



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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OFFICE OF
WATER AND
WATERSHEDS

NOV 17 2017

Ms. Wendy Wiles
Administrator
Environmental Solutions Division

Ms. Lydia Emer
Administrator
Operations Division
Oregon Department of Environmental Quality
700 Lloyd Building at 700 NE Multnomah St., Suite #600
Portland, Oregon 97232

Re: EPA's Action on the State of Oregon's Revisions to Oregon's Surface Water Quality Standards for Bacteria Submitted on September 7, 2016

Dear Ms. Wiles and Ms. Emer:

The U.S. Environmental Protection Agency (EPA) has completed its Clean Water Act (CWA) review of the revised water quality standards for bacteria that Oregon submitted to the EPA on September 7, 2016, along with subsequent clarifications as described in the *Technical Support Document for Action on the State of Oregon's Revised Bacteria Surface Water Quality Standards Submitted on September 7, 2016* (hereafter referred to as the EPA TSD). Under CWA Section 303(c), 33 U.S.C § 1313(c), states must establish water quality standards and submit them to the EPA for approval or disapproval. Revisions to a state's water quality standards must also be submitted to the EPA for approval or disapproval. A summary of the EPA's actions is provided below and further described in the enclosed EPA TSD.

Summary of the EPA's Approval Action

Pursuant to the EPA's authority under CWA Section 303(c) and implementing regulations found at 40 CFR Part 131, the EPA is approving the following provisions:

- OAR-340-041-0009(1) and
- The revised Tables and new Figures at OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320.

The bacteria criteria revisions to protect coastal and freshwater contact recreation adopted by Oregon and approved today, are consistent with 40 CFR §131.11 as explained in EPA's 2012 Clean Water Act Section 304(a) recommendations for recreational waters.

Provisions the EPA Did Not Take Action On

The EPA did not take an action on OAR-340-041-0009(2)-(11) submitted by Oregon because these provisions are not water quality standards under section 303(c) of the CWA. The EPA TSD (Section IV) provides the EPA's rationale for not acting on the provisions.

Lastly, Oregon included in the submission (blue underlined indicating revised) all of Tables 220A, 230A, 300A, and 320A, and Figures 220A-B, 230A-B, 300A-B, and 320A-B. Oregon has since confirmed that although these tables and figures were identified in the submission as new or revised text, they do not represent changes to Oregon's rules for CWA purposes. Instead the identification of the above-cited tables and figures was done for the administrative purpose of consolidating the tables and figures into Oregon's administrative rules and therefore constitute administrative changes for state rule purposes only. Therefore, the EPA is not taking action on these revisions, and is instead approving only the revisions submitted in the subsequently revised Tables 220A, 230A, 300A, and 320A and only new Figures identified in Section III of the EPA TSD.

Today's Action and Federally Promulgated Recreational Water Quality Criteria at 40 CFR 131.41

On November 16, 2004, the EPA promulgated bacteriological criteria for coastal recreation waters for those states not complying with CWA section 303(i)(1)(A) as established by the 2000 BEACH Act (Water Quality Standards for Coastal and Great Lakes Recreation Waters, 69 FR 67218). Oregon was included in that promulgation at 40 CFR 131.41. As a result of the EPA's approval today, Oregon's bacteria criteria for marine coastal recreation waters at 340-041-0009(1)(b) will be in effect for CWA purposes in Oregon. 40 CFR 131.41 will continue to include a reference to Oregon until the EPA formally withdraws Oregon from the federal rule.

Next Steps

Now that the water quality standards are approved and can be used for CWA purposes, the EPA looks forward to continuing to coordinate with Oregon as it revises its implementation methods for these water quality standards to support the 303(d) listing, TMDL, and NPDES permitting programs. We appreciate the coordinated effort that the State of Oregon has led on its bacteria water quality standards rulemaking.

If you have any questions about the EPA's action, please feel free to contact me at (206) 553-1755 or have your staff contact Rochelle Labiosa at (206) 553-1172.

Sincerely,

A handwritten signature in blue ink that reads "Angelo Cluny for".

Michael J. Lidgard, Acting Director
Office of Water and Watersheds

Enclosure

cc: Ms. Jennifer Wigal, ODEQ
Ms. Debra Sturdevant, ODEQ

Technical Support Document

**for Action on the State of Oregon's Bacteria Surface Water Quality
Standards Submitted on September 7, 2016**

November 17, 2017

Table of Contents

- I. Introduction..... 2
- II. Clean Water Act Requirements for Water Quality Standards..... 2
- III. EPA Action on New and Revised Water Quality Standards..... 4
 - A. Revised Provisions of Oregon’s Water Quality Standards 4
 - 1. Oregon’s Bacteria Criteria 5
 - 2. EPA Action on Oregon’s Clarification Comprising the Designated Use Tables and Maps, corresponding to Oregon’s human health uses protected by the bacteria rules identified in OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320 13
- IV. Revisions Which the EPA Is Not Taking Action On..... 50
- V. Today’s Action and Federally Promulgated Recreational Criteria at 40 CFR 131.41 55

I. Introduction

The Oregon Environmental Quality Commission adopted new and revised water quality standards (WQS) in Chapter 340, Division 41, of Oregon's Administrative Rules (OAR 340-041) on August 17, 2016 (hereafter referred to as the "2016 adoption"). Oregon submitted the 2016 adoption of new and revised WQS to the U.S. Environmental Protection Agency (EPA) on September 7, 2016, with subsequent clarifications provided as described below.

Revisions addressed in today's decision include revisions to Oregon's Bacteria Rules at OAR 340-041-0009, and newly adopted designated use clarifications for specific basins at OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320.

This document is organized as follows:

Part II of this document describes the Clean Water Act (CWA) requirements for action on WQS submissions.

Part III contains the basis for the EPA's approval under section 303(c) of the CWA of the new or revised WQS in the 2016 adoption. This part distinguishes between two categories of revisions to Oregon's WQS: (1) substantive revisions to the WQS and (2) non-substantive revisions to the WQS.

Part IV discusses provisions that the EPA is not acting on because the EPA has determined that the provisions are not new or revised WQS under section 303(c) of the CWA. These provisions include implementation provisions at OAR 340-041-0009(2)-(11) which are used by Oregon in National Pollutant Discharge Implementation System (NPDES) permit compliance and enforcement actions, and revisions to certain Oregon designated use maps and tables to co-locate the use maps and tables with other water quality standards in the Oregon Administrative Rules, 340-041.

Part V discusses the relationship between today's action and EPA's 2004 promulgation of coastal contact reaction WQS for Oregon.

II. Clean Water Act Requirements for Water Quality Standards

Under Section 303(c) of the CWA and federal implementing regulations at 40 CFR §131.4, states and authorized tribes have the primary responsibility for reviewing, establishing, and revising WQS, which consist primarily of the designated uses of a waterbody or waterbody segment, the water quality criteria that protect those designated uses, and an antidegradation policy. This statutory and regulatory framework allows states and authorized tribes to work with local communities to adopt appropriate designated uses (as required in 40 CFR §131.10(a)) and to adopt criteria to protect those designated uses (as required in 40 CFR §131.11(a)).

States and authorized tribes are required to hold public hearings for the purpose of reviewing applicable WQS periodically but at least once every three years and, as appropriate, modify and adopt these standards (40 CFR §131.20). Each state and authorized tribe must follow applicable legal procedures for revising or adopting such standards (40 CFR §131.5(a)(6)) and submit

certification by the state's or authorized tribe's attorney general, or other appropriate legal authority within the state/authorized tribe, that the WQS were duly adopted pursuant to state/tribal law (40 CFR §131.6(e)). EPA's review authority and the minimum requirements for state and authorized tribal submissions are described in 40 CFR §§131.5 and 131.6.

States and authorized tribes are required by 40 CFR §131.11(a) to adopt water quality criteria that protect its designated uses. In establishing such criteria, states and authorized tribes should establish numeric values based on one of the following:

- (1) 304(a) guidance;
- (2) 304(a) guidance modified to reflect site-specific conditions; or,
- (3) Other scientifically defensible methods (40 CFR §131.11(b)(1)).

In addition, states and authorized tribes should establish narrative criteria where numeric criteria cannot be determined or to supplement numeric criteria (see 40 CFR §131.11(b)(2)).

Section 303(c) of the CWA also requires states and authorized tribes to submit new or revised WQS to the EPA for review and action. The EPA is required to review these changes to ensure revisions to WQS are consistent with the CWA and EPA's implementing regulations. The EPA considers four questions (described below) when evaluating whether a particular provision is a new or revised WQS. If all four questions are answered "yes" then the provision would likely constitute a new or revised WQS that the EPA has the authority and duty to approve or disapprove under CWA § 303(c)(3).¹

- (1) Is it a legally binding provision adopted or established pursuant to state or tribal law?
- (2) Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?
- (3) Does the provision express or establish the desired condition (e.g., uses, criteria) or instream level of protection (e.g., antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?
- (4) Does the provision establish a new WQS or revise an existing WQS?

Furthermore, the federal WQS regulations at 40 CFR §131.21 state, in part, that when the EPA disapproves a state's or authorized tribe's WQS, the EPA shall specify the changes that are needed to assure compliance with the requirements of the CWA and federal WQS regulations.

Finally, the EPA considers non-substantive edits to existing WQS to constitute new or revised WQS that the EPA has the authority to approve or disapprove under § 303(c)(3). While these edits and changes do not substantively change the meaning or intent of the existing WQS, the EPA believes it is reasonable to treat such edits and changes in this manner to ensure public transparency as to which provisions are applicable for CWA purposes. The EPA notes that the scope of its review and action on non-substantive edits or editorial changes extend only to the

¹ See the EPA's *What is a New or Revised Water Quality Standard Under CWA 303(c)(3)? Frequently Asked Questions*, October 2012.

edits or changes themselves. The EPA is not re-opening or reconsidering the underlying WQS which are the subject of the non-substantive edits or editorial changes.

III. EPA Action on New and Revised Water Quality Standards

A. Revised Provisions of Oregon's Water Quality Standards

Oregon submitted the following items in support of its rulemaking and to meet the requirements of 40 CFR § 131.6:

- (1) a Certificate and Order of Filing from Oregon's Secretary of State that the rules were duly adopted by the Environmental Quality Commission (Oregon Department of Environmental Quality) dated August 17, 2016 and filed on August 18, 2016;
- (2) a State of Oregon Attorney General's Certification that the rules were adopted consistent with Oregon Law, dated September 6, 2016;
- (3) a Public Rule Package submitted to Oregon's Environmental Quality Commission, which includes information regarding four informational meetings held in October, 2015 and two public hearings that Oregon held in-person and simulcast via webinar on April 19, 2016 in Portland, Oregon, and in Newport, Oregon, during the 45-day comment period for the proposed rule revisions. The Public Rule Package also includes supporting analysis for the proposed rules, among other information regarding public involvement related to Oregon's rule revision process as well as the adopted rules in clean copy and track changes;²
- (4) A technical review document dated August 2016³ which includes data and analyses that Oregon conducted in support of the revised rules.

Subsequent clarifications included:

- (1) On 9/26/2016, email confirmation by Aron Borok, ODEQ, that "The draft rule changes in the EQC staff report are what EQC considered and approved.", clarifying that the submitted rule revisions to the EQC on August 16, 2016 are considered the final adopted revisions.
- (2) A corrected map for Coos Bay submitted on December 22, 2016: OAR 340-041-0300 Figure 300C: Water Contact Recreation and Shellfish Harvesting Designated Uses Coos Bay, South Coast Basin, Oregon (Draft December, 2016).
- (3) On April 12, 2017, submission of clarified use tables displaying solely the substantive revisions submitted by ODEQ with the package.

For the Oregon provisions from the 2016 adoption identified below, all underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2016 adoption.

² Oregon Department of Environmental Quality, Aug. 17-18, 2016. Oregon Environmental Quality Commission meeting Rulemaking, Action item I. Water Quality Bacteria Standards 2016

³ Issue Paper: Revisions to the Water Quality Standard for Bacteria. By Aron Borok. August 2016. Oregon Department of Environmental Quality. Herein referred to as Oregon Issue Paper 2016.

