERM MONITORING OF SEDIMENT LOADING IDENTIFIED AS AN ACTION ITEM?	16
BLM21: THE DOCUMENT SHOULD EXPLAIN WHY THE CURRENT LISTING FOR SEDIMENT IS NOT BEING DROPPED	17
BLM22: SUGGESTED TEXT CHANGE	18
BLM23: TEXT IMPLIES THAT THE ALLOCATION IS FOR THE WHOLE WATERSHED	18
BLM24: SUGGESTED TEXT CHANGE	18
BLM25: HOW DID YOU DETERMINE NSDZ FOR CHANNELS MASKED BY VEGETATION IN THE AERIAL PHOTOS	19
BLM26: INCORRECT FIGURE REFERENCE	19
BLM27: NOT CLEAR HOW GIS SAMPLING OF THE NSDZ WAS DONE IN THE LOWER GRAPH	19
BLM28: NEED TO REFERENCE THE PACFISH DOCUMENT THAT DEFINES SEDIMENT INDICATOR	19
BLM29: NEED TO CHECK THE % OF ADMINISTERED BLM LANDS	19
BLM30: INDICATED PARAGRAPHS SHOULD STATE THAT ACTIONS ARE DEPENDANT ON AVAILABILITY OF FUNDING	19
BLM31: AVERAGE ANNUAL PRECIPITATION IN THE WATERSHED IS BETWEEN 70 TO 180 INCHES	19
BLM32: HAS THE US FOREST SERVICE PLANNED ACTIVITIES SIMILAR TO THOSE OF BLM	19
BLM33: SHOULD INDICATE THAT ACTIONS ARE DEPENDENT ON FUNDING A AVAILABILITY	20
BLM34: NEED TO MONITOR SEDIMENTATION OVER TIME TO QUANTITATIVELY CHARACTERIZE THE TARGET	20
BLM35: HOW WERE ESTIMATES OF TIME TO COMPLIANCE ARRIVED AT?	20
NAN EVANS – DLCD	20
DLCD1: WQMP MISTAKENLY LISTS MUNICIPALITIES AS DMAS	20
DLCD2: ONLY ORDINANCES” LISTED AS REGULATORY PROGRAMS FOR URBAN AND RURAL RESIDENTIAL LAND USE	21
DLCD3: WQMP SHOULD INVOKE STATEWIDE PLANNING GOALS FOR THE COUNTY TO MEET ALLOCATIONS	22
CHRIS JARMER: OFIC	22
OFIC1: HOW CAN ACTUAL GROUND SHADE CONDITIONS EXCEED SYSTEM POTENTIAL?	22
OFIC2: THE SEDIMENT ALLOCATION IS APPLIED TO THE ENTIRE RIVER AND TO ALL HABITAT TYPES	23
OFIC3: ESTIMATES OF PERCENT FINES IN THE LOWER WATERSHED ARE TOO FEW TO BE MEANINGFUL	23
OFIC4: VISUAL SEDIMENT ESTIMATES WOULD NOT QUALIFY UNDER DEQ’S RULES OF QUALITY ASSURANCE	23
OFIC5: THE DISCUSSION OF FINE SEDIMENTS IN BEAVER CREEK RELIES ON AN UNPUBLISHED DOCUMENT	23
OFIC6: THE TMDL HAS NOT CONSIDERED THE RECENT STUDY OF LANDSLIDES BY ODF	25

OFIC7: COMPARING THE FOREST PRACTICES ACT WITH THE HABITAT CONSERVATION PLAN IS INACCURATE	25
OFIC8: Comparing the Forest Practices Act with the Habitat Conservation Plan is inaccurate	25
<u>CAROL WHITAKER: GEORGIA PACIFIC CORPORATION</u>	<u>25</u>
GPC1: A TMDL SHOULD NOT PRESCRIBE SPECIFIC CONDITIONS WITHIN THE CONTEXT OF AN NPDES PERMIT	26
GPC2: LIMITS TO ADDRESS INCIPIENT LETHALITY SHOULD NOT BE INCORPORATED INTO A TMDL	26
<u>LLEWELLYN MATTHEWS: NWPPA</u>	<u>26</u>
NWPPA1: A TMDL IS NOT APPROPRIATE FOR ADDRESSING SITE-SPECIFIC NPDES PERMIT PARAMETERS	27
NWPPA2: TMDLS SHOULD BE SILENT ON THE SPECIFICS OF POINT SOURCE NPDES PERMIT CONDITIONS	28
NWPPA3: DEQ HAS NO BASIS FOR A DISCHARGE LIMIT OF 77⁰F AND 25 PERCENT DILUTION TO POINT SOURCES	28
NWPPA4: DEQ SHOULD LIMIT TMDL LANGUAGE TO “NO MEASURABLE INCREASE BEYOND THE MIXING ZONE	28
NWPPA5: INCIPIENT LETHALITY SHOULD NOT BE ADDRESSED IN A TMDL	29
<u>MARVIN A. LEWALLEN: WEYERHAEUSER</u>	<u>29</u>
WEYERHAEUSER 1: TEMPERATURE AND MIXING ZONE LIMITS ARE INAPPROPRIATE FOR A TEMPERATURE TMDL	29
WEYERHAEUSER 2: THE NESTUCCA TMDL SHOULD BE SILENT ON TEMPERATURE AND MIXING ZONE LIMITS	30
WEYERHAEUSER 3: THE ISSUE OF “INCIPIENT LETHALITY” SHOULD BE ADDRESSED VIA NPDES PERMITS	30
<u>TONY OWEN: PACIFIC CITY JOINT WATER-SEWER AUTHORITY</u>	<u>30</u>
PCJWSA1: WHERE IS BASELINE HISTORICAL DATA FOR SEASONAL WATER TEMPERATURES IN ESTUARY ?	31
PCJWSA2: IS THERE A POINT SOURCE 12.7 CFS DISCHARGE TO THE NESTUCCA RIVER?	31
PCJWSA3: WHAT IS THE BASIS THAT EFFLUENT TEMPERATURES ARE TYPICALLY 72⁰F?	31
PCJWSA4: WHERE IS THE MOUTH OF THE NESTUCCA RIVER LOCATED?	31
PCJWSA5: HOW ARE T_p, T_c, AND Q_R DERIVED AND USED IN THE WASTELOAD ALLOCATION EQUATION?	32
PCJWSA6: WILL THE MIXING ZONE FOR THE PCJWSA DISCHARGE CHANGE UNDER THE TMDL’S?	32
PCJWSA7: REFERENCES TO PCJWSA’S CURRENT BACTERIAL PERMIT LIMITS ARE INCORRECT	32
PCJWSA8: ARE THE PROPOSED NEW STANDARDS A MONTHLY, WEEKLY OR SEASONAL AVERAGE?	32
PCJWSA9: WILL THE PLANT’S NEW U.V. DISINFECTION AFFECT COMPLIANCE WITH THE TEMPERATURE TMDL?	32
PCJWSA10: WHAT WILL PCJWSA DO IF ITS EFFLUENT DOES NOT MEET THE BACTERIA TMDL?	33
<u>CHARLES HURLIMAN: TILLAMOOK COUNTY COMMISSIONER</u>	<u>33</u>
HURLIMAN1: TMDL SHOULD CONSIDER HISTORY OF THE BASIN	34
HURLIMAN2: DOCUMENT IS INCONSISTENT WITH THE OBJECTIVE OF A BETTER ENVIRONMENT FOR ALL SPECIES	34
HURLIMAN3: DOCUMENT SHOULD REFLECT THE HISTORICAL NUMBERS OF WHEN WE HAD A HEALTHY ECOSYSTEM	34
HURLIMAN4: A MEDIAN OF A RANGE OF TEMPERATURES DOES NOT MAKE SENSE WHEN LOOKING INTO THE PAST	36
<u>PAUL HANNEMAN – TILLAMOOK COUNTY COMMISSIONER</u>	<u>36</u>
HANNEMAN1: THE DRAFT FAILS TO PROVIDE SUBSTANTIAL AND CONCLUSIVE EVIDENCE	36
<u>CAROL BICKFORD – NESTUCCA NESKOWIN WATERSHED COUNCIL</u>	<u>37</u>
NNWC1: WATERSHED COUNCIL IS CONCERNED ABOUT HOW MUCH RESPONSIBILITY THEY TAKE ON	37
<u>ANDY DUFFNER – NESTUCCA SANCTUARY</u>	<u>37</u>
DUFFNER1: WATERSHED COUNCIL IS CONCERNED ABOUT HOW MUCH RESPONSIBILITY THEY TAKE ON	37
DUFFNER2: SHELLFISH BENEFICIAL USES IS MISSING	37
DUFFNER3: SEVERAL OF THE DISCHARGES LISTED IN TABLE 3 DO NOT DISCHARGE TO THE NESTUCCA RIVER	37
<u>REFERENCES</u>	<u>38</u>

Comments and Responses

Helen Rueda: USEPA

Following are the Environmental Protection Agency's (EPA) comments on the draft temperature, bacteria and sediment Total Maximum Daily Loads (TMDLs) and the Water Quality Management Plan (WQMP) for the Nestucca Bay Watershed, released for public comment on December 11, 2001

This draft document presents TMDLs and WQMP for the Nestucca Bay watershed in the Wilson Trask Nestucca sub-basin and the analysis utilized in developing the TMDL. In general, EPA finds the information presented in the TMDL to be presented in a clear and complete format and inclusive of all the statutory and regulatory components required of TMDLs. The following comments provide some suggestions on minor changes which would clarify the TMDL. In addition comments are presented on how improvements can be made to the WQMP to make it more effective in guiding the implementation efforts to restore water quality.

EPA would like to acknowledge the considerable amount of effort that went into developing these TMDLs. Following are comments on specific elements of the TMDL and the WQMP:

CHAPTER 3 TOTAL MAXIMUM DAILY LOADS

3.1 Stream Temperature TMDL

page 38, paragraph 1, 3.1.7 Loading Capacity - 40 CFR 130.2(f), 3.1.7.2 Loading Capacity (Point Sources) **The loading capacity of the Nestucca River was presented in Figure 12. These loading rates are in terms of solar radiation and % effective shade....**

Figure 12 has only percent effective shade not solar radiation on its vertical axes. It is necessary to add solar radiation in Langley's per day into this figure, because it is stated (on page 35 in the Load Capacity section 3.1.7) that the load capacity is in these units.

EPA1:

We have inserted a graphic with a loading axis.

Page 40, Table 7 Temperature Allocation Summary for Point Sources in the Nestucca Bay Watershed, 3.1.8. Allocations, 3.1.8.1 Wasteload Allocations (Point Sources)

Since this table is labeled "These allocations are in effect throughout the year." it seems like there should be an allocation for the Neskowin, even though there is no summer discharge. There should be an explanation of why this is not given an allocation. The same is true for the Pacific City Joint Water and Sewer Authority STP, either it should be given an allocation or an explanation should be made for why it is not given one. It would be desirable to add future sources to this table with an allocation of "no measurable increase".

EPA2:

Neskowin and Pacific City Joint Water and Sewer Authority have been considered separately from other dischargers for the purposes of temperature allocations. Neskowin has no summer discharge, and receives no summer allocation. We have made explicit that the discharge is not allowed to cause a measurable increase outside of the defined mixing zone at any time. PCJWSA discharges to the tidal estuary of the Nestucca River. The temperature standard for the estuary is: "no significant increase above natural background temperature is allowed." This requirement has been made explicit, though the PCJWSA discharge has been removed from the allocation table. We have added a column to Table 7 indicating that future sources would need to meet the standard requiring no measurable increase outside of the mixing zone.

Page 43, Figure 17 Effective Shade Surrogate Measures as a Function of Channel Width

This is a great tool to have in the report. Since it has Langley's per day it could serve as the load capacity in place of Figure 12.

EPA3:

See EPA1, above

3.2 Bacteria TMDL

3.2.8 Allocations

pages 60 and 61, Table 18 Allocations of E. Coli Concentrations for Individual NPDES Permitted Facilities, and Table 20 Target Runoff Allocations by Land Use Nestucca River

Both of these tables show higher allowable bacteria concentrations in the summer months, during low flow conditions than in the fall, winter and spring during higher flows. This is counterintuitive to what would generally be expected as there is less dilution during low flows and it seems to follow that lower concentrations of bacteria in runoff would be required. It would be helpful to explain why the allocations are set higher in summer, contrary to what seems logical.

EPA4:

Allocations of bacteria are partly based on decay rates. Point source allocations include adjustments due to instream decay and non-point source allocations were developed using both instream and overland decay. Decay rates are time and temperature dependent. Low flows (summer) are warmer and velocities are slower than during high flows. This increases travel time, allowing decay to act for longer, reducing bacterial loads (or concentrations). Point source limits were determined by calculating the effluent concentration that would decay under the different flow regimes to the target at the mouth of the river. Point sources farther upstream could have higher concentrations than those downstream and still meet the targets.