1. Oregon's Bacteria Criteria

The following presents the new and revised language to the WQS contained in the Bacteria Criteria (OAR 340-041-0009(1)):

340-041-0009

Bacteria

(1) Numeric Criteria: Organisms ~~of the coliform group~~ commonly associated with fecal sources ~~(MPN or equivalent membrane filtration using a representative number of samples)~~ may not exceed the criteria ~~described in paragraphs (a) and (b) of this paragraph~~ in subsections (a)-(c) of this section:

(a) Freshwater contact recreation ~~Freshwaters and Estuarine Waters Other than Shellfish Growing Waters:~~

(A) A ~~3090~~-day log-mean geometric mean of 126 E. coli organisms per 100 ~~milliliter mL.s,~~ based on a minimum of five (5) samples;

(B) No single sample may exceed 406 E. coli organisms per 100 ~~milliliter mL.s.~~

(b) Coastal water contact recreation, as designated in OAR 340-041-0101, 340-041-220, 340-041-230, 340-041-300 and 340-041-0320:

(A) A 90-day geometric mean of 35 enterococcus organisms per 100 mL;

(B) Not more than ten percent of the samples may exceed 130 organisms per 100 mL.

(c) ~~Marine Waters and Estuarine Shellfish Growing-harvesting Waters,~~ as designated in 340-041-0101, 340-041-220, 340-041-230, 340-041-300 and 340-041-0320:

(A) A fecal coliform median concentration of 14 organisms per 100 ~~milliliter mL.s;~~

(B) ~~with not~~Not more than ten percent of the samples ~~may exceeding~~ 43 organisms per 100 mL.~~ml.~~

The EPA Action

In accordance with its CWA authority, 33 U.S.C. Section 1313(c)(3) and 40 CFR Part 131, the EPA approves the revisions to OAR 340-041-0009(1), including revisions and additional rule text for subparts 340-041-0009(1)(a)-(c).

The EPA Rationale

EPA's WQS regulations at 40 CFR 131 require that criteria protect the designated uses. In addition to the requirement at 40 CFR 131.11(a) to adopt those water quality criteria that protect its designated uses, Oregon, as a state covered by the Beaches Environmental Assessment and

Coastal Health Act of 2000 (BEACH Act), has specific requirements regarding recreational water quality criteria for its coastal recreation waters. The BEACH Act of 2000 directed the EPA to conduct studies associated with pathogens and human health, and to publish recommendations for pathogens and pathogen indicators based on those studies. On November 26, 2012, the EPA met those requirements with the release of its “2012 Recreational Water Quality Criteria” recommendations (Office of Water 820-F-12-058) (“2012 RWQC”). Following the EPA’s publication of new or revised coastal recreation water quality criteria, Section 303(i)(1)(B) of the CWA directs states and authorized tribes with coastal recreational waters to adopt and submit new or revised pathogen water quality standards for coastal recreation waters of the state for all pathogens and pathogen indicators to which the publication of new or revised water quality criteria are applicable. As discussed below in the rationale for today’s action, Oregon’s revisions to 340-041-0009(1)(b) addressing bacteria criteria to protect primary coastal water contact recreation are consistent with 40 CFR §131.11 as explained in the EPA’s 2012 RWQC, and thus address the BEACH Act requirements for coastal recreation waters in Oregon. Furthermore, Oregon’s revisions to 340-041-0009(1)(a) addressing bacteria criteria to protect primary contact recreation in fresh water are also consistent with 40 CFR §131.11 as explained in the EPA’s 2012 RWQC.

OAR 340-041-0009(1)

The EPA approves the revisions to 340-041-0009(1), as they are consistent with 40 CFR §131.11 as explained in the EPA’s 2012 RWQC recommendations and associated data and analysis. First, the deletion of “of the coliform group” to generalize the first statement to “Organisms commonly associated with fecal sources” is appropriate, given the addition of enterococci as the primary coastal water contact recreation indicator organism, which is not a member of the coliform group. Second, the deletion of the “MPN or equivalent membrane filtration method using a representative number of samples” is appropriate. The 2012 RWQC does not specify a method as part of the criterion, therefore, the deletion of the method is approvable.⁴ Finally, the deletion of “described in paragraphs (a) and (b) of this paragraph” and its replacement with “in subsections (a)-(c) of this section” is a non-substantive change, and more clearly reflects the accurate location of the Numeric Criteria as subsections of the bacteria section. The changes from “milliliters” or “ml” to “mL” throughout 340-041-0009(1) and its subparts are considered non-substantive changes since they result in consistency and reflect a change to the accepted SI unit abbreviation.

OAR 340-041-0009(1)(a) – Bacteria Criteria to protect primary contact recreation in fresh water

As shown in Table 1 and discussed below, the EPA has determined that each component of Oregon’s revised freshwater criteria at **OAR 340-041-0009(1)(a)** is protective of primary contact recreation in fresh water consistent with 40 CFR §131.11 for the reasons discussed in EPA’s

⁴ To the extent the State would like methods recommendations, the 2012 RWQC indicates that culture methods are appropriate for detection of enterococci and coliforms.

2012 RWQC recommendations document (Office of Water 820-F-12-058) as well as a subsequently shared communication from the EPA’s Standards and Health Protection Division regarding the inclusion of recreational water quality criteria durations of up to 90 days.⁵ In the 2016 adoption, Oregon did not revise where the criteria apply; the fresh water primary contact recreation criteria apply to all fresh waters that are designated for contact recreation.⁶

Table 1: Comparison of Oregon’s Revised Criteria at <u>OAR 340-041-0009(1)(a)</u> to Protect Primary Contact Recreation in <u>Fresh Water</u> with the EPA’s 2012 Recreational Water Quality Criteria Recommendations⁷		
Criteria Component - Fresh Water	EPA’s 2012 Recommendation	Oregon’s Revision
Indicator	Enterococci <u>or</u> <i>E. coli</i>	<i>No change to Oregon’s previously approved rules- E. coli still indicator</i>
Magnitude (cfu/100 mL)	Recommendation 1 - Illness Rate of 36/1,000 Enterococci: GM = 35; STV = 130 <i>E. coli</i> : GM = 126; STV = 410	<i>Revised</i> language from “log mean” to geometric mean No change in criterion magnitudes: GM= 126; STV = 406
	Recommendation 2 - Illness Rate of 32/1,000 Enterococci: GM = 30; STV = 110 <i>E. coli</i> : GM = 100; STV = 320	Magnitudes consistent with Illness Rate of 36/1,000; less stringent than 32/1,000 illness rate. No change to units of organisms per 100 mL ⁸

⁵ Communication from EPA’s Standards and Health Protection Division to the Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

⁶ In the 2016 adoption, Oregon identified the boundary between marine and freshwaters for the purpose of applying the appropriate indicator organism, *E. coli* to fresh waters, and enterococci to marine waters.

⁷ Note that EPA’s regulatory basis for acting on a water quality criterion is not its 304(a) criteria recommendations. Rather EPA’s basis for acting on water quality criteria is whether the new or revised criteria is consistent with 40 CFR §131.11. However, in its review, EPA looks at the most recent science which is generally reflected in EPA’s most recent 304(a) criteria recommendations, such as EPA’s 2012 Recreational Water Quality Criteria Recommendations. This table represents EPA’s evaluation of the State’s criteria with the latest scientific information.

⁸ Although the 2012 RWQC include units of cfu/100 mL, the use of “organisms” per 100 mL is functionally equivalent.

		Deletion of language that calculation is based on a minimum of five (5) samples.
Duration and Frequency - GM	The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval.	Consistent with the EPA's recommendation (see Oregon's adopted language in the Duration and Frequency discussion below) after further clarification from EPA's Standards and Health Protection Division, 2015. ⁹ A 90-day geometric mean.
Duration and Frequency - STV	There should not be greater than a 10 percent excursion frequency of the selected STV magnitude in the same 30-day interval.	Consistent with the EPA's recommendation (see Oregon's adopted language in the Duration and Frequency discussion below) after further clarification from EPA's Standards and Health Protection Division, 2015. ¹⁰ No single sample may exceed 406 organisms per 100 mL (unchanged from previously approved language)

GM = Geometric Mean; STV = Statistical Threshold Value; cfu = colony forming units

Indicator

Oregon is not changing its indicator organism in fresh water from Oregon's previously approved bacterial indicator. The EPA recommends the use of either *E. coli* or

⁹ Communication from EPA's Standards and Health Protection Division to the Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

¹⁰ Communication from EPA's Standards and Health Protection Division to the Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

enterococci as an indicator in freshwater; adopting one of the two is sufficient. Oregon continues to apply the previously approved indicator, *E. coli*.

Magnitude

In 1999,¹¹ the EPA approved Oregon's bacteria rules for freshwaters adopted in 1996, including the magnitude and units, comprising a "log" mean of 126 organisms/100 mL and a statistical threshold value (STV) of 406 organisms/100 mL. Oregon's 2016 adoption includes a change from a "log" mean to a "geometric mean" (GM) which, together with the original criterion magnitude, is consistent with 40 CFR §131.11 as explained in the EPA's 2012 RWQC for *E. coli* at an illness rate of 36/1,000 primary contact recreators.¹² In today's action, the EPA acknowledges that, similar to the EPA approval in 1999,¹³ "organisms per 100 mL" is functionally equivalent to "colony-forming units per 100 mL" (CFUs per 100 mL), the units used in the 304(a) recommended water quality criteria. The EPA interprets Oregon's use of "organism" as the unit of measure for the recreational standard magnitude value to refer to the final result of the analytic test regardless of whether a method based on colony forming (cfu) or most probable number (MPN) unit is used and not the total number of organisms on the plates or in the tubes. CFUs are actual counts of bacterial colonies grown on a membrane filter or directly on an agar plate after an incubation period. MPN counts are statistically derived counts based on positive samples in culture broth tubes vs. the total number of tubes used in the test – also after an incubation period. Both units reflect the number of bacterial organisms in the water when the sample was taken.

The EPA recommends adoption of both a GM and a STV at an illness rate of either 36/1,000 primary contact recreators or 32/1,000 primary contact recreators. Oregon's GM of 126 organisms per 100 mL together with an STV of 406 organisms per 100 mL results in an illness rate that does not exceed EPA's recommendation of 36/1,000 primary contact recreators, therefore, Oregon's revised fresh water criteria magnitudes are sufficiently protective of primary contact recreation.

Duration and Frequency

Oregon's revised *E. coli* criteria to protect primary contact recreation in fresh water specify, "A 90-day geometric mean", which is a change from the previous duration of "A 30-day log mean." EPA analysis has shown that a geometric mean not to exceed 90 days,

¹¹ Recommended Action for Partial Approval, Partial Disapproval Action of Oregon's Dissolved Oxygen, Temperature, pH, and Bacteria Standards from Dru Keenan, Water Quality Standards Coordinator to Randy Smith, Director Office of Water Date: July 21, 1999

¹² Oregon's adoption of an STV of 406 for *E. coli* is more stringent than the 410 STV that results in an illness rate of 36/1,000 recreators; however, it is less stringent than the 2012 RWQC *E. coli* STV of 320 which would result in an illness rate of 32/1,000 recreators.

¹³ Recommended Action for Partial Approval, Partial Disapproval Action of Oregon's Dissolved Oxygen, Temperature, pH, and Bacteria Standards from Dru Keenan, Water Quality Standards Coordinator to Randy Smith, Director Office of Water Date: July 21, 1999

in combination with the protective criteria magnitudes, is protective of a primary contact recreation use and consistent with the 2012 RWQC data and analysis.¹⁴

OAR 340-041-0009(1)(b) – Bacteria Criteria to protect primary contact recreation in coastal water

As shown in Table 2 and discussed below, the EPA has determined that each component of Oregon’s revised coastal water contact criteria (criterion magnitude, frequency, and duration) at **OAR 340-041-0009(1)(b)** is protective of primary contact recreation in coastal water consistent with 40 CFR §131.11 for the reasons discussed in EPA’s 2012 RWQC recommendations document (Office of Water 820-F-12-058) as well as a subsequently shared communication from the EPA’s Standards and Health Protection Division regarding the inclusion of recreational water quality criteria durations of up to 90 days.¹⁵ In the 2016 adoption, Oregon has also clarified the extent of coastal water contact recreation, which is identified in the maps and tables at OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320.¹⁶

Table 2: Comparison of Oregon’s Revised Criteria at <u>OAR 340-041-0009(1)(b)</u> to Protect Primary Contact Recreation in <u>Coastal Water</u> with the EPA’s 2012 Recreational Water Quality Criteria Recommendations¹⁷		
Criteria Component - Fresh Water	EPA’s 2012 Recommendation	Oregon’s Revision
Indicator	Enterococci	<i>Enterococci</i>
Magnitude (cfu/100 mL)	Recommendation 1 - Illness Rate of 36/1,000	Magnitudes consistent with Illness Rate of 36/1,000;

¹⁴ See Communication from EPA’s Standards and Health Protection Division to the EPA Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015. Oregon has not included a frequency of exceedance of the magnitude together with its fresh water primary contact STV.