In these tables effluent or runoff concentrations are given for four specific stream flow volumes during two different seasons. Given that many other flow volumes are possible it is necessary to specify what will be allowed at flow volumes other than those shown in the table. Do the flows increase in a linear function relative to change in flow, or is it a step function? What if there is a very low flow in the fall-winter-spring season rather than summer or a high flow in the summer season? The seasons and how and where the flows are measured (or interpolated) should also be defined in these sections.

EPA5:

The seasons are defined in Section 3.2.7.3 Seasonal Variation, and flows for the seasons are listed in Table 17 of the Draft TMDL. These definitions have been added to Table 20. Modeled flows were intended to capture a reasonable range of conditions and set limits based on the distribution of flows. The lower flows indicated are median flows while the higher are 90th percentile flows. As such, the lower flow indicates an average seasonal flow, while the higher is a relatively extreme flow rate.

Allocations for point sources in Table 18 have been changed slightly. Allocations are in terms of the effluent concentration that would ensure it would decay to the target at the mouth (28 E. coli/100 ml) of the river given seasonal flow and temperature conditions. This resulted in four possible concentrations (two flows in each season) for each numeric criterion (geometric mean vs. 90th percentile). In the Draft TMDL, the higher of the two seasonal concentrations was allocated for each criterion. We have changed the allocations to the lower of the two concentrations for each season to ensure compliance during all flows.

The intent of the nonpoint source allocations is for the flows in each season to reflect two ranges of conditions. The concentrations indicated for low flows hold for all flows up to the 90th percentile (high flow) value. At flows equal to the 90th percentile and above, the high-flow runoff allocation is in effect. We have added text to the Nonpoint Source Allocation Section 3.2.8.2 to explain this. Low flows in the fall-winter-spring season would still have to meet winter allocations because these are based on fall-winter-spring decay rates. Thus, the increases may be linear at some level, but seasonal allocations are calculated with different coefficients and should not be mixed based merely on flow.

page 61, Table 20 Target Runoff Allocations by Land Use Nestucca River, 3.2.8.2 Non-Point Source Allocations

In the “Pasture” column of the table for the Nestucca River watershed allocations, the runoff allocations given for the summer months to pasture are higher than the current estimated runoff concentration. This is contrary to the intent of OAR 340-041-0026 (1)(a), the “anti-degradation” provision of the state water quality standards which restricts “unnecessary degradation from point and nonpoint sources of pollution”. The runoff allocations in the TMDL should not be set higher than the current concentrations.

EPA6:

Modeling of bacterial loads in the Nestucca River Watershed indicated that targets at the river mouths would be met with runoff concentrations greater than the current condition during summer conditions (high temperatures, low velocities). We agree that allowing larger loads than were described under the current condition would be contrary to anti-degradation policy. We have limited the summer allocations in the Nestucca River to the current condition concentration of 4000 MPN/100 ml.

It would also be desirable to explicitly state surrogate measures which would serve as the basis for establishment of water quality treatment controls and strategies. As an example, Attachment A on page 43 of the June 1999 North Coast Basin Agricultural Water Quality Management Plan presents a list of Agricultural Conservation Practices for specific pollutants including bacteria. Including these practices in the TMDL as narrative surrogate targets would more clearly make the connection between the numeric criteria for bacteria concentrations in the stream and the on the ground management practices that are proposed to attain this standard.

EPA7:

The final North Coast Basin Agricultural Water Quality Management Area Plan does contain references to broad categories of management practices that can benefit water quality. The details of these practices and how they may be employed on any given farm are left in the plan for landowners to decide. Since the indicated practices are recommendations for farmers, rather than requirements, we have not included them as direct mechanisms for improving water quality. We have added them to the Management Measures Section (Element 3) of the Water Quality Management Plan for the Nestucca Bay Watershed. We have also added the Oregon Administrative Rules associated with the North Coast Basin Agricultural Water Quality Management Area Plan to the Appendix C of the TMDL.

REASONABLE ASSURANCE

Though the temperature and bacteria TMDLs address both point and non-point sources of pollution, reasonable assurance is not discussed. The WQMP in Appendix D has a section devoted to reasonable Assurance (Element 6). It would be desirable to add a reasonable assurance section referring to this element into the body of the TMDL document.

EPA8:

We have added a section to each of the three TMDLs (Temperature, Bacteria, and Sediment) briefly discussing the Water Quality Management Plan and how it provides reasonable assurance that allocations will be met in the watershed.

WATER QUALITY MANAGEMENT PLAN

Inclusion of an implementation plan as part of a TMDL is valuable and progressive. The purpose of Section 303(d) of the Clean Water Act is restoration of waterbodies not meeting water quality standards. Listing and analysis are the preliminary steps. The implementation plan is the key to getting measures on the ground where needed in order to meet specific targets and goals laid out in the TMDL. We are pleased that development of Water Quality Management Plans (WQMPs) is an integral part of Oregon’s TMDL process.

We recognize that while the WQMP is being submitted by DEQ as part of the TMDL, the Plan was developed by groups and agencies who have responsibility for the various components of the Plan (designated management agencies). Therefore EPA’s comments on this Plan are directed toward the applicable designated management agencies.

In the Oregon Plan for Salmon and Watersheds, communities and government agencies at all levels have made commitments to conserve and restore crucial elements of natural systems that support fish, wildlife and people. This Water Quality Management Plan includes some actions which are fruition of commitments made in the Oregon Plan, as well as significant and commendable work by the Nestucca-Neskowin Watershed Council and the Tillamook County Performance Partnership.

The Nestucca Bay Watershed TMDL does a good job of establishing the connections between landscape condition and water quality, and translating loads into understandable and achievable bacterial targets and surrogate targets for temperature and sediment such as system potential effective shade, stream morphology aspects, such as width-to-depth ratios and instream fines. As such, the TMDL is a primary mechanism to use in order to ultimately meet water quality standards. It is an excellent tool for improving overall watershed health.

Implementation of the WQMP will depend on the successful efforts of many individuals, groups, and agencies. As stated in Element 12 (p. 34), achieving the temperature standards will be a very long term effort (2050). This is of course largely a function of the need to “grow shade.” Estimates for meeting the bacteria and sedimentation standards are significantly shorter (2010 and 2020 respectively) but will not be easy accomplishments. Monitoring progress of implementation and environmental results will, as always, be very important.

Agriculture - The Agricultural Water Quality Management Area Plan for the North Coast Basin was written and rules adopted in June 2000 and is quickly coming up on its first two year review of progress. Once this TMDL is finalized the existing SB1010 plan should be revised to better align with the final TMDL load allocations.

Of the agencies with significant responsibilities to carry out implementation actions in this WQMP, there is concern about the abilities of ODA and the Tillamook County Soil and Water Conservation District (TCSWCD) to effectively carry out their roles. The local SB1010 plan provides a good framework for tackling all three of the parameters covered in this TMDL on agricultural lands, but depends heavily on voluntary efforts by many parties underpinned by an ability by ODA to enforce the plan. While ODA is looking for ways to strengthen their programs, it does not currently have an effective enforcement program for dealing with animal waste management by CAFOs in this area. It will be *even more difficult* to provide effective enforcement backup to the riparian management components of the SB1010 plan. TCSWCD desires to and should play a critical role in the technical support, assistance, and coordination efforts related to these issues. It, however, is severely constrained by a lack of resources. This seems to be a broader State-wide issue which perhaps needs to be corrected at that scale.

Forestry - Keeping in mind the strategy to prevent heating in as many stream systems as possible throughout the basin and the fact the headwaters of these streams are in the forested areas of the basin, the first challenge is to those who manage forests to do it in ways that prevent heating and erosion, and protect, maintain and restore natural landscape function. Standards and guidelines for forest management on federal, state and private lands are spelled out in rules applicable to ownership. Designated Management Agencies are encouraged to evaluate whether the applicable standards and guidelines are consistent with the specific load allocations developed for the Nestucca Bay Watershed on a more site specific basis. USFS and BLM are well down the road in this respect through implementation of the NW Forest Plan.

The Tillamook State Forest lands (5% of watershed) are covered under the Northwest Oregon State Forests Management Plan recently finalized by ODF. This is a good plan that goes far beyond the Oregon State Forest Practices Act (FPA) in its protection of riparian areas. As it is implemented it should help achieve the targets set in this TMDL. The WQMP mentions the Habitat Conservation Plan still being developed, but not the Forest Management Plan that has already been finalized.

EPA9:

We have modified the text to acknowledge the Northwest Oregon State Forests Management Plan. The Management Standards for Aquatic and Riparian Areas are the same as those in the Habitat Conservation Plan, and we expect these standards to apply to the forestlands within State Forests of the region.

Private forest land management is another matter. We recently provided comments to both ODEQ and Oregon Department of Forestry (ODF) on the adequacy of current forest practices to meet temperature water quality standards. We concluded that there are water quality impairments due to forest management activities even with FPA rules and BMPs. Much of the data used in that evaluation came from Tillamook State Forest lands. Consequently, we would expect that those rules and BMPs be revised and improved to better align with allocations in TMDLs intended to meet water quality standards. Otherwise, the temperature impairments will persist and water quality standards as called for by this TMDL will not be achieved and recovery of salmonid species may be compromised.

Minor point:

p. 9. Did the breach of Bayocean Spit (Tillamook Bay?) have significant effects on the bathymetry of Nestucca Bay?

EPA10:

No. We have corrected this error.

CONCLUSION

We commend you for the efforts you have made to date and look forward to the submittal of the final TMDL in the near future. If you have any questions regarding comments on the draft TMDL, please contact me at 503-326-3280. Questions regarding comments on the WQMP may be addressed to John Gabrielson at 206-553-4183.

Dana Shuford – Bureau of Land Management

Exec Summary Page 2/ p 3 “vast” increases in sediment has really not been quantified or substantiated in the document. We would recommend dropping the use of this word and editing the paragraph as follows:

“Road building, road maintenance, and tree harvest techniques combined to cause increases in the amount of sediment reaching creeks and rivers, resulting in streambeds that received excessive amounts of fine particles”

BLM1:

We have made the proposed change in text.

Concerning your statement that “... most of the sources are in the lower elevation portion of the watershed”. Where is this substantiated in the document?

BLM2:

This determination was based on the generally low proportions of fine surficial sediment in the upper Nestucca River and Beaver Creek, and the infrequent instances of high turbidity at stations in the upland areas. Although turbidity is a poor surrogate for directly estimating suspended solids concentrations, if turbidity is low, it is unlikely that large concentrations of fine sediments are being transported from upstream.

1.2.2 Page 7/ p table The table lists that habitat modification and flow modification are parameters of listing for the Nestucca and Beaver Creek. Where in the document have you discussed the analysis for these parameters? Even if this is not in the scope of this analysis it would be appropriate to advise the reader as to your plans for analysis of these parameters as they do affect temperature (see page 31 paragraph 4) and to some degree sediment routing (target measure).

BLM3:

Habitat Modification and Flow Modification are conditional terms indicating pollution or an impairment that has resulted from pollutants or practices. TMDLs are effectively derived for ongoing inputs of pollutants, whose loading can be measured or estimated. Habitat modifications in the Nestucca Bay Watershed were based on changes in riparian vegetation and channel condition, and an indication of excessive fine surficial sediments, all of which are addressed in other TMDLs (i.e., temperature and sedimentation). Flow modification is not a parameter that DEQ has authority to address, as water rights are vested in land ownership and regulated by the Department of Water Resources. However, addressing flow is a strategy that can be utilized in a Water Quality Management Plan.

1.3.2 Page 8/ p 2 Since this section identifies WQ programs the discussion under the Northwest Forest Plan should include some reference to the Aquatic Conservation Strategy and the objectives. This portion of the NWFP deals directly with water quality.

BLM 4:

We have added text to the draft describing the Aquatic Conservation Strategy (ACS) in the context of meeting TMDL requirements through implementation of ACS Standards and Guidelines. The task of defining how implementing these Standards and Guidelines will meet requirements of the TMDL will be left to the Water Quality Restoration Plans anticipated through MOAs currently being developed with both the USDA Forest Service and USDI Bureau of Land Management.

1.3.3.1 Page 10/ p 5 My understanding of the WQMP is that it may not provide the potential constraints at a specific location, due to the scale of the planning. Is it up to the DMA's to determine this at a project level? We would recommend a statement to this effect.

BLM5:

The degree of certainty of the WQMP may vary among DMAs. The federal agencies, which are constrained by the Northwest Forest Plan, will further define their management and restoration practices under basin-specific Water Quality Restoration Plans (WQRP). These plans exist for some forests, though not yet for the Nestucca River Basin. Under an existing Memorandum of Agreement between the DEQ and the Forest Service, WQRPs will be developed for each forest and will contain provisions that will ensure the TMDL allocations are met. DEQ and BLM are currently working on a MOA to address water quality planning through this same mechanism. At this level of planning, the WQRP would be the Water Quality Management Plan for federal agencies in the subbasin.

1.3.3.2 Page 11/ p 5 What is the mechanism for developing the benchmarks and reporting them?

BLM6:

Benchmarks can be used in setting targets in management plans, especially those that can be related to a water quality standard. The Department will work with the management agencies in developing appropriate benchmarks. This would be done as part of the Water Quality Restoration Plan development (see BLM5).

2.2 Page 13/ p 3

Suggest inserting a reference to the total BLM area: "The Bureau of Land Management manages a total of 24.1 % of the watershed"

BLM 7:

We agree and have corrected the reference to indicate BLM manages 17% of the Watershed.

Chap3 Summary Page 19/ p 3 Since the TMDL applies to all streams that drain to the Nestucca Bay, why do you state that "in areas where the numeric criteria are being exceeded"..... It seems to me that the Department considers attainment of system potential conditions to serve as compliance throughout the watershed whether currently listed reaches or not.

BLM8:

TMDLs are being implemented on a watershed scale, and references to areas where the numeric criteria are being exceeded is effective to the entire watershed. Specific reaches and all waters upstream are expected to meet water quality standards. In most cases, this will require system potential shade and channel morphology throughout the watershed to achieve lower temperatures. In areas that are not currently violating the numeric criteria, near system potential conditions already exist.

Chap3 Summary Page 19/ p 5 You state: “Surrogate measures are also provided to non-point sources of pollution to help translate the loading capacity and to provide a clear list of site-specific targets for management and implementation considerations

Please clarify the relationship between surrogate measures and specific targets in terms of how DMA’s are to interpret and utilize them in meeting the intent of the TMDL

BLM9:

The surrogates are intended as a means of translating allocations of (e.g.) heat from a unit of Langley’s/day into a landscape feature that can be managed. This method of allocating loads is allowed and encouraged as “other appropriate measures” for parameters that are not readily measured or where an impairment cannot be tied to a traditional pollutant (see section 3.1.8.2 for a more thorough explanation). This is the case where the pollutant gains access to the stream because a natural barrier (shade) has been removed. The DMAs will be expected to provide all the protection required under current law to ensure that water quality standards (WQS) are met. These WQS will be met if the system potential condition is achieved through proper management. There is room for interpretation in the allocations when DMAs are preparing implementation plans (e.g., WQRPs) for the basin. DEQ will be available to discuss these issues and help define appropriate management measures.

3.1.6.2 Page 31/ p 3 You state that **excessive** NSDZ widths in the Nestucca River reduce shading potential. How was “**excessive**” this determined? Compared to reference? Was it excessive throughout? This needs more qualification before allowed to be so broad.

BLM10:

This statement is based on the distribution of measured NSDZ widths throughout the Nestucca River. Excessively wide points on the river were seen as the extremes in this distribution and are generally much wider than the median width. Although extremes occur throughout the basin, the area downstream of river mile 30 is particularly affected. Below this point, broader alluvial bottomlands become prominent along the river and the greatest departures from the expected widths are observed. The intention of the TMDL is to address these extreme cases and where possible, allow channels to narrow in response to restored and maintained riparian vegetation. As stated further in the text, channels were not apparently overwidened in the Little Nestucca and Three Rivers subwatersheds. We have added to the text to clarify that these effects are observed in the lower portions of the watershed.

3.1.6.2 Page 31/ p 6 You have referred to both estimates and measurements in this paragraph, as they are interchangeable. We would recommend, “ Modeled estimates of NSDZ.....(figure 13).

In both this paragraph and the preceding one, it is recommended that you include the number of on the ground samples you took. We count 15 NSDZ samples according to figure 13. This does not seem to correlate to the numbers provided on page 110.

Recommend: “Measurements (n=___) indicate that there are reaches in the Nestucca and Little Nestucca Watersheds that are wider than what would be optimal for providing shade and have subjected to significant bank erosion.

We are uncomfortable with the selection of the median of 15 sample points (and running median of ten 100 foot segments) as the simulated reduction of NSDZ in order to arrive at system potential for about 55 miles of stream. Considering the dynamic nature of this disturbance zone it seems that the allocation should be based as in **Figure 64 (blue line)** on the results of modeling the “Potential Near Stream Vegetation”. Despite the

need for a margin of safety we do not believe it is appropriate to portray broad scale reductions in NSDZ when we know that channel and valley dimension in the watershed may not allow for appreciable change in NSDZ and will be extremely variable over time. Besides this we know there are constraints to this based on existing impingements on the channel such as roads.

BLM11:

The NSDZ widths were measured both in the field in reaches that included temperature monitoring stations, and as the distance between digitized stream channel boundaries. Boundaries were digitized on most recent available Digital Orthophotographic Quadrates (DOQs) from the USGS. These measurements were made in Arcview at 100-foot intervals from near the headwaters down to the mouth of the Nestucca River. This resulted in a very large number of samples ($n > 2100$) that were the basis of median width estimates and a regression that provided the relationship between distance from headwaters and NSDZ width. Medians were calculated at each point (between 100-foot intervals) from 10 contiguous samples. The median width at each point was based on that point and the following 9 points (1000 ft total). This running median was based on real landscape measurements and was reflective of changes in width with distance from the headwaters. NSDZ widths were also measured at stations in the field and were compared to the digital measurements.

In this regard, NSDZ widths were not modeled, the distribution is based on many measurements of channel widths, and the median is calculated continually over relatively short reaches. “excessive” widths are those greater than the median width in a given area. As would be expected, median widths increase with distance from the headwaters.

Allocations were based on a linear regression of these median values against river mile. The target is for the width to be less than or equal to the value calculated for the given river mile or distance from the headwaters. We realize that there may be cases where the width of the stream may reasonably be wider than this value, but also that there are many over-widened areas of the river that greatly exceed this value.

Development of implementation plans will allow DMAs to propose direct measures for meeting these targets (riparian protection where vegetation exists, and restoration where it does not) or alternate methods of assessing channel morphology may be proposed. Accepted channel assessment methods that reasonably describe system potential channel morphology may be developed and used for planning purposes.

You state on page 36 that both the vegetation and morphology simulated together produced a greater effect. No question the trees will get taller and wider in all riparian areas if retained... but to have the same confidence that the channel will narrow in all reaches is questionable. We think the document as a whole puts too much emphasis in the narrowing of stream channels. This emphasis in the modeling could cause the maximum-modeled temperature under potential as being significantly lower than what is really attainable (<60 F) (figure 12 and page 44). When looking at the comparison presented on page 130 (figure 64) it is apparent that the reductions gained by accounting for the NSDZ is often within the standard error of the calibration presented on page 128.

We recommend you use the model output for Potential Near Stream Vegetation as the Allocated Condition and discuss in narrative : **as riparian vegetation reaches potential there will be NSDZ narrowing and further reduction in temperature.**

BLM12:

The model does not assume that channels will narrow in all reaches. Approximately half of the reaches are currently meeting the allocation (based on median width). Channels that are currently excessively wide (determined by these or other appropriate methods) may be appropriate candidates for restoration. Either way, most channel width reductions are expected to occur passively over time through development of system potential vegetation.

As indicated above and in the TMDL, narrowing of stream channels is most important in the lower reaches of the watershed, but is also most likely to significantly improve in these reaches if vegetation is restored.

Regarding possible over emphasis on channel width in modeling, we believe the margin of safety included in the TMDL will ensure that standards are met at system potential, even if that system potential temperature is slightly higher than what our modeling suggests.

Figure 13 Page 34 How is the GIS Sampled NSDZ derived? This needs to be disclosed.

BLM13:

See response BLM10, above. This is also described in Appendix A, page 110.

3.1.7.1 Page 35/ p 2 You have stated, “ **The system potential radiation load is the loading capacity (Figure 12).**” Referring back to the figure it is not apparent to the reader what line of the graph you are referring to. We assume it is the allocated condition. You may also want to put “loading capacity”.

BLM14:

We have added text to the caption to clarify.

3.1.8.2 Page 40, 41, 42 43. From the narrative on these pages it is not clear to me how the surrogates of are being used or are intended for the public/ DMA’s use. Reading the text and figure it is not clear if these are the estimates that were used for the modeling or values to use for DMA’s to characterize current condition in the areas of their management. A statement is needed to clearly define whom, why, when and where this was or is intended to be used.

BLM15:

Surrogates are translators for the modeled loads of heat. The surrogate for heat loading in the watershed is system potential shade. Loosely defined, system potential shade is that shade provided by a mature forest canopy on both sides of a stable stream with a channel width appropriate to the flow and sediment transport it provides. Modeled estimates of these values vary based on topography, aspect, and other local factors. The graphed shade and loading rates for varying channel widths provides guidance on the amount of shade and heat loading that can be expected from streams in the basin.

It is recommended that the narrative include an explanation that the graphed surrogate effective shade is based on reach average shade and what is the spatial context of a reach. It would be helpful to state that excursions of effective shade at a smaller scale may be appropriate in order to meet long-term goals of potential.

BLM16:

We have added the following text in section 3.1.10 to clarify this point. “These are potential shade estimates based on the factors described. For any particular point on a stream, shade may be more of less than these graphed values, but shading should approach these values when averaged over a stream reach..”

3.3 Summary Page 63/ p5 “ The TMDL also requires that forestry operations ensure that rates of forestry-related landslides be controlled at measured background conditions. An endpoint measure of $\leq 20\%$ in stream fines is included as a surrogate load allocation. “

What are the background conditions of land sliding that will be used as a performance measure? The only reference that we can find is on page 71 figure 33. and that applies to East Beaver Creek. We cannot find in the document further discussion concerning this important source element. This element needs to be addressed in more detail as does sources of sediment from roads.

BLM17:

The reference to not exceeding background landslide rates was in error. That has been removed from the final TMDL.

3.3.1 Page 64/ p3 Another probable source of sediment is the McGuire Reservoir. Unnatural high levels of turbidity in degree and duration and high deposits of fines were observed this winter along the upper

Nestucca River. Dam construction, logging, road construction, emptying of the reservoir, and other ground-disturbing activities associated with the McGuire Reservoir expansion project is perceived to be the source of much of the new turbidity and sediment.

BLM18:

Construction on the McGuire reservoir is being conducted under permit from the Army Corps of Engineers, Oregon Division of State Lands. DEQ has had review authority on dredge and fill permits for the project, and has been receiving monitoring reports from the contractors for McMinnville Water and Light, the permittee. As such, this project is subject to the same requirements as other operators conducting instream work in the Nestucca River.

Regarding the dam as a continuing sediment source, there has been anecdotal information that yearly drawdown of the reservoir, to make room for runoff and storage, results in turbid water entering the Nestucca River. This certainly would be considered as a source if the drawdown caused elevated turbidity and was expected to continue through time. The dam is currently being altered, and operation of the dam will no longer include yearly drawdown of the dam for maintenance. As stated in the Attachment to Joint Permit Application for McMinnville Water and Light McGuire Reservoir Expansion, February 2000:

“...the current practice of draining McGuire Reservoir annually for inspections and maintenance would not be feasible after the dam is raised. There would not be adequate time or stream flows to completely refill the reservoir each year if it were drained. Also, some water would have to remain in the reservoir year-round in order to supplement the basin yield during dry years, and to guarantee that additional storage capacity would be available if a drought condition occurs in the following year.”

We expect that the cessation of annual maintenance drawdown will remove the dam as a continuing source of sediments. Construction related turbidity should be minimized under the terms of permits in place. Any observations of construction related turbidity downstream should be reported to the local office of DEQ.

3.3.2 Page 64/ p4 In this paragraph you have equated excessive sedimentation in the state narrative criteria with a general 20 % fines in PACFISH. We would recommend that the document elaborate on this decision. We have looked through the EA, Decision Record and FONSI for PACFISH and cannot find reference to the 20%. You need to include a reference for the document you used for “PACFISH”. In looking through the literature We see that the estimates of fines in riffles does vary in terms of potential impacts. We think this deserves greater discussion especially since the data you provided were very close to the 20% value or below.

BLM19:

We acknowledge that there are variations in response and that the distribution of fine sediments in samples from the Upper Nestucca River indicated conditions very near to the established target. The reference to PACFISH has been replaced in the text. A more thorough discussion of these targets and local conditions is in response BLM21, below.

3.3.2 Page 64/ p5 You refer to long term monitoring of the loading capacity but we cannot find in the rest of the document where this is identified as an action item.

BLM20:

There is currently no existing plan for long-term monitoring. We expect to coordinate with DMAs, the local Watershed Council and DEQ lab to establish appropriate protocols and a program.

3.3.5 Page 64/ p1 We have reviewed the Baker et al. document on which the original listing was based and find there is no quantitative data to validate the original listing and it is assumed that BPJ was used in this. We cannot find in the document where the authors state that the Nestucca or East Beaver Creek do not support salmonid fish habitat. The habitat evaluations do show major habitat concerns for sedimentation above RM 41 on the Nestucca and in East Beaver. Sources such as land sliding, roads and Meadow Lake sediments are provided, however no specific explanation of why sediment was a habitat concern. As stated

on page 41, when Best Professional judgment is used, care should be taken to document all assumptions, and the BPJ-based decisions should be clearly explained to the public. We do not feel that the decision to continue to list for sediment has adequately been addressed or clearly explained to the public.