¹⁵ Communication from EPA’s Standards and Health Protection Division to the Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

¹⁶ In the 2016 adoption, Oregon identified the boundary between marine and freshwaters for the purpose of applying the appropriate indicator organism, *E. coli* to fresh waters, and enterococci to marine waters.

¹⁷ Note that EPA’s regulatory basis for acting on a water quality criterion is not its 304(a) criteria recommendations. Rather EPA’s basis for acting on water quality criteria is whether the new or revised criteria is consistent with 40 CFR §131.11. However, in its review, EPA looks at the most recent science which is generally reflected in EPA’s most recent 304(a) criteria recommendations, such as EPA’s 2012 Recreational Water Quality Criteria Recommendations. This table represents EPA’s evaluation of the State’s criteria with the latest scientific information.

	Enterococci: GM = 35; STV = 130	GM= 35; STV = 130 Units of organisms per 100 mL ¹⁸
	Recommendation 2 - Illness Rate of 32/1,000 Enterococci: GM = 30; STV = 110	
Duration and Frequency - GM	The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval.	Consistent with the EPA's recommendation (see Oregon's adopted language in the Duration and Frequency discussion below) after further clarification from EPA's Standards and Health Protection Division, 2015. ¹⁹ A 90-day geometric mean
Duration and Frequency - STV	There should not be greater than a 10 percent excursion frequency of the selected STV magnitude in the same 30-day interval. ²⁰	Consistent with the EPA's recommendation (see Oregon's adopted language in the Duration and Frequency discussion below). Not more than ten percent of samples may exceed 130 organisms per 100 mL

GM = Geometric Mean; STV = Statistical Threshold Value; cfu = colony forming units

Indicator

Oregon has adopted enterococci as its indicator organism in coastal water contact recreation waters to protect primary contact recreation. Oregon's indicator enterococci is consistent with §131.11 and protective of coastal primary contact recreation waters, as explained in the EPA's 2012 RWQC recommendations. Oregon adopted enterococci for

¹⁸ Although the 2012 RWQC include units of cfu/100 mL, the use of "organisms" per 100 mL is functionally equivalent (see freshwater criteria, above).

¹⁹ Communication from EPA's Standards and Health Protection Division to the Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

²⁰ Within the same 90-day interval of sampling, as clarified in the Issue Paper, 2016, page 33

all waters designated for coastal water contact recreation in Sections OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320. The EPA's action on the revised OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320 is addressed in "2. EPA Action on Oregon's Designated Use Tables and Maps", below.

Magnitude

Oregon's 2016 revisions are based on a geometric mean of 35 organisms per 100 mL, and a STV of 130 organisms per 100 mL, not to be exceeded in more than 10% of samples, at an illness rate of 36/1,000 primary contact recreators. In today's action, the EPA acknowledges that, similar to the EPA approval in 1999,²¹ "organisms per 100 mL" is functionally equivalent to "colony-forming units per 100 mL" (CFUs per 100 mL), the units used in the 304(a) recommended water quality criteria.²² The EPA recommends adoption of both a GM and a STV at an illness rate of either 36/1,000 primary contact recreators or 32/1,000 primary contact recreators, and, therefore, Oregon's adopted coastal water contact recreation criteria magnitudes are sufficiently protective of primary contact recreation in Oregon's coastal waters.

Duration and Frequency

Oregon's adopted enterococci criteria to protect primary contact recreation in coastal waters specify a 90-day geometric mean. A geometric mean not to exceed 90 days and a STV not to exceed more than 10 percent of samples within that 90-day period at the magnitudes recommended to protect at 36/1000 or 32/1000 illnesses is consistent with the data and analysis used in developing the 2012 RWQC to protect primary contact recreation.²³ Therefore, Oregon's adoption of a frequency of exceedance of the STV, 130 enterococci organisms per 100 mL, in no more than ten percent of samples within the same 90-day period over which the GM of 35 organisms per 100 mL is calculated, is protective of primary contact recreation in Oregon's coastal waters.

OAR 340-041-0009(1)(c) – Revisions to the bacteria criteria to protect shellfish harvesting

²¹ Recommended Action for Partial Approval, Partial Disapproval Action of Oregon's Dissolved Oxygen, Temperature, pH, and Bacteria Standards from Dru Keenan, Water Quality Standards Coordinator to Randy Smith, Director Office of Water Date: July 21, 1999

²² The EPA interprets Oregon's use of "organism" as the unit of measure for the recreational standard magnitude value as referring to the final result of the analytic test regardless of whether a method based on colony forming (cfu) or most probable number (MPN) unit is used and not the total number of organisms on the plates or in the tubes. CFUs are actual counts of bacterial colonies grown on a membrane filter or directly on an agar plate after an incubation period. MPN counts are statistically derived counts based on positive samples in culture broth tubes vs. the total number of tubes used in the test – also after an incubation period. Both units reflect the number of bacterial organisms in the water when the sample was taken.

²³ See Communication from EPA's Standards and Health Protection Division to the EPA Water Quality Standards Coordinators: *Narrative Justification for Longer Duration Period for Recreational Water Quality Criteria*. October 30, 2015.

As part of the 2016 adoption, Oregon revised its bacteria criteria to protect shellfish harvesting (previously “shellfish growing waters”). Oregon revised the application of the fecal coliform bacteria criteria from “Marine Waters and Estuarine Shellfish Growing Waters” to “shellfish harvesting as designated in OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320.” Oregon has revised its WQS to specifically clarify that the State’s fecal coliform criteria protect shellfish harvesting in all marine waters and in estuarine waters specified in the maps and tables referenced in 340-041-0009(1)(c). “Shellfish harvesting” is more appropriate than the previous terminology of “shellfish growing” waters because it better reflects the intent of the fecal coliform criteria to protect human health when harvesting and consuming shellfish. This revision reflects the purpose for which the fecal coliform criteria were originally derived, as discussed in the EPA’s “Gold Book.”²⁴ Furthermore, Oregon has clarified in maps and tables adopted into the Oregon Administrative Rules (OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320) where Oregon’s best available data indicate that shellfish harvesting is attainable based on where shellfish suitable for harvesting may be located. The approval of these maps and tables is discussed below. All other changes to OAR 340-041-0009(1)(c) represent non-substantive clarifications or grammatical improvements that the EPA is approving, including the addition of the subpart lettering, and the change from “with not more than ten percent of the samples exceeding...” to “not more than ten percent of samples may exceed...” which are equivalent in meaning.

2. EPA Action on Oregon’s Clarification Comprising the Designated Use Tables and Maps, corresponding to Oregon’s human health uses protected by the bacteria rules identified in OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320

The following presents the clarification revisions to the text and tables and new figures for Sections OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320. All blue underlined text indicates language that is new and red ~~strikeout~~ indicates the language that Oregon removed in the 2016 adoption. All marine waters in Oregon are designated for coastal water contact recreation and shellfish harvesting, and the maps indicate the estuarine extent of the coastal water contact recreation and shellfish harvesting designated uses up to the boundary where the freshwater contact recreation use abuts the coastal water contact recreation use. Estuarine areas unable to support shellfish harvest are designated for coastal contact recreation only.

OAR 340-041-0101

²⁴ U.S. EPA 1986. Quality Criteria for Water. EPA 440/5-86-001, May 1, 1986.

Basin-Specific Criteria (Main Stem Columbia River)

340-041-0101

Beneficial Uses to Be Protected in the Main Stem Columbia River

(1) Water quality in the main stem Columbia River (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 101A (November 2003).

(2) Designated fish uses to be protected in the main stem Columbia River are shown in Table 101B (November 2003).

(3) Coastal water contact recreation and shellfish harvesting use is to be protected in the portion of the main stem Columbia River ~~RM~~ designated for these uses in Figure 101A (August 2016).

Beneficial Uses	Table 101A Designated Beneficial Uses Main stem Columbia River (OAR 340-041-0101) (November 2003)	
	Columbia River Mouth to RM 86	Columbia River RM 86 to 309
Public Domestic Water Supply ¹	X	X
Private Domestic Water Supply ¹	X	X
Industrial Water Supply	X	X
Irrigation	X	X
Livestock Watering	X	X
Fish & Aquatic Life ²	X	X
Wildlife & Hunting	X	X
Fishing ²	X	X
Boating	X	X
Water Contact Recreation ³	X	X
Aesthetic Quality	X	X
Hydro Power		X
Commercial Navigation & Transportation	X	X

¹ With adequate pretreatment and natural quality to meet drinking water standards.

² See also Table 101B for fish use designations for this river.

³ See also Figure 101A for coastal water contact use and shellfish harvesting designations.



Table 220A
Designated Beneficial Uses
Mid Coast Basin
(OAR 340-041-0220)
(November 2003)

Beneficial Uses	Estuaries & Adjacent Marine Waters	All Steams & Tributaries Thereto
Public Domestic Water Supply ¹		X
Private Domestic Water Supply ¹		X
Industrial Water Supply	X	X
Irrigation		X
Livestock Watering		X
Fish & Aquatic Life ²	X	X
Wildlife & Hunting	X	X
Fishing ³	X	X
Boating	X	X
Water Contact Recreation ³	X	X
Aesthetic Quality	X	X
Hydro Power		X
Commercial Navigation & Transportation	X	

¹ With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

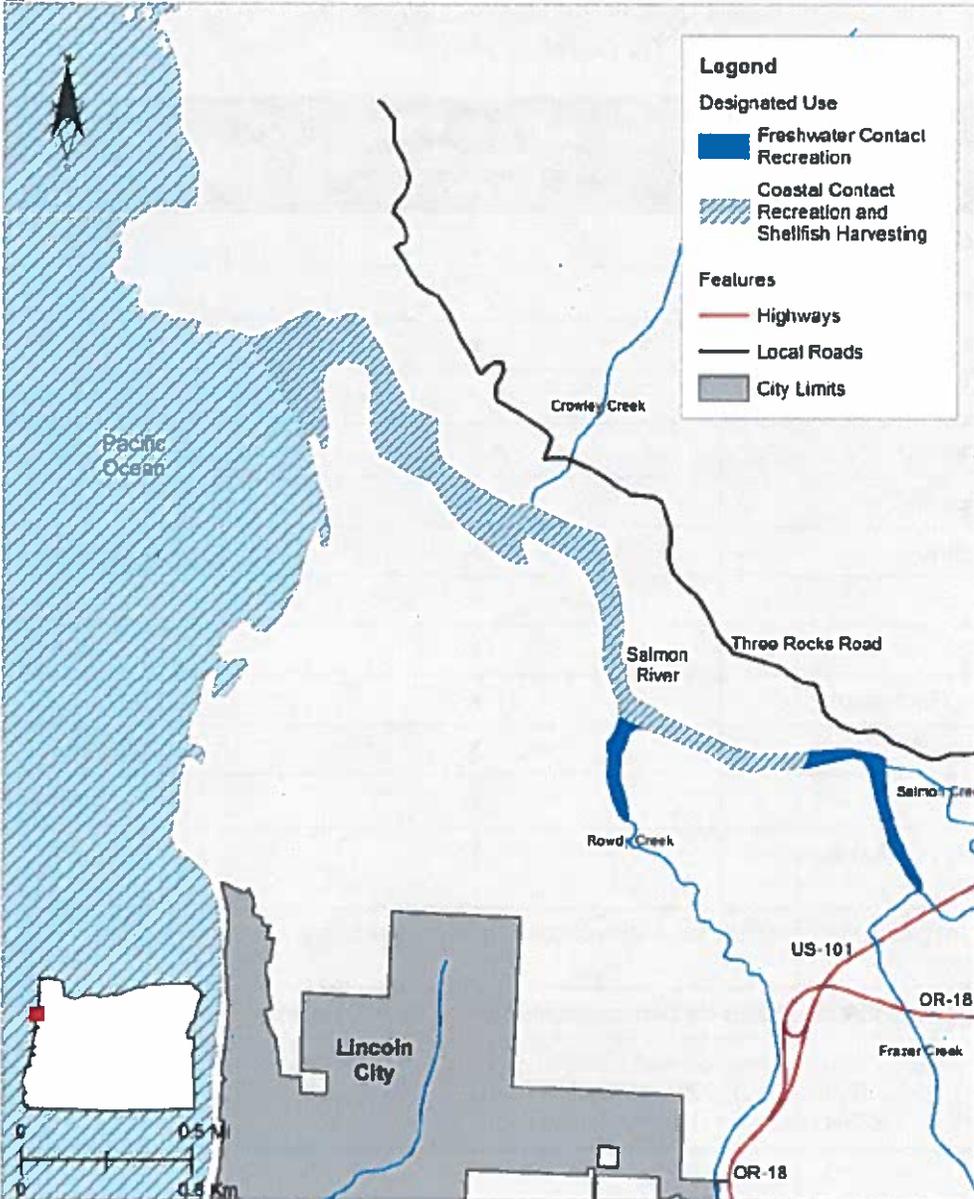
² See also Figures 230A and 230B for fish use designations for this basin.

³ For coastal water contact recreation and shellfish harvesting uses, see also Figures 220C (Salmon River Estuary), 220D (Siletz Bay), 220E (Yaquina Bay), 220F (Alsea River Estuary), 220G (Yachats River Estuary), and 220H (Siuslaw River Estuary)



OAR 340-041-0220

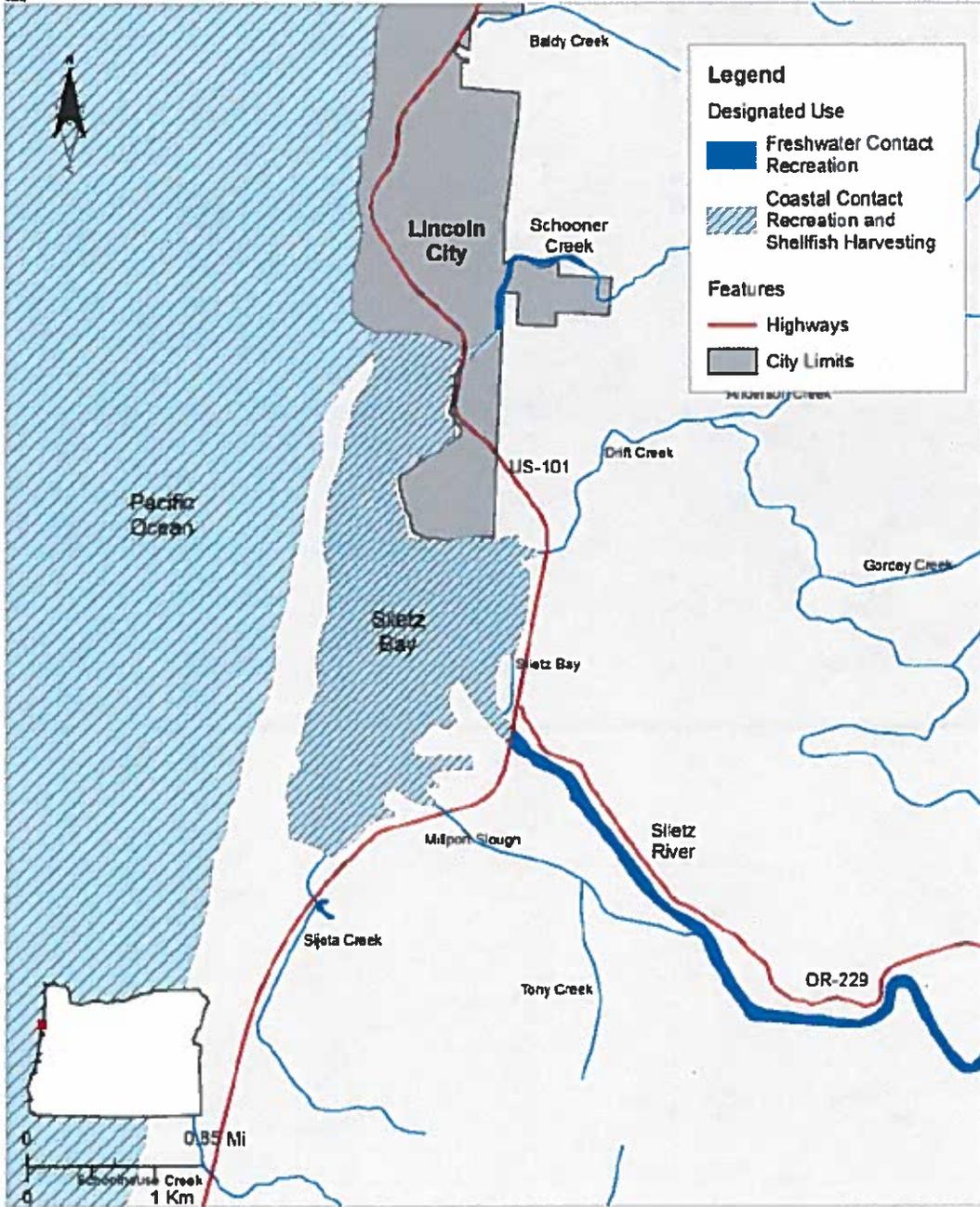
Figure 220C: Water Contact Recreation and Shellfish Harvesting Designated Uses
Salmon River, Mid Coast Basin, Oregon (Draft February, 2016)

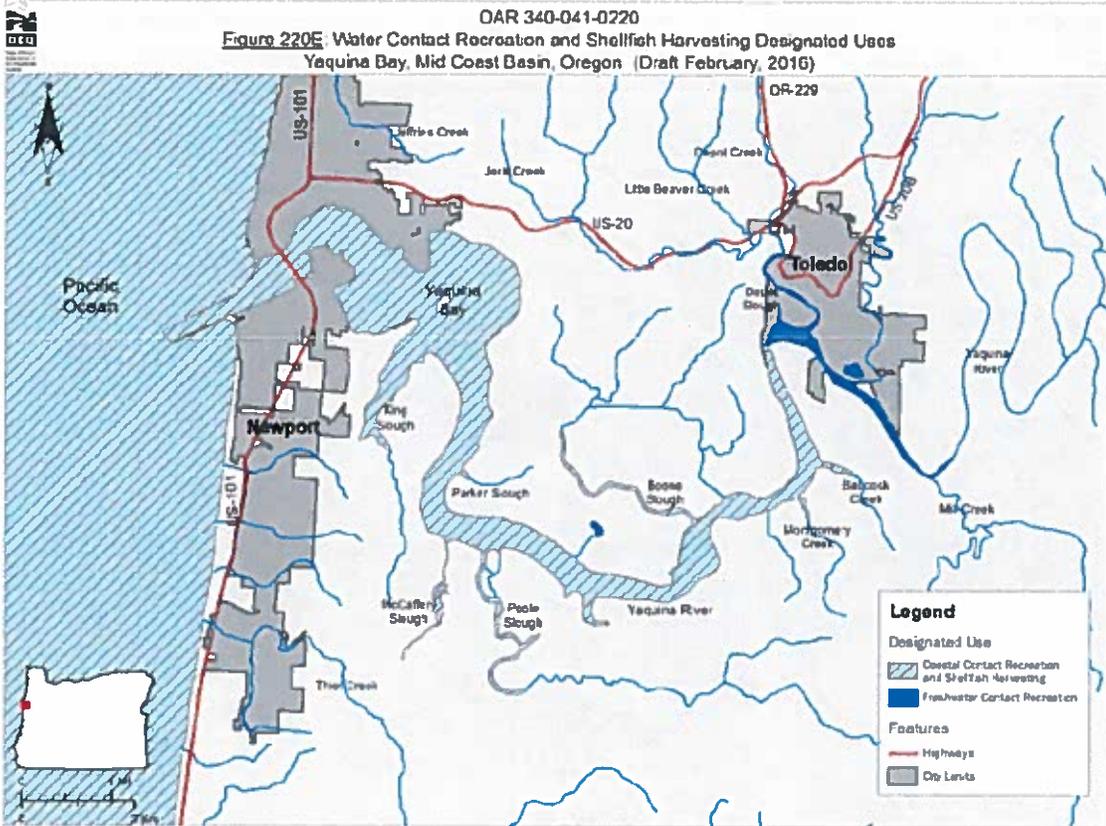




OAR 340-041-0220

Figure 220D: Water Contact Recreation and Shellfish Harvesting Designated Uses
Siletz River, Mid Coast Basin, Oregon (Draft February, 2016)