We recommend that this document disclose at this point why the current listing for sediment is not being dropped addressing several points including:

- 1 Continued reliance on the original relative rating system based on BPJ (without assumption disclosed concerning sediment).
- 2 The fact that the recent particle size counts as disclosed page 70 are at or below 20%.(figure 32).
- 3 Why the value of 20% fines is being used. Please cite the study reference.
- 4. Recognizing that sediment is currently meeting the standard when the surrogate (potential stream vegetation) has yet to be achieved. (page 75)

BLM21:

The original sedimentation listing was based on the best professional judgement, as cited in Baker, et al (1986), and a recognized declining trend in salmonid fish (coho and winter steelhead) abundance. In general, a listed waterbody remains listed until a TMDL is developed for the water body, or until evidence as good or better is presented indicating the original listing was in error or conditions have improved. When BPJ is used to list a stream, evidence of impairment of a beneficial use is also required. In the absence of a recovery of the beneficial use, the listing cannot be removed without very clear information demonstrating the parameter in question is not the causal effect.

The data presented in the TMDL (from ODFW surveys) is more detailed than that used for the listing, but estimates of surficial sediment percent cover were based on visual observations. Current DEQ methods are more rigorous than these, and the margin of error on visual estimates is unknown. Since the cover of fine sediments in riffle and glide reaches was near the target of 20% (90th percentile), and the error in these estimates is unknown, we are not able to determine that the sediment distributions are currently “meeting the standard”.

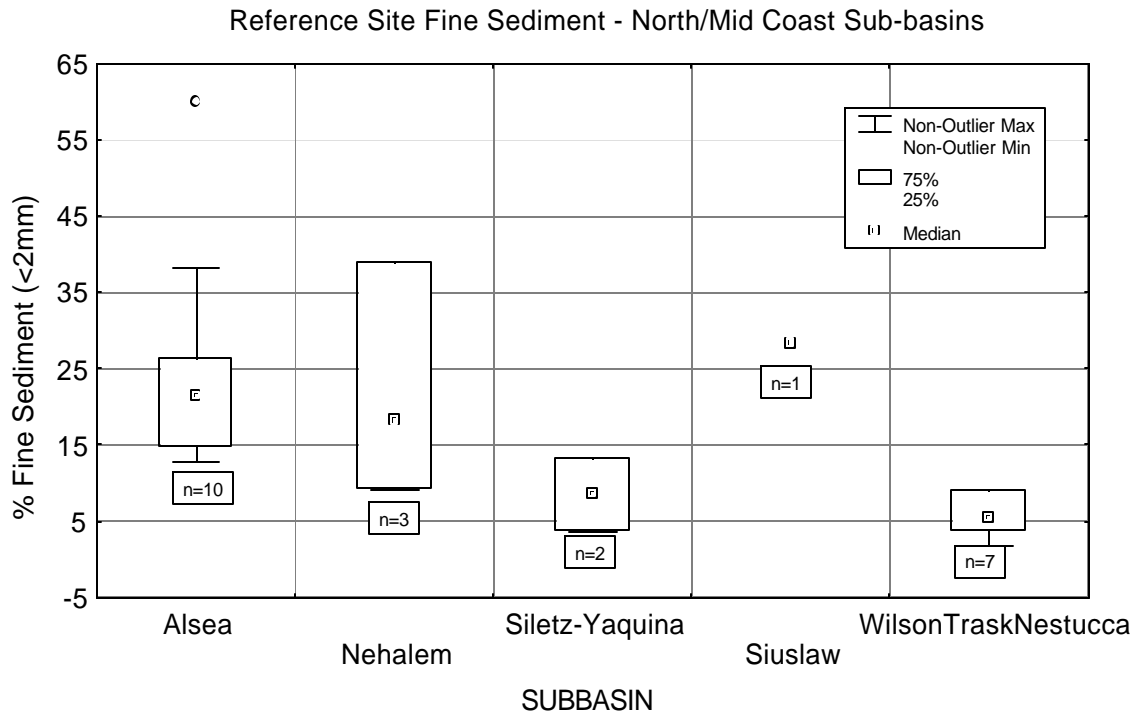


Figure 1: Fine sediment fractions at reference sites in the North Coast Basin

Comparison of the Nestucca River and East Beaver Creek sediments is similar to reference streams in DEQ's Coastal REMAP program (see Figure 1). There are other basins in the North Coast Basin that have higher proportions of surficial sediments than the Nestucca River. There are also reference streams with lower proportions. Particularly, DEQ/REMAP reference streams in the Wilson-Trask-Nestucca Subbasin (including one stream in the Nestucca Basin) had lower proportions of surficial sediments overall than ODFW data indicated for the Nestucca River. This does not mean the Nestucca is impaired relative to the surrogate; it means we cannot directly compare the ODFW data to the surrogate.

We cannot entirely delist the river for sedimentation in the upper watershed. We do believe the current condition of the upper Nestucca River is better than described in Baker, et al. (1986). When an approved TMDL is in place for the Nestucca Bay Watershed, the listed reaches will be removed from the 303(d) list during the next listing cycle, but will remain on the list of water quality limited water bodies required under Section 305(b) of the Clean Water Act.

Although PACFISH was cited as the source of the target of 20% fines, there were several other sources of information that suggest this as an appropriate measure of substratum suitability. A composite of studies of fry emergence related to percentage of fine sediments (2-6.4 mm) in substrates demonstrated substantial declines in emergence at proportions greater than 20% (Phillips, et al 1975; Hausle and Cobel 1976; and McCuddin 1977; all in Bjornn and Reiser 1991). Results of some studies (Bjornn and Reiser 1991) indicated embryo sensitivity to fines varied among species, but several salmonids (cutthroat and rainbow trout, kokanee, and chinook salmon) showed sensitivity to beginning at approximately 20% fines. Oregon Department of Fish and Wildlife habitat benchmarks indicate a range of substrate fines thresholds above which conditions were "undesirable." The midpoint of these limits was 20% area fines, though desirable conditions ranged from 8% to 12% fines depending on stream gradient and parent material. As indicated in Figure 1, above, median values of proportion of fines in reference reaches in the North Coast Basin were generally 20% of less.

3.3.1.2.2 Page 70/ p1 See comment 1 first paragraph.

BLM22:

We have made the proposed change.

3.3.8 Page 73/ p1 The statement, "The allocation for the Nestucca Bay Watershed and for the tributaries to the Nestucca River are: **20 percent streambed area fines in riffle and glide reaches**" is somewhat misleading. It implies that allocation is for the whole watershed. We suggest that you make it clear that the sedimentation load allocation is only for the 41.6 miles of the upper Nestucca River and East Beaver Creek.

BLM23:

This allocation, like that for system potential vegetation, is applied to the entire watershed. Parts of the watershed that have sediment distributions near or below the target will be little impacted by the allocation. Areas that are chronic sources of sediments due to management will be more directly affected.

3.3.10 Page 73, p1 The statement, "System Potential shade and channel widths are expected to result in stable stream banks, which will decrease mass failures throughout the watershed", is a somewhat misleading. We would recommend the following as a possible change: "Retention and restoration of System Potential shade is expected to result in stable stream banks and a decrease in landslide failures associated with riparian zones". Treatment of sources such as upland landslide areas, road related sediment and road / stream crossings need to be referred to in order to get at other portions of the sediment supply picture. There needs to be a tie in with the earlier statement in the summary page 63. Discuss how forest operations are going to ensure that rates of forestry – related landslides be controlled at measured background conditions. Constraints as summarized on page 10 needs to be addressed here particularly involving roads. We have not been able to identify in the WQMP where these constraints have been addressed in regard to sediment sources.

BLM24:

We have made the recommended text change. See response BLM15.

Page 110, P 1 How did you measure and determine NSDZ for channel areas in areas where vegetation masked the Ortho signature of the NSDZ?

BLM25:

The Digital Orthophotographic Quadrates (DOQs) were very effective in the Nestucca River watershed at allowing determination of Near Stream Disturbance Zone width. Some areas in the upper watershed that were very narrow and obscured by trees were not used. Where a channel could be discerned on the DOQs they were used. Otherwise, channel widths were not determined using DOQs, and ground level data was used. This is reflected in Figure 13 as a straight line upstream of River Mile 44.

Page 110, P 3 Reference to figure 36 is incorrect; we assume it is figure 53.

BLM26:

We have corrected this reference.

P111 Figure 53 Not clear how GIS sampling of the NSDZ was done in the lower graph. We think the narrative at some point needs to address the fact that the median width (upper limit of NSDZ) was used to do potential modeling and is not a target for any River Mile presented on the graph.

BLM27:

Refer to BLM10

WQMP Page 12/ p 2 Need to reference the PACFISH document that states this as an indicator.

BLM28:

This reference has been changed for reflect ODFW habitat benchmarks (Foster, etal 2001), along with other citations and management plans.

WQMP Page 17/ p 2 Need to check the % of administered BLM Lands.

BLM29:

We have corrected this reference.

WQMP Page 17/ p4 & 5 These paragraphs should be qualified by the fact that both decisions to do this work are dependant on budget availability.

BLM30:

We have added to paragraph 3, this page, the sentence: “Timelines for addressing these issues will be dependent on site-specific planning and availability of funding.”

WQMP Page 6/ p 2 Average annual precipitation in the watershed is between 70 to 180 inches. See 2.3.2, Figure 3 on page 17.

BLM31:

We have corrected this reference.

WQMP Page 17 Under the Forestry section, the USFS is curiously absent in terms of specific project plans. Do they have similar planned activities as BLM?

BLM32:

Under a Memorandum of Agreement between DEQ and USFS, the forest service will develop a Water Quality Restoration Plan (WQRP) with specific policies, projects, and schedules that will be designed to meet allocations in the TMDL, among other goals. Once complete, the WQRP will be the USFS implementation plan for the TMDL.

WQMP Page 20 Under the BLM section of this page, we would recommend language like: As budget allows, implement restoration activities as defined in priorities and long range plans.

BLM33:

Each of the DMAs has constraints that will determine which of these general categories will be implemented and where. We have added to the introduction of this element the sentence: “Various implementation aspects will be addressed as specific plans are implemented or developed, and as funding becomes available.”

WQMP Page 27 We would normally recommend dropping the Turbidity monitoring, as its usefulness alone is questionable, however since it is likely being done to provide background conditions for other parameters we acquiesce. We would like to suggest that monumented x-sections with designated particle size monitoring sites be established. The only way to quantitatively characterize the target of sediment in salmon habitat is to monitor this over time. If there is a 20% fines in riffles target there should be a monitoring agreement for this. This should be included in page 32 as a set up and maintenance cost over time.

BLM34:

We agree that an appropriate monitoring plan should be developed to determine progress toward meeting targets for all allocated parameters. We would be happy to talk about specifics of this plan and try and assure coordination throughout the watershed.

WQMP Page 34 There needs to be some discussion on how these estimates of time were arrived at. Reference modeling in the document or assumptions that went into this.

BLM35:

We have added the following short paragraph to the beginning of the section. “Estimates of time for meeting standards and full protection of beneficial uses were made based on existing plans (bacteria) or estimates of vegetational growth (temperature and sedimentation). Bacteria estimates are based on the timeline in Element 4 of the WQMP. Temperature and sedimentation improvements are dependent on growth of riparian vegetation and other management actions. The longest term treatment is restoration of riparian vegetation where needed to provide system potential shade. Vegetation should stabilize streambanks sooner than it will provide system potential shade.”

Nan Evans – DLCD

I am writing on behalf of the Oregon Department of Land Conservation and Development, Coastal Management Program to comment on the draft Nestucca Bay Watershed TMDL and Water Quality Management Plan (WQMP).

Coastal program staff has reviewed the TMDL and WQMP with specific interest in the treatment of urban and rural residential development within the watershed. Our findings are that the Draft WQMP is inadequate in its treatment of urban and rural residential land uses. There are two specific areas in the plan that reveal a lack of understanding about Oregon’s land use planning program, and the structure of local governments.

First, the Draft WQMP lists municipalities as designated management authorities, but there are no municipalities in the basin. Pacific City, Hebo, and Cloverdale are all unincorporated communities that are under the jurisdiction of Tillamook County. There are sewer districts that could be instrumental in implement the “expanding sewer network” action item listed under municipalities, but even this would likely involve Tillamook County authority. The other action items listed under municipalities would all have to be addressed at the county level.

DLCD1:

We will correct the designation of the communities as being unincorporated, but believe that these local communities can and will play a significant role in the attainment of TMDL allocations. Tillamook County

is also listed as a DMA and is charged with all of the action items of the “municipalities” in addition to several others. Some aspects of the sewer districts you mention would require the county approval; treatment plants in Hebo and Clovedale will both be upgraded in the foreseeable future, and the communities will be responsible for financing these upgrades.