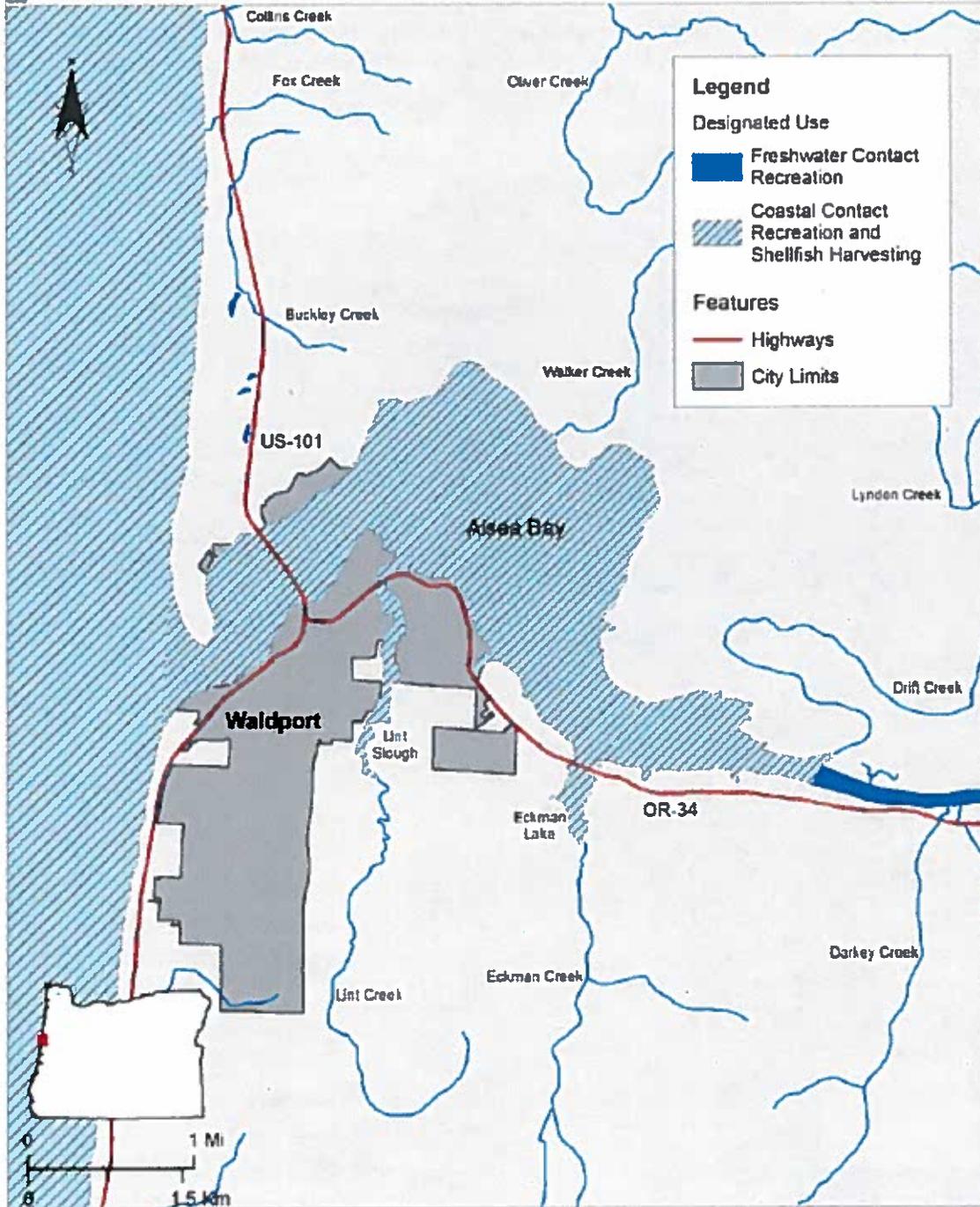






OAR 340-041-0220

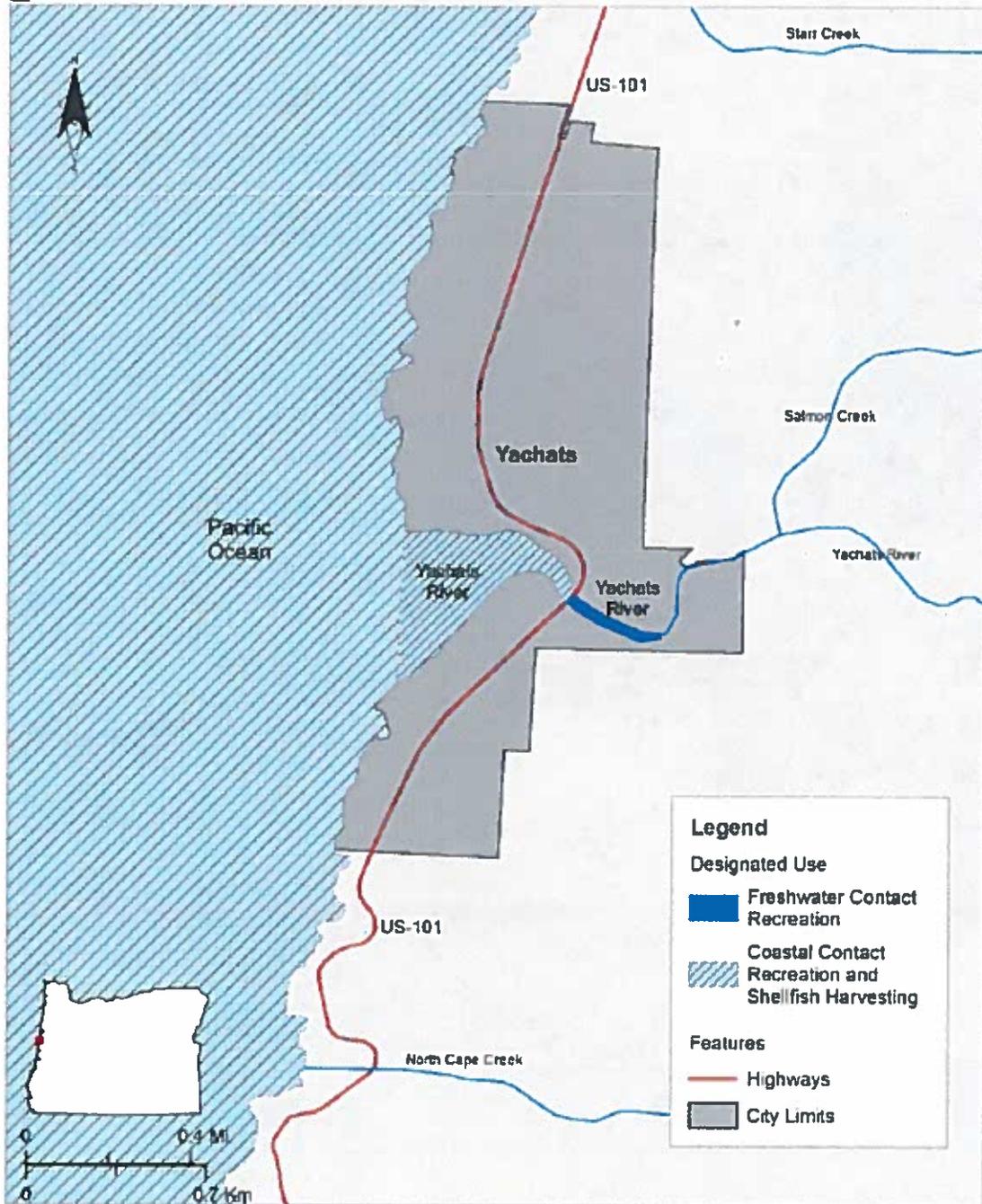
Figure 220F: Water Contact Recreation and Shellfish Harvesting Designated Uses
Asea River, Mid Coast Basin, Oregon (Draft February, 2016)





OAR 340-041-0220

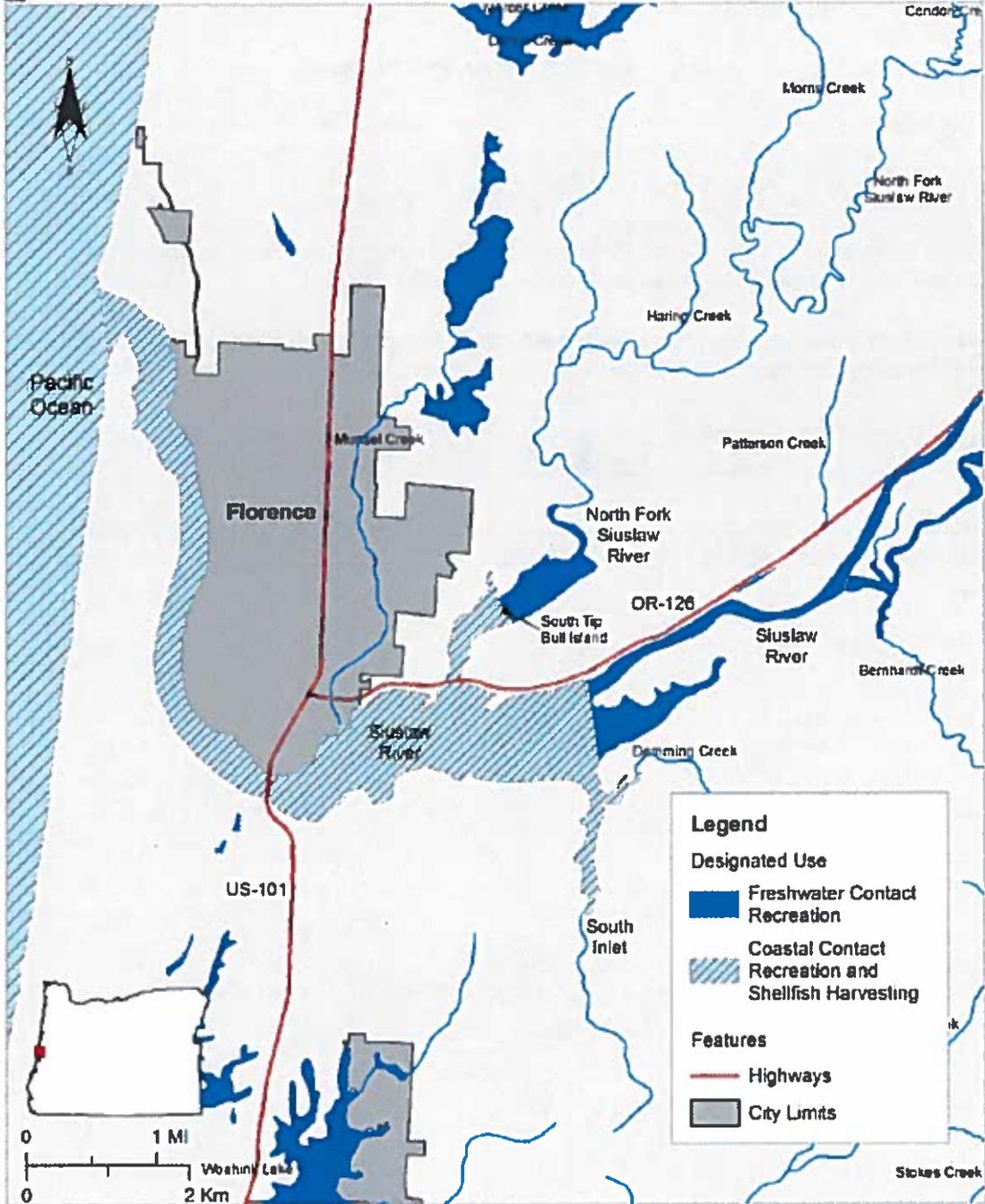
Figure 220G: Water Contact Recreation and Shellfish Harvesting Designated Uses
Yachats River, Mid Coast Basin, Oregon (Draft February, 2016)





OAR 340-041-0220

Figure 220H: Water Contact Recreation and Shellfish Harvesting Designated Uses
Siuslaw River, Mid Coast Basin, Oregon (Draft February, 2016)



[\[ED. NOTE: Tables and figures referenced are not included in rule text. Click here for PDF copy of tables and figures.\]](#)

OAR 340-041-0230

Basin-Specific Criteria (North Coast)

340-041-0230

Beneficial Uses to Be Protected in the North Coast Basin

- (1) Water quality in the North Coast Basin (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 230A (November 2003).
- (2) Designated fish uses to be protected in the North Coast Basin are shown in Figures 230A and 230B (November 2003).
- [\(3\) Coastal water contact recreation use is to be protected in all North Coast Basin marine waters and in coastal waters designated in Figures 230C through 230H \(August 2016\).](#)
- [\(4\) Shellfish harvesting use is to be protected in all North Coast Basin marine waters and in coastal waters as designated in Figures 230C through 230H \(August 2016\).](#)



Table 230A
Designated Beneficial Uses
North Coast Basin
(OAR 340-041-0230)
(November 2003)

Beneficial Uses	Estuaries & Adjacent Marine Waters	All Steams & Tributaries Thereto
Public Domestic Water Supply ¹		X
Private Domestic Water Supply ¹		X
Industrial Water Supply	X	X
Irrigation		X
Livestock Watering		X
Fish & Aquatic Life ²	X	X
Wildlife & Hunting	X	X
Fishing ³	X	X
Boating	X	X
Water Contact Recreation ³	X	X
Aesthetic Quality	X	X
Hydro Power		
Commercial Navigation & Transportation	X	

¹ With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

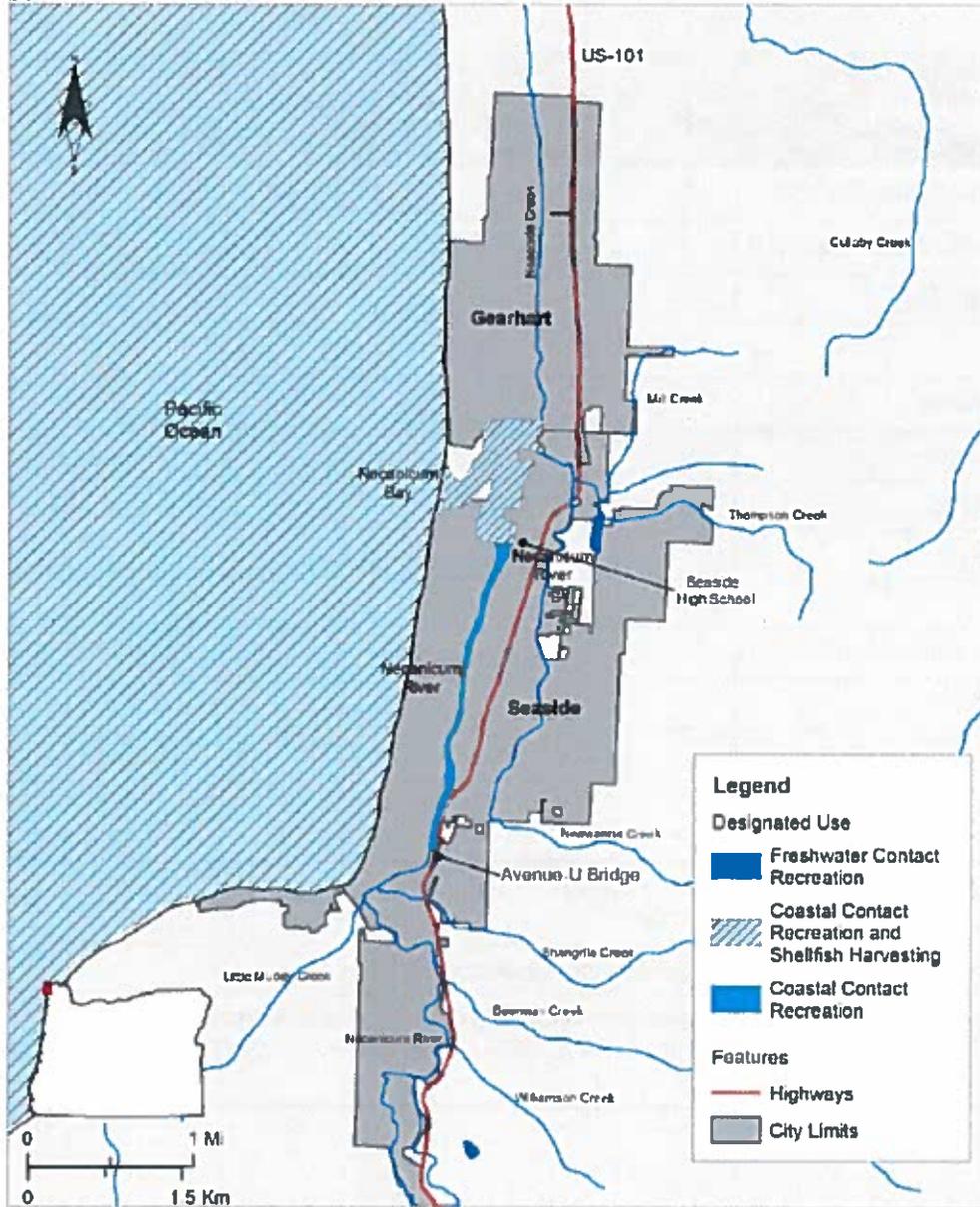
² See also Figures 230A and 230B for fish use designations for this basin.

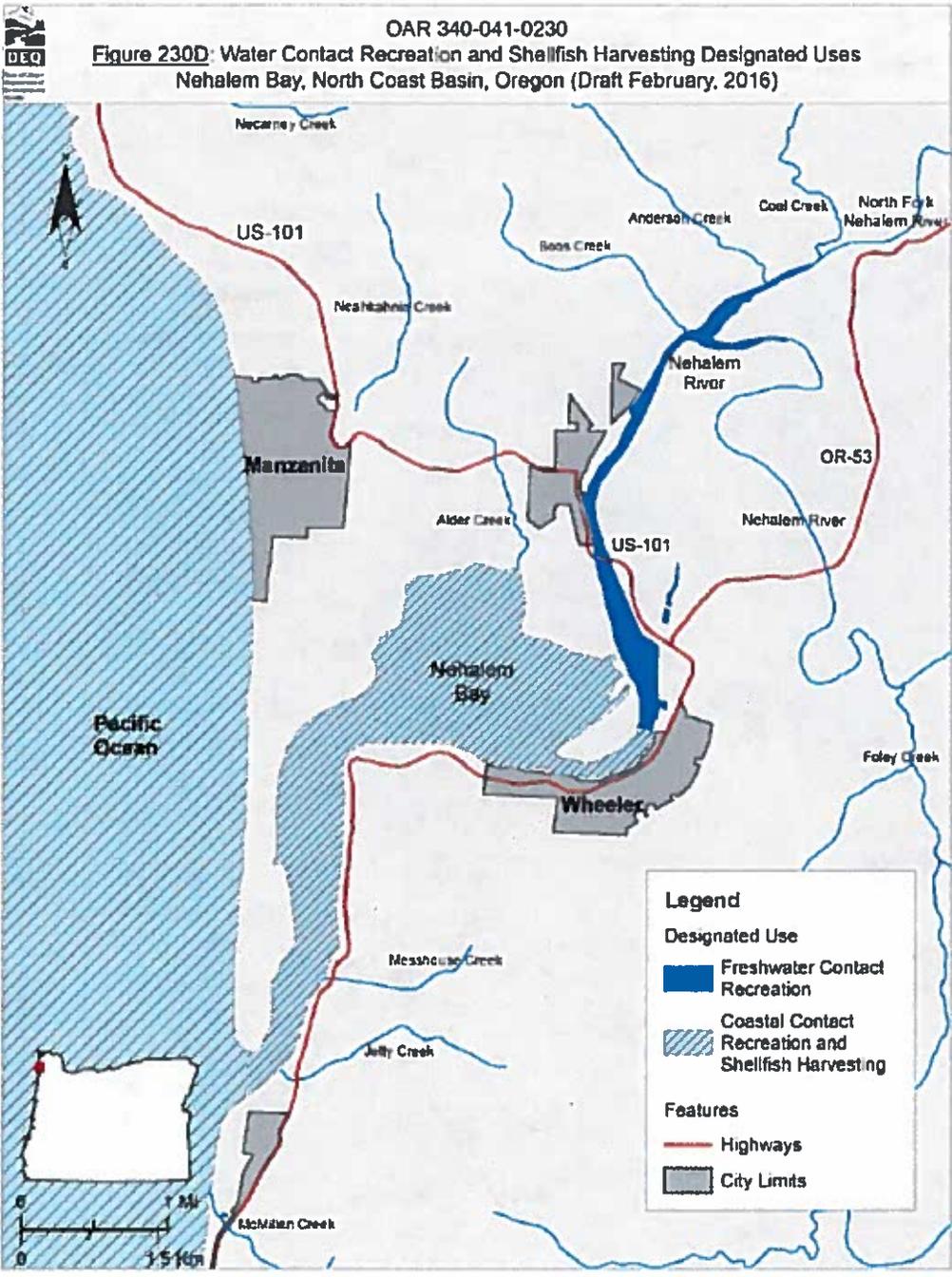
³ For coastal water contact recreation and shellfish harvesting uses, see also Figures 230C (Necanicum River Estuary), 230D (Nehalem Bay), 230E (Tillamook Bay), 230F (Netarts Bay), 230G (Sand Lake), and 230H (Nestucca Bay)



OAR 340-041-0230

Figure 230C: Water Contact Recreation and Shellfish Harvesting Designated Uses
Necanicum Bay, North Coast Basin, Oregon (Draft February, 2016)

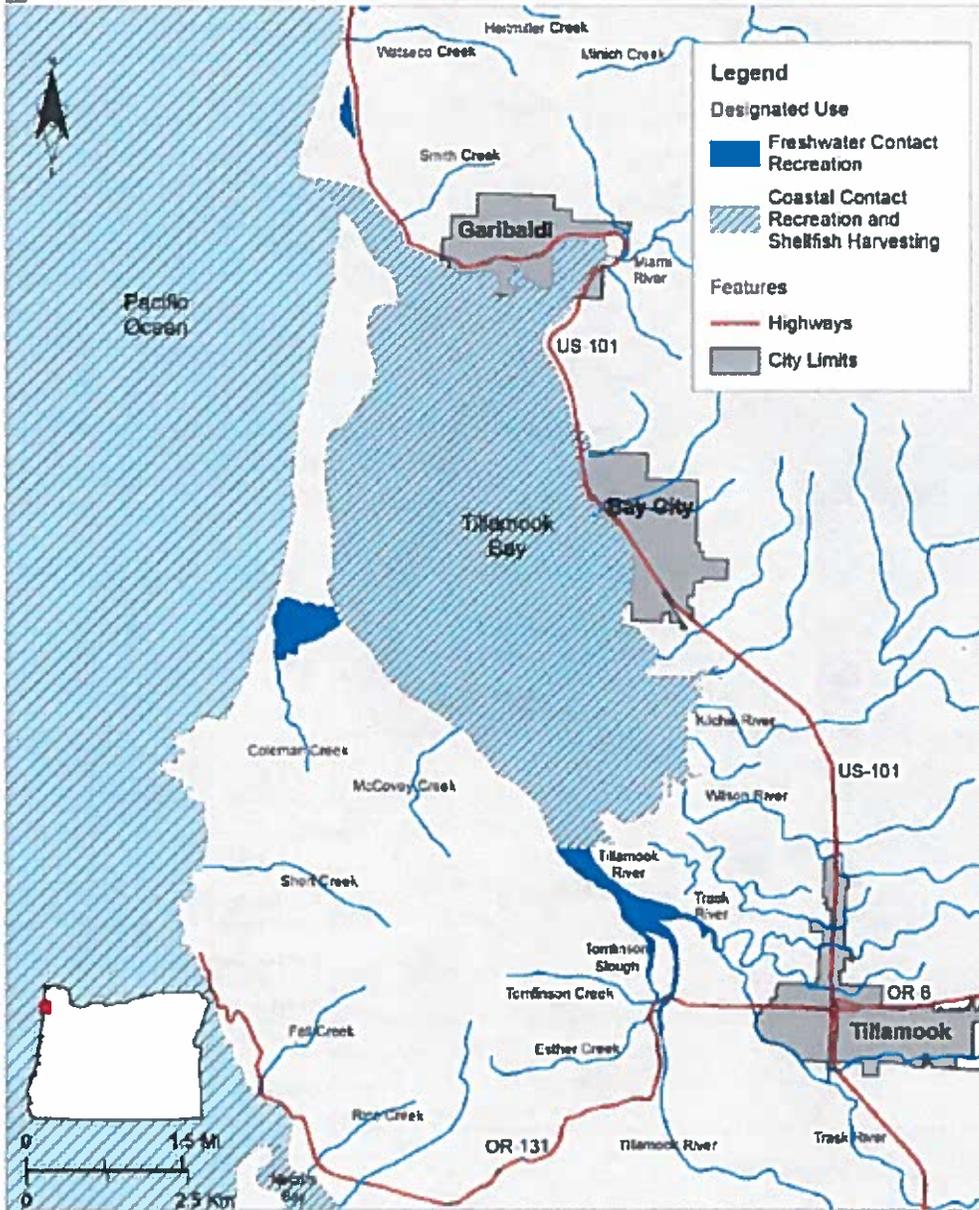






OAR 340-041-0230

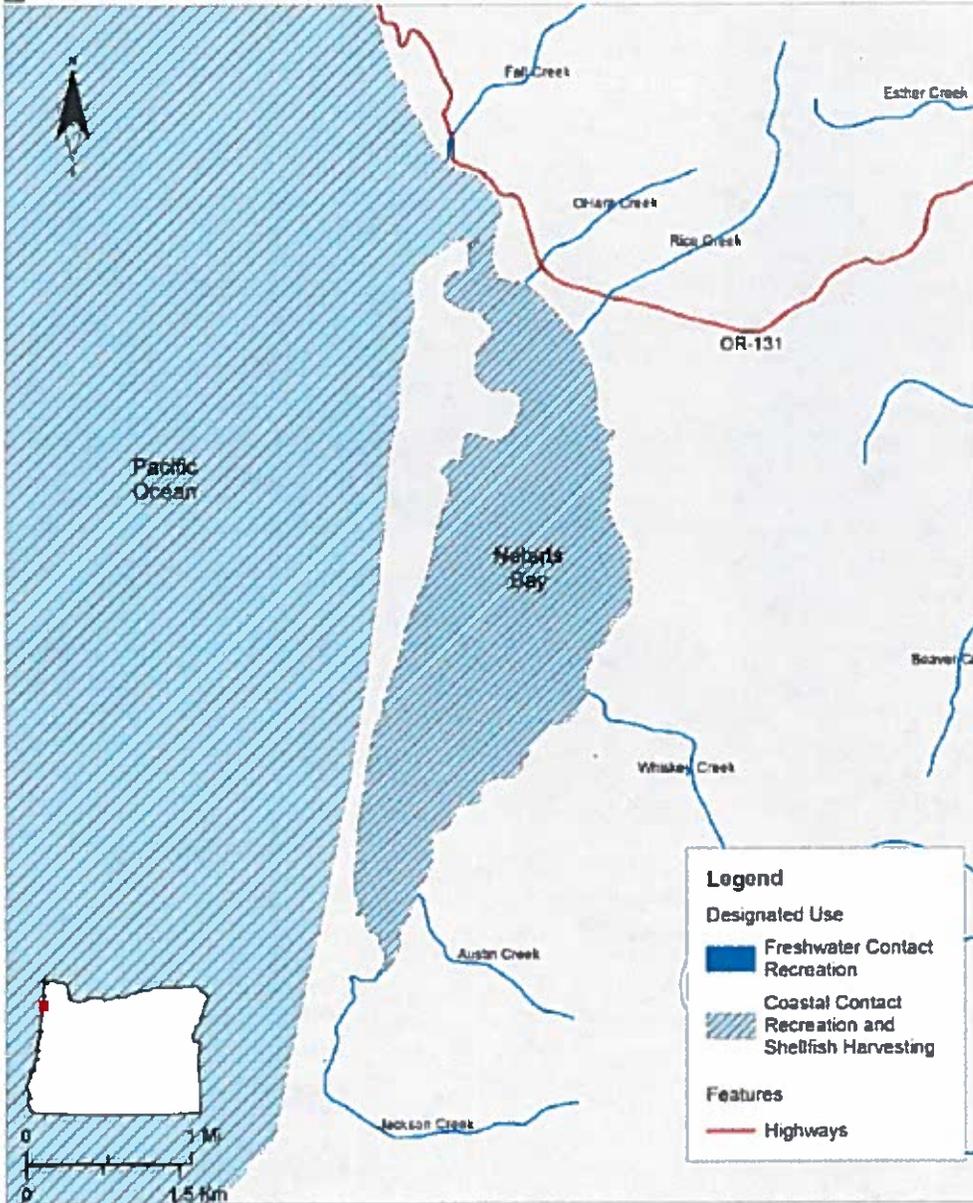
Figure 230E: Water Contact Recreation and Shellfish Harvesting Designated Uses
Tillamook Bay, North Coast Basin, Oregon (Draft February, 2016)