Second, under Element 6, “Reasonable Assurance of Implementation,” only “ordinances” are listed as Regulatory/Structured programs for urban and rural residential land use. In Oregon, the state land use laws require local jurisdictions to have approved comprehensive plans that direct development activities and resource protection within that jurisdiction. Management of riparian areas, protection of water quality and compliance with state and federal water quality standards are clearly required by the land use goals, and thus should be addressed in Tillamook County’s comprehensive plan. Ordinances are a mechanism for implementing a jurisdiction’s comprehensive plan. Recognition of this regulatory structure in the WQMP would greatly strengthen this element of the document.

DLCD2:

The Department agrees that other activities can be address under comprehensive planning and that an opportunity to modify the plan is through periodic review. Tillamook County has a comprehensive plan that includes riparian protection goals and the county has existing ordinances designed to protect certain values in riparian areas. We do not believe these ordinances are sufficient to meet the shading requirements of the TMDL, and see development of more protective ordinances as the most important step in meeting these allocations. Tillamook County has engaged in a long-term planning process, through the Tillamook Bay National Estuary Project and later the Tillmook County Performance Partnership, that resulted in a Comprehensive Conservation and Management Plan (TBNEP/TBPP 1999). The Comprehensive Conservation and Management Plan includes as one of its actions (HAB-15) the revision of local ordinances to increase protection of riparian areas, wetlands, and instream habitat. The Tillamook County Performance Partnership (TBPP), is charged with implementing this plan in partnership with the county. Ultimately it is left to the county to change these ordinances to meet water quality standards.

We will add the following text to the WQMP, borrowing in part from the Water Quality Model Code and Guide Book (DLCD/DEQ 2000):

“Oregon cities and counties have authority to regulate land use activities through local comprehensive plans and related development regulations. This authority begins with a broad charge given to them by the Oregon constitution and the Oregon legislature to protect the public’s health, safety, and general welfare.

Every city and county is required to have a comprehensive plan and accompanying development ordinance to be in compliance with state land use planning goals. While the comprehensive plan must serve to implement the statewide planning goals mandated by state law, cities and counties have a wide degree of local control over how resource protection is addressed in their community.

The Oregon land use planning system provides a unique opportunity for local jurisdictions to address water quality protection and enhancement. Many of the goals have a direct connection to water quality, particularly Goals 5 and 6. Tillamook County is currently conducting a periodic review of its Comprehensive Plan. Among the expected changes to this plan will be revised ordinances for the protection of riparian areas. We expect the county to adopt revised ordinances that will be sufficient to meet the allocations in the TMDL.”

The TMDL for temperature appears to make little distinction in land use for the allocation. It rather bases the total maximum daily loading on the greatest potential natural shade conditions along all stream reaches. Sediment loading was treated similarly, since riparian conditions that support meeting the temperature standard were determined to be sufficient to reduce sediment loads from stream bank erosion. The TMDL notes that the percentage of the basin, and presumably the stream miles, affected by rural residential and urban development is small compared to other land uses. But it also states that no human caused temperature load is allowed.

The expectation of the TMDL seems to be that urban and rural residential land will need to be managed so that optimum natural shading conditions are eventually met. If this is indeed the directive, the management plan should include a strategy whereby Tillamook County can meet its load allocation within the regulatory framework of the Statewide Planning Goals.

DLCD3:

The WQMP is intended to work both through the regulatory framework of the Statewide Planning Goals and through voluntary actions such as those done by watershed councils, soil and water conservation districts, individuals and corporations. As indicated in DLCD2, above, we will modify the language in the WQMP to better reflect the regulatory framework of the Statewide Planning Goals. The WQMP summarizes existing applicable plans, jurisdictions and regulatory structures. None of the measures in the WQMP are DEQ initiatives, rather they are what DMAs are responsible for as a matter of existing law, or what plans have stated will be done by an entity to address specific issues. Entities that have no enforceable mandate or requirement are not listed as DMAs, although there are non-DMA groups that we expect will perform much of the work done in the basins to achieve allocations.

The DLCD field representative for Tillamook County, Dale Jordan, and the salmon and water quality resource specialists, Jeff Weber and Amanda Punton respectively, are available to assist you in any refinement of the urban component of the Draft WQMP that you chose to undertake. If you are interested in such assistance please contact us at your convenience. I suggest you work through Dale, who can be reached in Salem at (503) 373-0050 x262.

Chris Jarmer: OFIC

I would like to take this opportunity to comment on the “Draft Nestucca Bay Watershed Total Maximum Daily Load (TMDL)”. I’d like to compliment DEQ on the tone and general delivery of the document. Gone are the qualitative and personal biases found in many TMDL’s across the state. While I have disagreement with some of the content, I found that the presentation was professional and objective throughout.

Specific comments for temperature:

DEQ continues to go through exhaustive shade simulation work. I am not an expert in this field, so much of DEQ’s work is beyond my abilities to comprehend. This may not serve to be useful to you, but as a reader, one can become quite confused by what appear to be inconsistent use of terms. Take Figure 12 on page 33: how can actual ground shade conditions exceed system potential? If ‘system potential’ is somehow derived from an absolute maximum shade minus some reduction for natural variability, that would be a positive step in defining natural shade characteristics. Perhaps we need a new descriptor for this value. I have no suggestions, but I think DEQ should devote as much energy to explaining what they have done as they do to the actual analysis.

OFIC1:

The ground level shade measurements are what the current system provided during a survey in the indicated areas. That the model predicts lower potential shade than what is found in nature suggests that the estimates may be conservative, and that the shade levels are attainable. The difference may result from our design tree of 175 feet in uplands and 90% density. There are certainly taller trees in denser assemblages than we have assumed for modeling purposes, and many areas in the upper reaches have full hardwood canopy closure over the streams as well as tall conifers in the riparian areas.

For sediment:

I found the discussion of fine sediment confusing (pages 69 and 70). Surely “normal” percent fines vary by stream gradient, yet the same 20%-or-less standard is applied to upper and lower portions of the river and to all habitat types. Table 22 presents a range of data on the lower river, varying from 0 to 100% fines. Surely that was an artifact of sampling location by habitat type, not an indication of comparisons between like habitat types. Even if that is not the case, I wonder what the significance of the data and the table are.

OFIC2:

The 20% target is applied only to riffle and glide reaches throughout the basin. We agree that the data in Table 22 are sparse and that more would be better. The data are from riffle or glide reaches, rather than pools, however and in some cases should have a lower proportion of fine sediments.

In addition, on Table 22, the “90th Percentile” value is given as 85.5%. From the discussion on the previous page, that would indicate the value at which 10 percent of the observations were higher than 85.5% fines. Looking at the entries in the table, the average is roughly 32% and a median value would be closer to 20%. So unless data is not presented in the table, it would be hard to imagine how the 85.5% figure is indicative of any meaningful representation of the data.

OFIC3:

Some confusion clearly results from discussing the distribution of so few samples. Another way to state the same number is that 90% of the samples were below 85% fines in samples from the lower watershed, while 90% of the samples were below 20% fines in the upper watershed. Although there are few samples, higher proportions of fine sediments tended to be in the lower watershed.

Perhaps more troubling than the data is the comment on the top of page 70 that “visual estimates were made of the proportion of fines...” I don’t believe that visual estimates, even made by trained professionals, would qualify under DEQ’s own rules of quality assured data.

OFIC4:

The data presented in Figure 32 were provided by ODFW. These data were collected by ODFW’s standard protocols, which are widely used, and are the best available for the upper Nestucca River and East Beaver Creek. The error associated with these estimates cannot be determined, however they were made on a fairly fine scale overall and are sufficient for the current purpose. These data present a much more detailed estimate of sedimentation in the Nestucca River than the data used for the original listing (Baker, et al 1986) under section 303(d). They also suggest that the upper river is not currently severely impaired despite a history of intense forest management.

Following on page 70 is a discussion of fine sediments in Beaver Creek. The section inappropriately relies on an unpublished federal watershed analysis. We have commented on previous TMDL’s about the poor quality and lack of scientific rigor in these documents. Worse yet, this one is unpublished. The simple publishing of a document usually allows for at least some semblance of review. I would encourage deletion of this section.

OFIC5:

Although the Pilot Watershed Analysis was unpublished, the data are presented in their entirety. These data were used only for description of historical source information. For assessment of the current condition, recent ODFW stream survey data were used, as they were for the upper Nestucca River.

At the very least, DEQ should attempt to define Figure 33. What is a debris slide? How does the report make a causal connection between a debris flow (or slide) and a harvest? What is a “management related” debris flow in this context? How were natural rates determined? I would suggest inclusion of the ODF paper on landslides following the 1996 flood events. Not only is it more complete, the methods used are defensible and peer reviewed. The work is commonly thought of as the most complete inventory of landslides available.

OFIC6:

The Pilot Watershed Analysis (PWA) described terms as follows:

“Debris slides are the most common type of active landslides found within the Nestucca watershed. Debris slides occur on steep slopes covered with thin, granular soils, usually during heavy rainfall. Debris slides are easily activated by natural or manmade alterations in slope, soil water content or surface runoff.”

“Debris flows are the very rapid downslope movement of soil and rock material confined to stream channels; they tend to develop during heavy precipitation. Debris flows are usually initiated by debris slides.”

The PWA analysis used aerial photos from 1965-67, 1977, and 1988-89 to assess relative numbers of these landslide events under different landscape and management conditions. The analysis was limited to the East Beaver Creek and Moon Creek areas, where landslide potential was highest for geologic reasons. The survey found substantial increases in debris flows associated with roads and in harvest units. Management-related debris slides and debris flows were associated with road and harvest activity, though “a probable cause was not evident in the aerial photos.”

Analyses like those described above are not capable of determining cause and effect. However, the data provide strong inference that the increases in slides associated with various management activities were caused by those activities. The same analysis suggested that the rate of debris flows decreased in later years, associated with changes in forestry and road building practices.

ODF has published a recent analysis of landslides associated with storm events in forested areas of the Coast and Cascade Ranges titled Storm Impacts and Landslides of 1996: Final Report (ODF 1999). Among many other aspects of this subject, ODF concluded that aerial photos were a poor surrogate for direct, on-the-ground surveys. Aerial photos underestimated the rate of landslides in older forests because these features were obscured by forests in the photos. Still, ODF estimated ratios of landslides in harvested areas and road associated failures relative to older, unmanaged forests, and found in every case that the rate of landslides in “managed” was higher than in “unmanaged” areas. The effect was a matter of degree, and the majority of studies of this subject relied on, or included aerial photos. We appreciate the importance of this work and the professionalism shown by ODF in its presentation. However, these results would only change the relative magnitude of the difference, not the overall conclusion that management has resulted in higher rates of landslides.

In fact, the data from the PWA are consistent with at least some of the findings of the ODF study. Some of the conclusions in that report indicate that:

- In three out of four study areas in very steep terrain both landslide density and erosion volumes were greater in stands that were clearcut in the previous nine years;*
- Road associated landslides found in the study were typically about four times larger in volume than non road associated landslides;*
- Road associated landslides were smaller than landslides associated with roads as found in prior studies;*
- Road associated landslides were wholly or partially associated with a large percentage of the highly [landslide-] impacted stream channels at three study areas.*

We have added text to the discussion of management related landslides.

I would also offer that several of the bullet statements on page 16 of the WQMP are inaccurate. Relating the differences of the State Forest Management Plan to the FPA is comparing apples and oranges in any event---the State Plan attempts to use its riparian buffers to provide far more functions than simply to attain water quality standards, including additional wildlife habitat for upland species. I would delete the section.

If you feel the need to compare them, than I must insist that the comparisons be as accurate as possible. Please note that on bullet #2, both the FPA and the State Plan manage for Mature Forest Condition in the riparian areas; and on bullet #4, the FPA does in fact provide protection for non-fish bearing streams. These protections includes keeping bed and banks intact, leaving non-merchantable shade, placement of wildlife trees adjacent to type N streams, and a host of voluntary measures intended under the Oregon Salmon plan to provide further protection for some type N streams. Finally, bullet #3 is misleading at best. Tree density is a poor measure of the difference between RMA leave areas in the two plans. A very dense stand could be left intact under either plan, as could a very scattered stand. Measure of RMA width, stand age, stand composition, and basal area retained are needed to give any meaning to the differences one

might find in higher or lower densities. Worse yet, “dense” stands may be poorly suited for long term protection, yet the clear implication here is “denser is better.”

OFIC7:

Despite the varied management goals intended for the HCP, all of the indicated differences exist and the degree of protection in the HCP is greater. As you point out, the situations are difficult to compare. However, the addition of an outer riparian management area (RMA) for all stream types, no management in inner RMAs where mature forest condition (MFC) already exists, and vegetation protection to small non fish-bearing streams are significant differences between the two plans. Density is an important component in the provision of shade. We recognize that outer riparian areas vary in the level of tree and basal area retention depending on the availability of leave trees in the inner RMA, but this allows far more opportunity to leave shade producing trees at relevant distances from the stream. We have made changes to the bulleted items to reflect your comments and tried to make the comparison more accurate.

Finally, on page 11 of the WQMP, you mistakenly refer to the FPA as applying to State managed lands. The easiest way to refer to the State, county, and private lands included under the authority of the FPA is to refer to them as non-federal forestlands.

OFIC8:

We have made the recommended change.

Carol Whitaker: Georgia Pacific Corporation

Georgia-Pacific Corporation welcomes the opportunity to submit comments on the Nestucca Bay Watershed Total Maximum Daily Load (TMDL) Assessment. While Georgia-Pacific does not have facilities or properties located in the Nestucca watershed, it does have facilities in the State of Oregon which will likely be impacted by future TMDL decisions with regards to temperature. The Nestucca TMDL assigns waste load and load allocations for temperature using methodologies which may be establishing precedent for future decision-making which is critically important to our Oregon operations. Our comments relate specifically to those portions of the document dealing with the derivation of waste load allocations for point source discharges. We also support and endorse comments submitted by Northwest Pulp and Paper Association and the Oregon Forest Industries Council.

Comment: A TMDL document can appropriately assign load allocations and waste load allocations to nonpoint and point sources, however, the TMDL should avoid prescribing the specific conditions that apply within the context of a NPDES permitting proceeding.

The TMDL document correctly recognizes that Oregon regulations allow point sources to develop a surface water temperature management plan (OAR 340-041-0026(3)(a)(D)) in addition to meeting a “no measurable increase” (less than 0.25 °F) provision outside of a prescribed mixing zone. (“...point sources will not be allowed to increase the temperature of the stream outside of a defined mixing zone.” (p. 39) Yet the document also states, “Surface water discharges into receiving waters must not exceed the temperatures listed in Table 7...” with no apparent provision for a mixing zone (p. 39). These two statements appear contradictory and should be modified. The 77°F limit prescribed in the second case would essentially eliminate the mixing zone during those portions of the year when water temperature exceeds this level. This is not only incorrect for scientific reasons, but also for policy reasons (see NWPPA and OFIC comments). We suggest modifying the second statement to read, “Surface water discharges into receiving waters must not exceed the temperatures listed in Table 7 *outside of a defined mixing zone...*”

The regulations and guidance governing mixing zones are quite specific and are applied on a case-by-case basis as part of the permitting process. Considerations which govern the size of a mixing zone and whether there is a likelihood to exceed a water quality standard are site specific, and may include such things as the characteristics of the receiving water, the discharge volume, the design of diffuser equipment which promotes rapid mixing of the effluent with the ambient water, and proximity to other mixing zones. The determination as to whether a mixing zone is appropriate clearly is not an issue that should be addressed in a TMDL. We respectfully request that the DEQ limit this, and all future, TMDL language associated with thermal point source dischargers to “no measurable increase beyond the mixing zone as determined during the NPDES permitting process.”

GPC1

Although the allocations are in the form of an effluent temperature limit, they were derived by the same process used in determining discharge limits for point sources in NPDES permits. The endpoint was “no measurable increase in temperature ... outside of the defined mixing zone.” The method for calculating this limit (Equation 1, pg. 39) includes a term for the volume of the mixing zone ($\frac{1}{4}Qr$) and a “measurable temperature increase” (0.25 °F). This equation is essentially the allocation, and the terms may be modified as appropriate based on site-specific information. The discharges in the present TMDL are special cases in that the effluent flow of each is very small relative to the receiving river flow. This resulted in higher effluent temperatures than can reasonably be allowed without producing a mixing zone with some dangerously hot water. As a precaution, the limit of 77°C, recognized as the incipient lethal limit for salmonids, was applied as a cap. For other discharges, either new or existing but expanding, the measure of compliance will still be “no measurable temperature increase outside of the defined mixing zone.” The mixing zone referred to may be modified based on appropriate site-specific information during the permit development process. Since discharges to the Nestucca are not practically limited by the size of the mixing zone or diffuser design, there was no reason to incorporate language to allow for determination of higher dilution ratios.

Comment: Incipient lethality is a concept derived in the laboratory based on hours or days of exposure to elevated water temperatures and may not be appropriate for assessing impacts to aquatic species in the wild. In any event, limits to address incipient lethality are site specific and should not be incorporated into a TMDL.

A careful review of the literature cited by USEPA, NMFS, and others reveals that, at elevated stream temperatures, there is a physiological response which can lead to mortality. However, in all cases, the literature documents that acclimation conditions prior to exposure and the duration of exposure are critical in understanding the true nature of effects of heat on fish. These elements are not considered in the TMDL document. The literature values report exposure times of hours or days to achieve the stated end point. Most point sources are designed to achieve rapid mixing in the range of seconds rather than hours or days. Mixing is so rapid, in fact, that mortality levels reported in the literature may not be relevant to real world conditions. But, again, the determination of near field effects is a site specific issue that relates directly to the volume of the discharge, the design of the outfall, and the characteristics of the receiving water. A more appropriate place to address site specific impacts is in the NPDES permit process—not a TMDL. We refer you to the more detailed discussion of these issues, as well as others, submitted on behalf of the forest products industry by NWPPA and OFIC. If you have questions regarding these comments, please feel free to contact me.

GPC2

See response to NWPPA3 and NWPPA5, below.

Llewellyn Matthews: NWPPA

SUBJECT: DRAFT NESTUCCA TEMPERATURE TMDL – COMMENTS OF THE
NORTHWEST PULP AND PAPER ASSOCIATION

General Comments

The draft Nestucca Temperature TMDL confuses several key basic concepts:

- The purpose of TMDLs versus the regulation of individual point sources, and
- Thermal load (heat) versus temperature (a measurement)

In doing so, the TMDL may well be rendered ineffective in achieving its intended purpose as a planning mechanism to allocate loading so that water quality criteria are met. More troubling, the broad imposition

of specific technical engineering requirements to all dischargers may result in costly capital investments without a clear objective or benefit.

The following summarizes the key basic concepts which need to be addressed in this TMDL:

First, TMDLs are a goal-setting regulatory process to address the assimilative capacity of stream segments to pollutants and allocate that capacity to various contributing categories of activity. For point sources, a TMDL may allocate assimilative capacity to particular discharges. In this case, the pollutant is the addition of thermal load (heat), NOT temperature. The issue is how much heat can be added by particular point source discharges without causing a measurable increase of 0.25°F in the receiving waters at the mixing zone boundary. The answer depends on temperatures and flow volumes of both the effluent and the receiving waters.

The water-quality-based effluent limitations needed to implement the TMDL should be left to the NPDES process and not addressed in the TMDL itself. The scope of a TMDL is defined by CWA Section 303(d) and 40 CFR 130.7. TMDLs, like water quality standards, establish goals that are to be accomplished through other legal mechanisms, including NPDES permits for point sources. TMDLs should focus on far-field impacts, assessing the overall assimilative capacity of a stream segment, and not the near-field effects addressed in the conditions attached to individual NPDES permits such as effluent limitations, mixing zone boundaries, and diffuser standards.

Secondly, heat is not “conserved” and “cumulative” within the waters of a drainage system. Heat exchanges continually occur between the water and air, substrate, groundwater, and other discharges, by convection, conduction, evaporative cooling and other mechanisms. Generally, surface waters trend toward ambient air temperatures and reach an equilibrium with air temperatures within relatively short distances downstream from anthropogenic sources of heat. Therefore, where multiple thermal discharges occur in close proximity, it may be necessary to impose more stringent effluent limitations for heat. Conversely, more isolated thermal discharges may cause little or no environmental harm because the majority of the river reach may be at or near equilibrium temperatures.

Consequently, thermal mixing zones should be determined on a case-by-case basis as part of the NPDES permit process rather than on a programmatic basis as part of the TMDL process.

The following addresses concerns regarding the particular technical requirements in the draft Nestucca TMDL

Comment 1: A TMDL is not the appropriate regulatory instrument to address the site-specific NPDES permit parameters of temperature and mixing zone volume

In Section 3.1.8 of the draft Nestucca TMDL, DEQ offers that “...modeling and provision of an adequate margin of safety has indicated there will be no assimilative capacity for either point or non-point sources of heat in the water shed. As a result, point sources will not be allowed to increase the temperature of the stream outside of a defined mixing zone.” In Section 3.1.8.1, DEQ appropriately recognizes the regulatory limitation for thermal input as “no measurable increase as measured by 0.25°F “ (ORS 340-041-006(55)) outside a mixing zone. These two statements could be considered inconsistent because the first suggests that point sources will not be allowed to cause any increase in temperature while the second appropriately allows increases of up to 0.25°F. We recommend that the intent be clarified by adding the word “significantly” in 3.1.8 so that it says: “... point sources will not be allowed to significantly increase the temperature stream outside of a defined mixing zone.”

NWPPA1:

We will add the word “measurably” to the sentence in Section 3.1.8, to read “point sources will not be allowed to measurably increase the temperature of the stream outside of a defined mixing zone.” The term “measurable temperature increase” is defined (OAR 340-041-0006) as an increase of more than 0.25 °F.

Other than appropriately defining a “no measurable increase limit of 0.25°F,” the Nestucca TMDL should be silent on the specifics associated with a point source discharger’s NPDES permit conditions.

NWPPA2:

See response to comment GPC1.

Comment 2: DEQ has no technical or regulatory basis for imposing a discharge limit of 77°F and 25 percent dilution to point sources addressed in the Nestucca TMDL.

Imposing a 77°F limitation on a point source discharge without addressing flow and the spatial dynamics of mixing and energy transfer occurring within a mixing zone is not effective regulatory policy. Nor is it likely to provide efficient and effective protection of native species. These questions are best addressed on a site-specific basis in the NPDES process.

As an example, consider two point sources discharging to a stream segment that is 303(d) listed for temperature. One discharges at 76°F and the other at 200°F. The parameters necessary to complete an accurate picture of each discharger’s far field impact are flow rates of both the discharge and the receiving waters and the ambient temperature of the receiving waters at the point of discharge. Clearly, a de minimus flow rate from a 200°F discharge may have little effect while a large flow rate from a 76°F discharge could have a significant effect. Further, a large discharge at 76°F could have a significant warming effect when the receiving waters were colder than that, a significant cooling effect when the receiving waters were warmer than that, and no effect when the receiving waters were at 76°F.

Prescribing mixing zones should be done on a case-by-case basis as part of the NPDES permit process, not on a more programmatic basis as proposed in 3.1.8.1 of the draft TMDL. The appropriateness of a mixing zone is a function of site and discharge specific considerations, including diffusion equipment and proximity to other thermal discharges. Oregon law provides excellent flexibility for the DEQ regarding mixing zones including Zones of Immediate Dilution (ZID). As with mixing zones, a ZID is a site-specific parameter and the DEQ should review the appropriateness and efficacy of a ZID with the specific NPDES permit and not as part of a TMDL.

It would seem quite important for the Department to maintain its discretion in dealing with point source dischargers. Depending on the stream and effluent flow rates, stream and diffuser velocity and geometry, stream depth, and stream temperature, an effluent temperature of much less than 77°F could be much more damaging than a discharge of 100°F or even higher.

NWPPA3:

The method of calculating the allocation accounts for each of the factors discussed above. Equation 1, on page 39 of the Draft was used to calculate an effluent temperature that would not cause an increase greater than 0.25 °F at the edge of the mixing zone. Site specific information may be used in developing a permit to modify some factors and allow calculation of other mixing zone dimensions and dilution ratios.

The incipient lethal limit is applied to these very small and simple discharges because it was protective, and there was no practical reason to develop more sophisticated mixing zones. Other discharges, either new or existing and enlarged, will be required to meet the limit of “no measurable temperature increase outside of the defined mixing zone.”

We respectfully request that the DEQ limit this, and all future, TMDL language associated with thermal point source dischargers to “no measurable increase beyond the mixing zone as defined during the NPDES permitting process.” This language maximizes the department flexibility in dealing with point sources dischargers and represents good public policy.

NWPPA4:

See response to comment GPC1

Comment 3: Incipient lethality is a site-specific issue and should not be addressed in a TMDL

Furthermore, the literature on the subject of incipient lethality lends credence to the idea that it is appropriate to consider this effect, but on a site-specific basis. There are many literature studies to support the concern that fish could experience mortality if exposed to temperatures over 25 degrees C for prolonged periods of time. Typically the time range of exposure that results in mortality is from several hours to several days. The most sensitive study found effects after exposure of one hour.

In a worst case scenario of a slow moving stream (0.2 feet per second), a fish carried with the current of the river would be exposed to effluent for only 16 seconds. Most fish will exert themselves to avoid warm temperatures, so the reality may be even less exposure.

The example again illustrates the necessity to analyze site-specific factors of stream flow, and the actual characteristics of the effluent rather than assume a requirement should be applied universally.

NWPPA5:

Additional site-specific information may be used to define the confines and complexities of a mixing zone. We question whether this above assumed “worst case scenario” considers all of the possible local circumstances any more than the allocations presented in the TMDL. At least one of the facilities addressed by the TMDL, the Hebo Joint Water and Sewer Authority STP, discharges to a very narrow channel with a low flow rate less than 30 cfs. Calculation of the allowable effluent temperature demonstrates that this outfall has no significant potential to cause a measurable temperature increase outside of the mixing zone. However, the worst case scenario here is fish passage being limited to an area within the mixing zone, and fish holding in the mixing zone while trying to swim up the river. With these potential circumstances, placing a cap consistent with estimates of incipient lethality was prudent.