OAR 340-041-0230

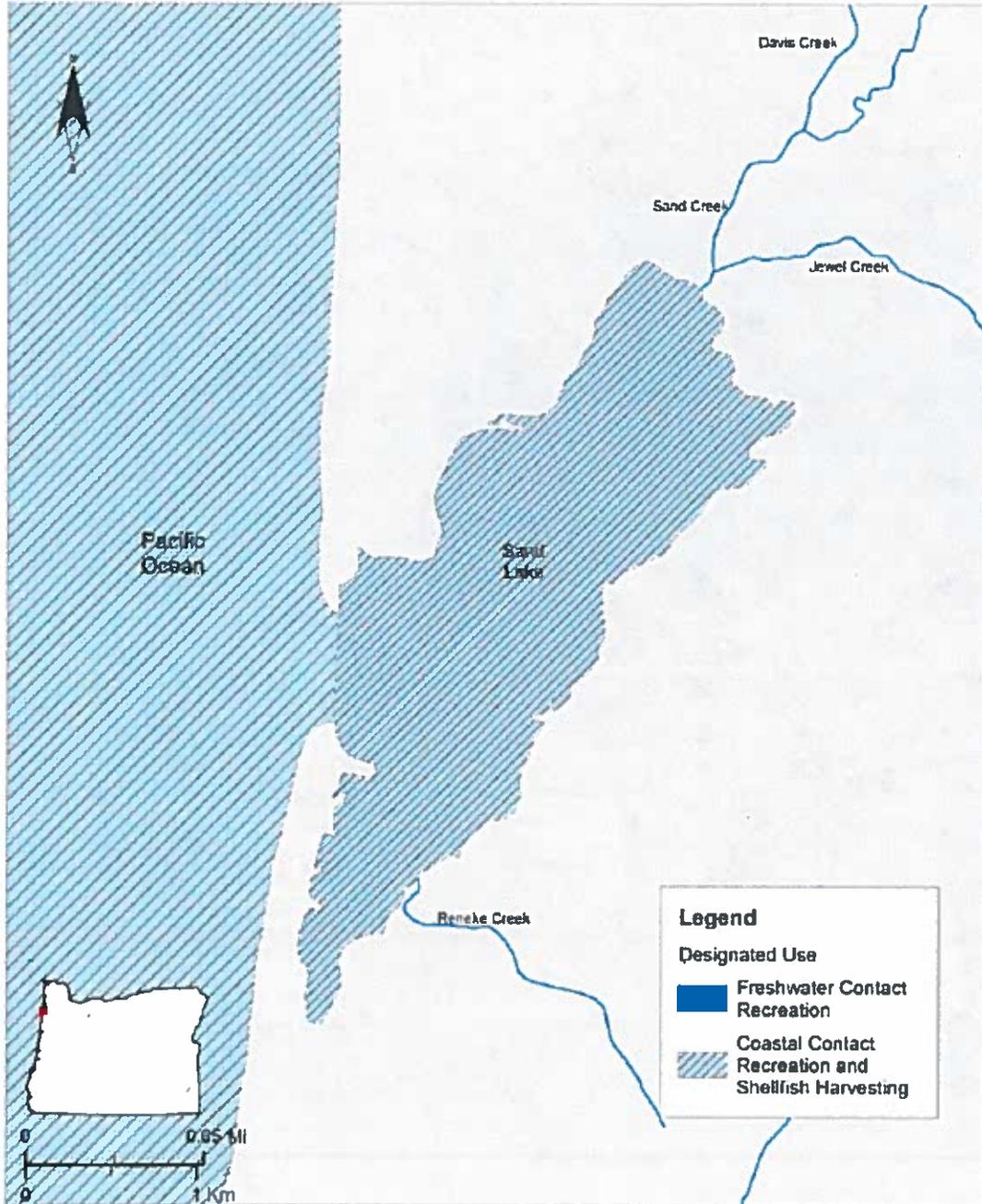
Figure 230F Water Contact Recreation and Shellfish Harvesting Designated Uses
Netarts Bay, North Coast Basin, Oregon (Draft February, 2016)





OAR 340-041-0230

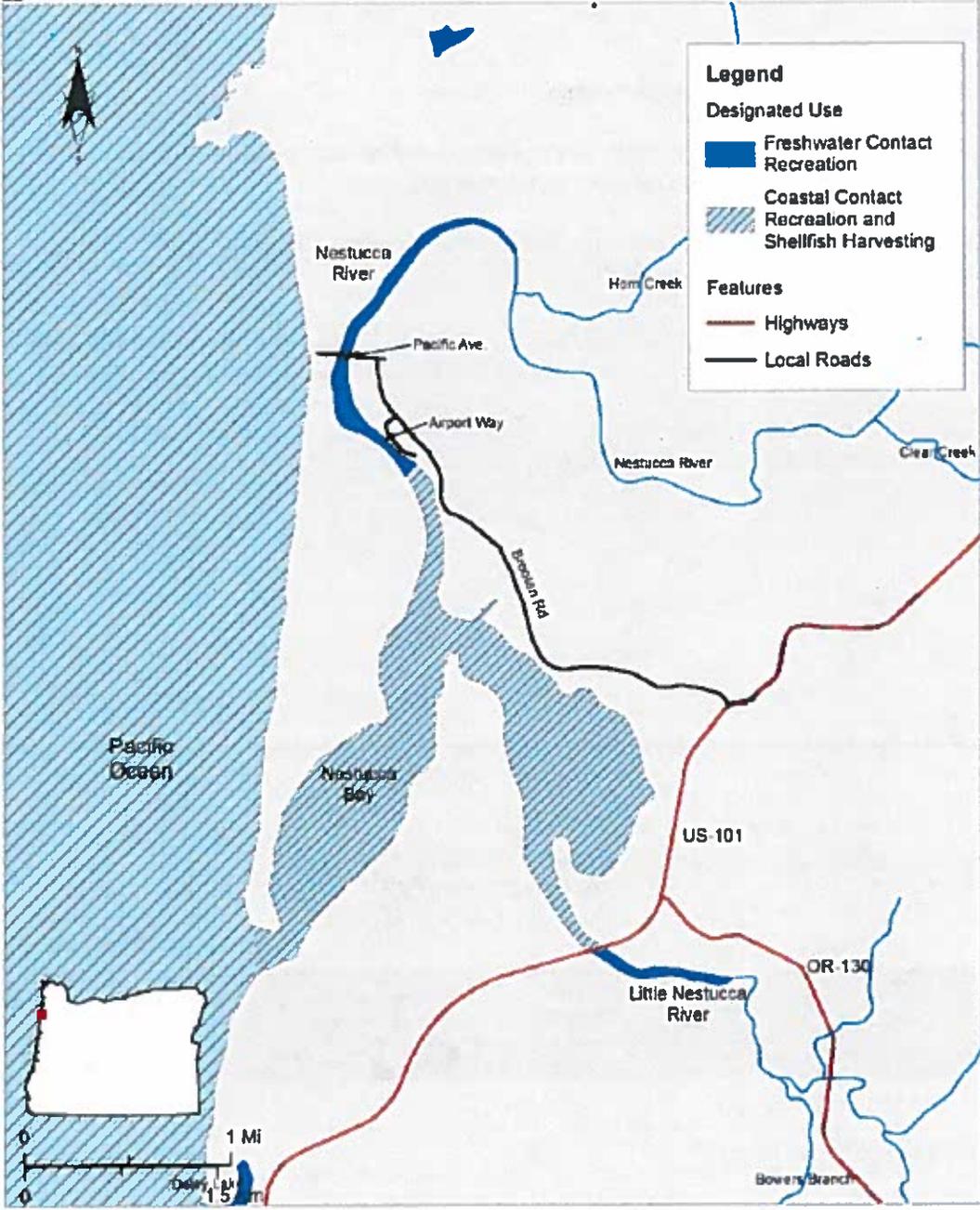
**Figure 230G: Water Contact Recreation and Shellfish Harvesting Designated Uses
Sand Lake, North Coast Basin, Oregon (Draft February, 2016)**





OAR 340-041-0230

Figure 230H: Water Contact Recreation and Shellfish Harvesting Designated Uses
Nestucca Bay, North Coast Basin, Oregon (Draft February, 2016)



[ED. NOTE: Tables and figures referenced are not included in rule text. [Click here for PDF copy of tables and figures.](#)]

Basin-Specific Criteria (South Coast)

340-041-0300

Beneficial Uses to Be Protected in the South Coast Basin

(1) Water quality in the South Coast Basin (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 300A (November 2003).

(2) Designated fish uses to be protected in the South Coast Basin are shown in Figures 300A (August 2005) and 300B (November 2003).

(3) Coastal water contact recreation use is to be protected in all South Coast Basin marine waters and in coastal waters designated in Figures 300C and 300D (August 2016).

(4) Shellfish harvesting use is to be protected in all South Coast Basin marine waters and in coastal waters as designated in Figures 300C and 300D (August 2016)

 <p style="text-align: center;">Table 300A Designated Beneficial Uses South Coast Basin (OAR 340-041-0300) (November 2003)</p>		
Beneficial Uses	Estuaries & Adjacent Marine Waters	All Steams & Tributaries Thereto
Public Domestic Water Supply ¹		X
Private Domestic Water Supply ¹		X
Industrial Water Supply	X	X
Irrigation		X
Livestock Watering		X
Fish & Aquatic Life ²	X	X
Wildlife & Hunting	X	X



Table 300A
Designated Beneficial Uses
South Coast Basin
(OAR 340-041-0300)
(November 2003)

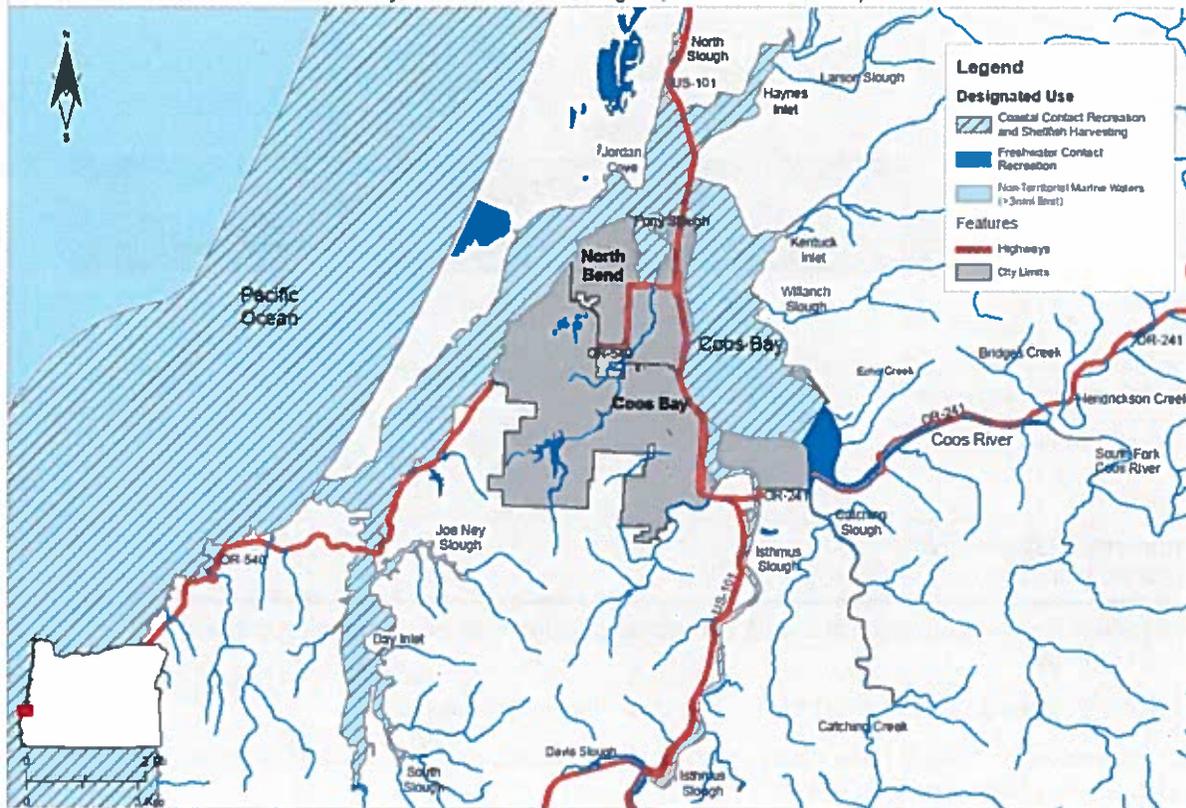
Beneficial Uses	Estuaries & Adjacent Marine Waters	All Steams & Tributaries Thereto
Fishing ³	X	X
Boating	X	X
Water Contact Recreation ³	X	X
Aesthetic Quality	X	X
Hydro Power		X
Commercial Navigation & Transportation	X	