Thank-you for the opportunity to make these comments.

Marvin A. Lewallen: Weyerhaeuser

On behalf of Weyerhaeuser Company, I am offering the following comments associated with the subject TMDL.

Weyerhaeuser strongly supports the comments offered by Oregon Forest Industries Council and the Northwest Pulp & Paper Association.

Weyerhaeuser respectfully requests DEQ to reconsider how the Nestucca TMDL addresses thermal allocation to point source dischargers. The following are a summary of Weyerhaeuser’s concerns. Please review Northwest Pulp & Paper Association’s comments for more detailed explanations.

Comment: Temperature and mixing zone limits are not appropriate parameters for a temperature TMDL except where point sources have overlapping mixing zones.

Assuming DEQ is correct in determining that the Nestucca has no available thermal capacity, the appropriate regulatory finding for a point source under Oregon law is “no measurable increase as measured by 0.25°F outside a mixing zone” (ORS 340-041-006(55)). Oregon law is quite clear on the definition of “no measurable increase”. Making a “no measurable increase” finding is complete and sufficient relative to how a TMDL should address a point source’s contribution within the TMDL process. Only where mixing zones overlap, should the TMDL process intervene by addressing any cumulative impacts of point sources.

Weyerhaeuser1:

See GPCI, above

The TMDL process addresses the far-field impacts of all thermal inputs and address equity issues in determining allocations. The near-field issues of temperature, mixing zone limits and incipient lethality are only appropriate for consideration within the NPDES permitting process. Federal and State law seem clear on this point.

Weyerhaeuser respectfully requests that the Nestucca TMDL be silent on temperature and mixing zone limits with the TMDL.

Weyerhaeuser2:

See GPC1, above

Comment: The issue of “incipient lethality” is not appropriate within the TMDL process and should be address via NPDES permits.

As with temperature and mixing zone limits, incipient lethality is a site-specific consideration and should be addressed during the assessment of a mixing zone.

As NWPPA appropriately points out:

“Prescribing mixing zones should be done on a case-by-case basis as part of the NPDES permit process, not on a more programmatic basis as proposed in 3.1.8.1 of the draft TMDL. The appropriateness of a mixing zone is a function of site and discharge specific considerations, including diffusion equipment and proximity to other thermal discharges. Oregon law provides excellent flexibility for the DEQ regarding mixing zones including Zones of Immediate Dilution (ZID). As with mixing zones, a ZID is a site-specific parameter and the DEQ should review the appropriateness and efficacy of a ZID with the specific NPDES permit and not as part of a TMDL”.

Relative to incipient lethality, the literature places threshold exposure times at the temperatures in play in the “several hours to several days” range. NWPPA appropriately states:

“In a worst case scenario of a slow moving stream (0.2 feet per second), a fish carried with the current of the river would be exposed to effluent for only 16 seconds. Most fish will exert themselves to avoid warm temperatures, so the reality may be even less exposure.”

The example again illustrates the necessity to analyze site-specific factors of stream flow, and the actual characteristics of the effluent rather than assume a requirement should be applied universally.”

Weyerhaeuser respectfully requests that the issue of “incipient lethality” be addressed via NPDES permitting and not the TMDL process.

Weyerhaeuser3:

See NWPPA3, above

Weyerhaeuser is pleased to have the opportunity to offer comments on the Nestucca TMDL. We would be pleased to discuss our comments with the DEQ at any time.

Tony Owen: Pacific City Joint Water-Sewer Authority

On behalf of the PCJWSA Board of Directors, I want to thank you for taking the time to meet with us on January 30, 2002. Your explanation of the TMDL rules and their potential effects on the PCJWSA wastewater system was appreciated and served to alleviate some initial concerns of PCJWSA. However, as I have outlined below, questions and concerns regarding the impact of the TMDL on PCJWSA still exist and I have therefore incorporated them in this letter.

TEMPERATURE TMDL

1. Baseline historical data for seasonal water temperatures within the Nestucca River from the mouth to river mile 7 appear to be absent from the draft. Does this information exist?
2. If the information referenced exists, how does PCJWSA obtain this information?
3. If the information referenced does not exist, how was the temperature TMDL for PCJWSA accurately derived?

PCJWSA1:

The allocation structure of the TMDL has been changed to exclude the PCJWSA and Neskowin Regional Sewer Authority (NRSA). Both of these outfalls have been removed from the allocation list because they do not contribute to the listed impairment. PCJWSA discharges to the Nestucca River estuary which is not water quality limited. The temperature standard for the estuary is: “no significant increase above natural background temperature is allowed.” We have made explicit in the TMDL that the discharge may not cause a violation of this standard. The NRSA does not discharge to Neskowin Creek between June 1 and September 30. This discharge will still have the specific requirement that it not cause a measurable increase in temperature outside of the defined mixing zone, but will not receive an allocation.

4. On page 30 of the draft TMDL, Section 3.1.6.1 Point Sources, a reference is made to a point source that discharges 12.7 cfs. By my calculations, this would amount to a point source discharging in excess of 8.0 MGD. Is this a misprint or is there another point source within the basin of which we are unaware?

PCJWSA2:

This reference was in error and we have corrected the final document to read: “Dry weather design discharge rates are very low for these facilities, ranging from 0 cfs to 0.6 cfs.

5. Again, on page 30, Section 3.1.6.1 Point Source, it is stated, “effluent temperatures are typically on the order of 72⁰ F.” What is the basis to support that conclusion?

PCJWSA3:

Recent review of available effluent temperature data for several coastal sewage treatment plants demonstrated that effluent temperatures were generally 72 °F or less during summer. Temperature data for these plants are presented below.

Facility	Maximum Temperature	Period
<i>Neskowin Regional Sewer Authority</i>	<i>64 °F</i>	<i>July 2001;</i>
<i>Cloverdale Sanitary District</i>	<i>68 °F</i>	<i>August 2001;</i>
<i>City of Tillamook</i>	<i>72 °F</i>	<i>May-September 1999-2000;</i>
<i>City of Bay City</i>	<i>70 °F</i>	<i>1996 through 2001.</i>

6. Within the context of the technical information contained within the draft, where is the mouth of the Nestucca River located?

PCJWSA4:

We used River Mile 0 as defined by the Oregon Water Resources Department for the mouth of the Nestucca River. This is approximately 1.5 miles downstream from the Pacific City Bridge. Although this is the beginning of the river, it is still an estuarine area and standards vary for some parameters.

7. On page 39, Section 3.1.8.1 Wasteload Allocations (Point Sources), Equation 1, where: T_p = System Potential Temperature; since there is no modeling data available in the Tidal Zone, how is T_p derived?
8. Again, Where: T_c = Numeric Criterion; T_c does not appear within the parameters of the equation. Is there a misprint?
9. Again, Where: Q_R = Receiving Water Flow; how is PCJWSA expected to quantify Q_R ?

PCJWSA5:

This equation is not appropriate for use in the tidal area of the river. However, as stated above, the PCJWSA is being held to the estuarine standard and is not receiving an allocation. Given that temperature modeling was done on the Nestucca River, discharge limits were developed relative to the system potential temperature, T_p , rather than the numeric criterion T_c . Either can be used in the equation. For simplicity, we have deleted the T_c from the definitions. For the reasons stated above, Q_R will not be needed for this discharge. The department will work with PCJWSA to collect appropriate temperature and flow data for compliance determination with the estuarine standard.

10. The PCJWSA NPDES permit currently defines our mixing zone as: “The mixing zone shall not extend beyond a radius of one hundred (100) feet from the point of discharge.” Will this condition change under the TMDL’s and if so, how will it change?
11. PCJWSA recently installed a UV disinfection system at the effluent end of the wastewater facility. During quiescent times (no flow) the WWTP effluent could potentially become heated beyond the WLA. How will this affect PCJWSA’s compliance with the TMDL?
12. In the event PCJWSA cannot meet the temperature TMDL during “normal” operations (in other words, the effluent will increase temp. beyond .025⁰ F at the edge of the mixing zone), what will PCJWSA do with its effluent?

PCJWSA6:

We do not anticipate that the PCJWSA will be unable to achieve the allocations and permit limits included in the TMDL. However, if there is the need to upgrade the plant to comply with the limits, it will be done in the same way as any other plant upgrade. The Department and PCJWSA will enter into a Mutual Agreement and Order, with timelines for completion. The terms of these orders are negotiated between the Department and PCJWSA.

BACTERIA TMDL

1. Page 56, Table 13; PCJWSA’s existing permit limits are shown as monthly geometric mean of 80/100 ml and weekly geometric mean of 160/100 ml. I believe this is a misprint since our NPDES permit lists limits as: monthly geometric mean of 126/100 ml with no single sample to exceed 406/100 ml.

PCJWSA7:

We have made this correction in the TMDL

2. Page 60, Table 18; are the proposed new standards for FWS geometric mean of 35/100 ml and summer geometric mean of 126/100 ml monthly, weekly or seasonal averages?

PCJWSA8:

The geometric mean is based on a minimum of 5 samples in a 30-day period.

3. As previously mentioned, PCJWSA recently installed a new UV disinfection system for the WWTP effluent. The design criteria for this project were based on the existing E. coli standard of 126/100 ml, monthly geometric mean. It is now apparent that PCJWSA will be required to meet a much tougher disinfection standard (35/100 ml) for most of the year. In the event we cannot meet the new standard, how long of time frame will PCJWSA be given by the DEQ to make additional modifications to the WWTP in order to comply with the new standard?

PCJWSA9:

Based on a review of recent Discharge Monitoring Reports., we do not anticipate that the PCJWSA will be unable to achieve the allocations and permit limits included in the TMDL. However, if there is the need to upgrade the plant to comply with the limits, it will be done in the same way as any other plant upgrade. The Department and PCJWSA will enter into a Mutual Agreement and Order, with timelines for completion. The terms of these orders are negotiated between the Department and PCJWSA. The

department will work with PCJWSA to collect appropriate temperature and flow data for compliance determination with the estuarine standard.

4. If we exceed the bacteria TMDL, will this also be considered a violation of our NPDES permit and what type of penalties, if any, would the DEQ/EPA impose on PCJWSA outside the normal NON, given that the Nestucca is a 303(d) listed river?

PCJWSA10:

The limits in the TMDL will become part of the PCJWSA's NPDES permit at the next renewal. As such, these permit limits will carry the same liabilities as the limits in the current permit.

Again I would like to thank you for taking the time to meet with the Board of Directors and explain the TMDL's to them. The meeting was productive and allowed the Board to receive their answers directly from the source as opposed to any misinterpretations I may have conveyed to them.

If you have any questions please contact me. I look forward to your response.

Charles Hurliman: Tillamook County Commissioner

Maximum TMDL Nestucca Bay

The recognition that chemical water quality analyses do not adequately predict or reflect the condition of all aquatic resources has led to the development of measures of biological integrity expressed by biological criteria. Biological surveys, criteria, and assessments complement physical and chemical assessments of water quality by reflecting the cumulative effects of human activities and natural disturbances on a water body, including the possible causes of these effects. The biological approach is best used for detecting generalized and non-specific impairments to biological integrity and for assessing the severity of those impairments. Then, chemical and toxicity tests and more refined habitat assessment can be used to identify probable causes and their sources, and to suggest corrective measures.

Several points I must address when reviewing the Draft Nestucca Watershed TMDL are: is the fecal coliform levels higher or lower than 50 years ago; is the clam populations higher or lower than 50 years ago; is the chemical and toxicity higher or lower than 50 years ago.

History:

- Commercial clam digging operations in the Little Nestucca Bay in the 1940s.
- Very few houses along the river had installed septic systems, the corrective action was the formation of the Pacific City Sewer System, the Cloverdale system and the Hebo System.
- Canneries dumped fish parts of clam parts back into the river until the 1960s.
- Tillamook County Creamery plants at Cloverdale, Hebo, Oretown, Beaver, Hemlock and Central released whey back into streams.
- The aroma in the Nestucca Valley was of rotten fish after the spawning fall fish died through the months of February or March; this lasted through the 1970s.
- Logging practices that included building cat roads every 200 ft until the 1960s.
- Native American management practices of fire burning off vegetation around many parts of the river system.
- Meadow Lake Dam break in 1962.
- The major gutting of the streams in the basin in the flood of 1972.
- East Beaver natural land slide.
- Fragile soils on the north side of Mt. Hebo at the fault lines.
- Wild geese refuge and the major increase in geese numbers over the last 15 years.

The point is the county has cleaned up and lowered the amount of fecal coliform, yet I feel we have degraded our river and bay with the introduction of chlorine from the waste treatment plants on the river. The people of Tillamook County are concerned about damage to the environment and the habitat for the species that live with us.

Hurliman1:

We have no reliable data to demonstrate the changes in fecal bacterial concentrations through time. There is reason to believe that, for many of the reasons you provide, concentrations have decreased relative to a relatively unregulated period with decentralized milk processing facilities, poor wastewater treatment, and fish processing. These points notwithstanding, water quality currently does not meet criteria for the protection of beneficial uses year-round. The purpose of the TMDL is to provide allocations that, if met, will result in concentrations of bacteria that protect beneficial uses.

Each of the wastewater treatment plants has limits set by their NPDES permits to ensure that contaminants in the effluent will not violate water quality standards. Chlorine is limited in this way and data reported by the dischargers does not indicate violations of their permit limits. Of the three discharges of this type in the watershed, the largest, Pacific City Joint Water and Sewer Authority, employs an ultraviolet light disinfection system, largely eliminating the use of chlorine, except in emergencies.

The document talks of adaptive management, (a circle of criteria, management, monitoring, information, and back to criteria). If the criteria is not considering habitat assessment to begin with the whole document is inconsistent with the objective of a better environment for all species.

Hurliman2:

The TMDL is not intended to be a static document. The framework for TMDL implementation, which will take place over many years, will require adaptive management and occasional review of allocations. The implementation plan for the TMDL is the Water Quality Management Plan. This document also will change as appropriate to accommodate changes in law, local planning, and the success of implementation.

The TMDL is developed to meet requirements in the Clean Water Act. The act requires the state to develop water quality standards that will protect defined beneficial uses. These uses are listed in the Oregon Administrative Rules. The TMDL must consider the most sensitive beneficial use relative to the parameter (e.g., temperature) in question. To some extent, biological criteria are used to assess impairment of water quality, but the water quality itself is the direct subject of the TMDL. Therefore the TMDL is consistent with the requirements and intent of the federal Clean Water Act, and should result in protection of biological integrity.

A major purpose of developing biological assessment methods is to establish biological criteria for surface waters. Biological criteria are guidelines or benchmarks adopted by states to evaluate the relative biological integrity of the surface waters. The criteria are defined as “narrative expressions of numerical values that describe the biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use” (USEPA 1990).

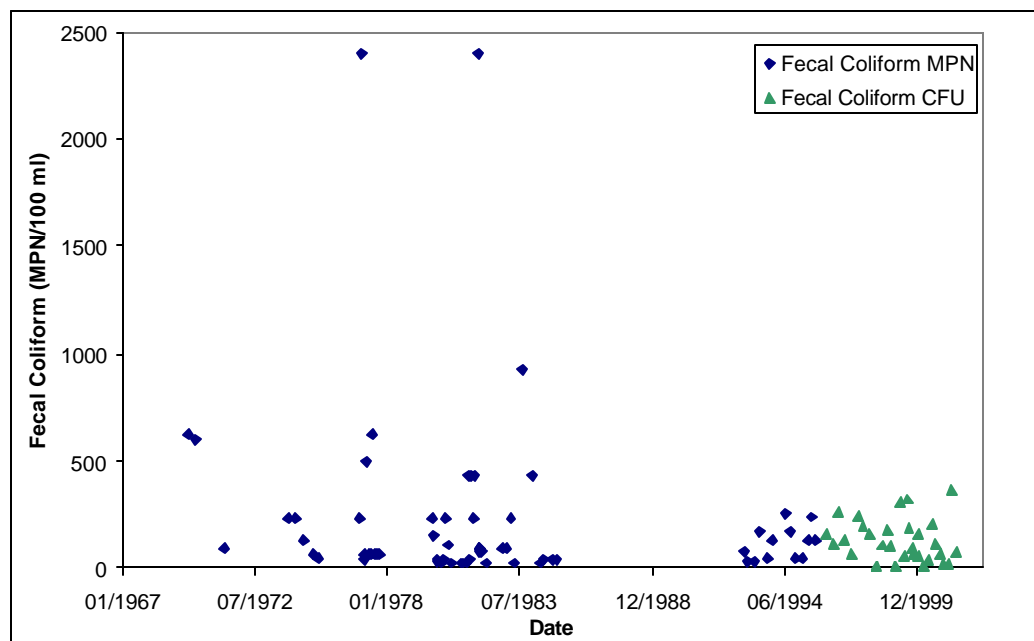
Biocriteria can be developed from reasonable expectations for the locality based on: historical data; reference conditions; empirical models; and the consensus judgement of regional experts.

I would like to see a document that reflects the historical numbers of when we had a healthy ecosystem. The condition of clams in the bay have indicated that we are some how going wrong on the approach to cleaner waters. If we are concerned with health of the clam diggers with regard the standards the standards set, we should be placing warning that the waters exceed the fecal coliform levels set by the Department of Agriculture; we shouldn't sacrifice the habitat and the different species to meet numbers. Historically streams operate from time to time on extremes not median. In addition, fecal coliform levels will also have periods of extreme. Nature has a reason for extremes, and we should allow them to exist.

Hurliman3:

As stated earlier, we do not have reliable historical data from a time when the bay was meeting water quality standards. Although raw data suggests that conditions have improved somewhat over the years (Figure 2), a direct comparison cannot be made. The fact remains that fecal coliform bacterial concentrations have frequently exceeded water quality standards in the recent past.

Figure 2: Fecal coliform data from 1967 through 1999 at Cloverdale.



There is currently no shellfish management plan for Nestucca Bay, and the triggers (e.g., flow and rainfall) for deciding whether shellfish are safe have not been developed. Although posting is possible and recommended when there is a health risk, any posting under current circumstances would require constant posting warning of an occasional health risk.

EPA Draft Temperature Guidance

When reviewing the fact sheet on the 4 key elements, I must question the temperature numbers because of the history of Northwest lands.

As quoted from the fact sheet, “The draft guidance sets out a methodology for calculating thermal potential, using historical data and fish distribution information.” On page 26 of the draft it says, “historical data is most useful for verifying models.” However it goes on to say, “These data are unlikely to be useful for directly establishing the thermal potential under median climate conditions.” Therefore, what is being set forth as guideline is a median and any time an extreme occurs one is out of compliance.

History shows us median conditions are not the norm:

- **Climate:** In the Pacific Northwest, there are about one hundred years of accurate weather records. The temperature and precipitation data show that there have been four distinct climate periods in time period.
- **Fire:** Fire was a very significant force in the development of the Pacific Northwest forests. A number of factors affected the return intervals, rainfall patterns, frequency of lightning, and frequency of fires started by people. In the Coast Range, large forest fires occurred infrequently, about once every 300 to 350 years in any particular spot, but they were high-intensity, stand replacement fires. Smaller fires were more frequent, occurring about every 50-100 years. In the Cascades, more lightning led to moderate fire frequencies, with the return interval ranging from 25 to 100 years. Fire effects covered a wide range, including severe, stand-replacement fires; patchy fires; and understory burns. Native Americans relied on the natural resources around them for their survival. They managed these to benefit their fishing, hunting, and gather lifestyle. One of their most important tools was fire. The Native Americans burned large areas of the Willamette Valley and coastal valleys annually, in late summer or fall.

- **Floods** : Floods have different effects on the water ways. Major floods can scour out streams, move sediment and logs, and carve out new channels. Over the past 150 years, at least 5 major floods have occurred in western Oregon.
- **Wind**: As typical of most disturbances, windstorms interact with other events in many ways. For example, the Douglas fir bark beetles killed over 2 billion feet of live trees between 1951 and 1959, after getting started in blowdown from the winters of 1949-52 and 1955-56. Insect and diseases also create significant disturbances upon the landscape.

The history of the Northwest shows us that a static structure of trees in or near the riparian zone of any stream is not the case. The Native Americans did not take the water temperature before using their tool of fire to manage the landscape for all their needs. The populations of fish rose and fell with the combined conditions of the globe. We must be careful when we write guides or regulation because many of us think that is the way it must be without using common sense. To have a median of a range of temperatures does not make sense when looking into the past.

Hurliman4:

We assume the above comments are directed at the draft EPA guidance of temperature, and not specifically the Nestucca TMDL. The TMDL addresses anthropogenic sources of stream heating, whether from point or non-point sources as directed by the standard. No streams in the Nestucca subbasin are currently out of compliance with the temperature standard because of interannual variation. Although modeling in many watersheds suggests the criteria will not be met all of the time even with System Potential shade and channel conditions, this was not the case in the Nestucca Bay Watershed (see Figures 14 and 15, Draft TMDL). Natural sources of heat are considered in the models and allocations as background conditions. Wasteload and load allocations must be calculated to ensure that they do not cause an impairment when added to this background. Still, natural disturbances may have ultimate control, and can cause the environment to reset itself to a water quality limited status.

Paul Hanneman – Tillamook County Commissioner

In my opinion, the draft fails to provide substantial and conclusive evidence of current conditions.

Further, the data selected is not sufficient to establish a trend, overtime, for temperature, bacteria or sedimentation.

Hanneman1:

Several years of data have demonstrated that the Nestucca River does not meet water quality criteria for temperature. These data have been collected by the US Forest Service, the Nestucca-Neskowin Watershed Council, and DEQ. Temperatures in the river have varied slightly among years, but have indicated no trend in time. Continued monitoring will be necessary to observe changing trends through time.

Historical data from DEQ and more recently the Nestucca-Neskowin Watershed Council have demonstrated that parts of the Nestucca River and Nestucca Bay do not meet water quality criteria for bacteria. There may be insufficient data to demonstrate a trend of either increasing or decreasing bacterial concentrations. However, there are frequent examples of water not meeting water quality standards.

Listing under Section 303(d) requires only that water quality standards designed to protect beneficial uses are violated in a significant number of samples from a given waterbody. There is no requirement that an increasing trend be demonstrated or that sources are identified. The TMDL process is intended to develop limits that will meet water quality standards and be protective of beneficial uses.

A long-term monitoring program for parameters of concern in the watershed, building upon the current monitoring program, will be developed under the WQMP.

Carol Bickford – Nestucca Neskowin Watershed Council

Provided several editorial comments arranged around the topic of responsibility for implementation.

Summary of comments:

The NNWC Board has not committed to any solo responsibility for implementation. The council is concerned about how much responsibility they take on, and would like to see changes suggesting that implementation is shared by NNWC, Tillamook County Performance Partnership, and DEQ. Need to clarify that NNWC has an educational and project function, not a regulatory function. Future commitments may not be met if staffing changes.

NNWC1:

We made all of the text changes and additions contained in the faxed copy of text edits. We have also clarified the role of the NNWC in assisting with many of the public involvement and monitoring goals of the WQMP as continued funding provides.

Andy Dufner – Nestucca Sanctuary

The enclosed are my comments about the Nestucca Bay Watershed TMDL documents. I'm sorry I didn't get thoroughly through the TMDL document itself, but I ran out of time.

I did read the WQMP document with some care, and although most of my observations on it are editorial or typographical in nature, I do have one substantive observation.

I kept noticing, as I read sequentially through it, that the N-NWC was being assigned various responsibilities in the implementation of the WQMP. Then in Element 8 I found that the "N-NWC has assumed responsibility for the implementation of the Nestucca Basin WQMP." That would explain the assigned responsibilities alright. But at the same time I am unaware of the NNWC Board action where it assumed responsibility for the WQMP. I checked with our president Carol Bickford, and she couldn't recall when/if such an action had been taken by the council. But you must have a paper trail on that, Eric, and perhaps it would be helpful to reference it for the general public (and the council), if only by an in-text date or some such. Personally I wouldn't mind if the Board had done that. Such a responsibility seems appropriate to the work of the Council.

Duffner1:

See response NNWC1 above.

Thanks for your hard and careful work on this document, Eric. It's a beauty.

Non-editorial comments:

Table 1 of beneficial uses; shellfish gathering is missing.

Duffner2:

Shellfish harvesting is included in the larger category of fishing for purposes of defining beneficial uses.

Several of the wastewater discharges listed in Table 3 do not discharge to the Nestucca River.

Dufner3:

Only the facilities listed as NPDES permits in the table discharge wastewater to surface waters. The others are septic systems (WPCF and Gen-54 permits) which have no discharge, the Cedar Creek Fish Hatchery (Gen-03) or stormwater (Gen-12) permits. This particular GEN-12 permit is for a mining and quarrying operation and would not be expected to be a significant source of bacteria.

References

Baker, C. 1986. Nestucca River Basin anadromous salmonid habitat overview. Interagency report. ODFW. *The Pilot Watershed Analysis*

Bjorn, T.C., and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. pp 83-138 *in* Meehan, W.R. (ed.) forest and rangeland management on Salmonid fishes and their habitats. American Fisheries Society, Publication 19, Bethesda, MD.

Department of Land Conservation and Development/Department of Environmental Quality. 2000. Water Quality Model Code and Guide Book.

Foster, S.C., C.H. Stein, and K.K. Jones. 2001. A guide to interpreting stream survey reports. *Edited by* P.A. Bowers. Information Reports 2001-06. Oregon Department of Fish and Wildlife, Portland.

Oregon Department of Forestry. 1999. Oregon Department of Forestry storm impacts and landslides of 1996: Final Report. Forest Practices Technical Report Number 4. 145 pp.

TBNEP/TBPP. 1999. Tillamook Bay Comprehensive Conservation and Management Plan.