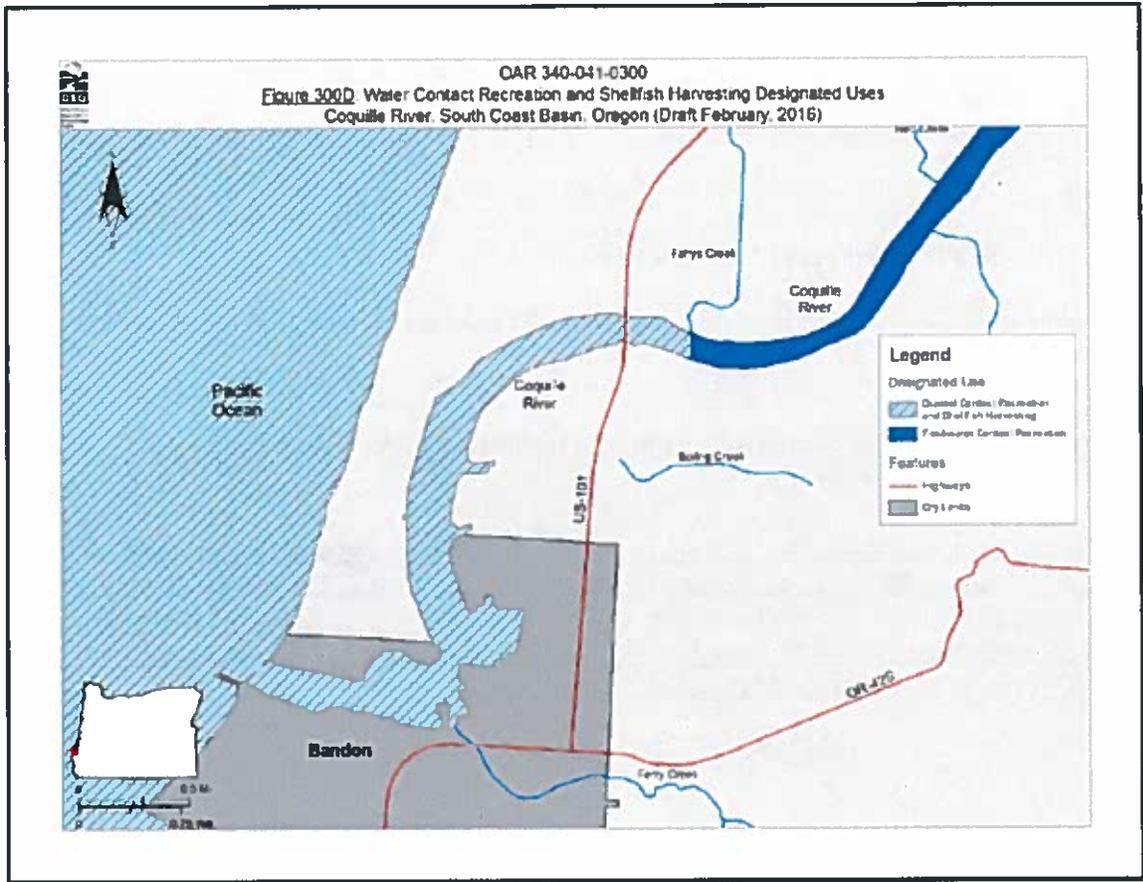
¹ With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking waterstandards.

² See also Figures 300A and 300B for fish use designations for this basin.

³ For coastal water contact recreation and shellfish harvesting uses, see also Figures 300C (Coos Bay) and 300D (Coquille River Estuary).

Figure 300C: Water Contact Recreation and Shellfish Harvesting Designated Uses
Coos Bay, South Coast Basin, Oregon (Draft December, 2016)





[\[ED. NOTE: Tables and figures referenced are not included in rule text. Click here for PDF copy of tables and figures.\]](#) ~~[ED. NOTE: Tables referenced are available from the agency.]~~

OAR 340-041-0320

Basin-Specific Criteria (Umpqua Basin)

340-041-0320

Beneficial Uses to Be Protected in the Umpqua Basin

(1) Water quality in the Umpqua Basin (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 320A (November 2003).

(2) Designated fish uses to be protected in the Umpqua Basin are shown in Figures 320A (November 2003) and 320B (August 2005).

(3) Coastal water contact recreation use is to be protected in all marine waters adjacent to the Umpqua River and in coastal waters designated in Figure 320C (August 2016).

(4) Shellfish harvesting use is to be protected in all marine waters adjacent to the Umpqua River and in coastal waters as designated in Figure 320C (August 2016).



Table 320A
Designated Beneficial Uses
Umpqua Basin
(OAR 340-041-0320)
(November 2003)

Beneficial Uses	Umpqua R. Estuary to Head of Tidewater & Adjacent Marine Waters	Umpqua R. Main from Head of Tidewater to Confluence of N. & S. Umpqua Rivers	North Umpqua River Main Stem	South Umpqua River Main Stem	All Other Tributaries to Umpqua, North & South Umpqua Rivers
Public Domestic Water Supply ¹		X	X	X	X
Private Domestic Water Supply ¹		X	X	X	X
Industrial Water Supply	X	X	X	X	X
Irrigation		X	X	X	X
Livestock Watering		X	X	X	X
Fish & Aquatic Life ²	X	X	X	X	X
Wildlife & Hunting	X	X	X	X	X
Fishing	X ³	X	X	X	X
Boating	X	X	X	X	X
Water Contact Recreation	X ³	X	X	X	X
Aesthetic Quality	X	X	X	X	X
Hydro Power			X	X	X
Commercial Navigation & Transportation	X				

¹ With adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards.

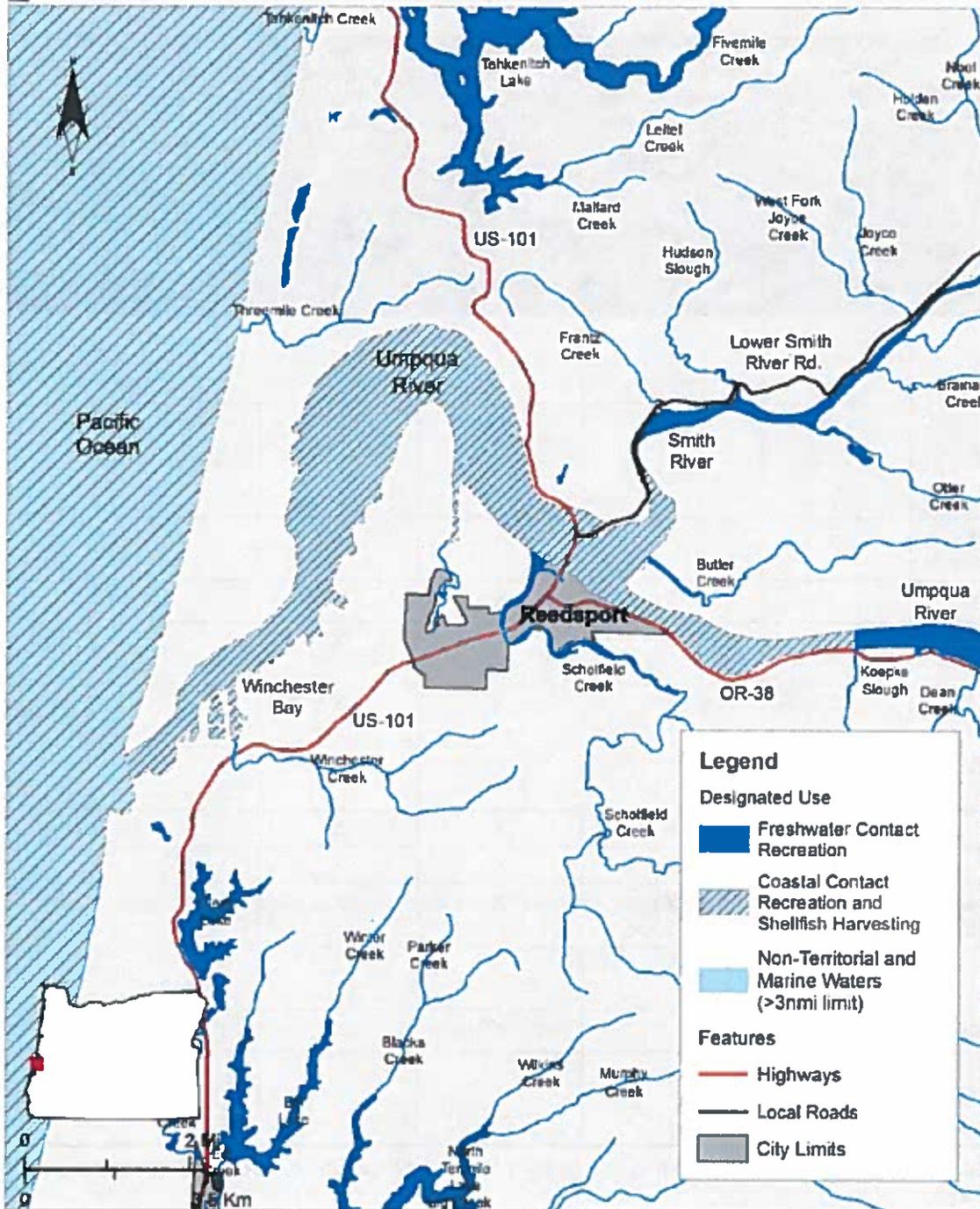
² See also Figures 320A and 320B for fish use designations for this basin.

³ For coastal water contact recreation and shellfish harvesting uses in the Umpqua River Estuary and Adjacent Marine Waters, see also Figure 320C.



OAR 340-041-0320

Figure 320C. Water Contact Recreation and Shellfish Harvesting Designated Uses
Winchester Bay, Umpqua Basin, Oregon (Draft February, 2016)



[\[ED. NOTE: Tables and Figures referenced are not included in rule text. Click here for PDF copy of tables and figures.\]](#)

~~[ED. NOTE: Tables referenced are available from the agency.]~~ Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048

The EPA Action

In accordance with its CWA authority, 33 U.S.C. Section 1313(c)(3) and 40 CFR Part 131, the EPA approves the clarifications to the designated uses adopted by Oregon, including the text and table revisions and the maps clarifying the extent of the coastal water contact recreation and shellfish harvesting designated uses, and where freshwater contact recreation ends and coastal contact recreation begins. These were submitted as revisions to Sections OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320, and reproduced above in this technical support document.

The EPA Rationale

In Sections OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320, Oregon has adopted maps that distinguish where the coastal water contact recreation and shellfish harvesting designated uses overlap each other and abut the freshwater contact designated use, for the purposes of applying the bacteria criteria to protect human health. Before Oregon adopted these rules, the State relied on its narrative that the specific bacteria criteria applied to marine, estuarine, or freshwaters based on the scientific distinction of these waters. The State further differentiated between marine and estuarine shellfish growing waters, and marine and estuarine non-shellfish growing waters for the purposes of applying the bacteria criteria. As a result, prior to the 2016 rule, implementation of the criteria for CWA purposes was done after the State determined whether the water was marine, estuarine, or fresh, and, if marine or estuarine, shellfish growing or non-shellfish growing. With the 2016 adoption, the State continues to protect the same designated uses previously listed in its regulation. Oregon has clarified that shellfish harvesting and coastal water contact recreation uses are designated in all of Oregon's marine waters, and the State has clarified the upstream-most extent of the uses in Oregon's estuaries.²⁵ To protect shellfish harvesting and coastal water contact recreation within the major estuaries identified in each of the Oregon basins, Oregon's maps clarify where coastal water contact recreation and shellfish harvesting uses are protected. The explanations for these are described below. To clarify the locations of the upstream extent of coastal water contact recreation waters versus freshwater contact recreation, and the upstream extent of shellfish harvesting waters, Oregon relied on multiple lines of evidence.

To demarcate the boundary between the coastal water contact recreation waters and freshwater contact recreation waters, where sufficient data were available, Oregon used an annual median salinity of 10 ppt. According to Anderson et al. 1979, cited in Oregon's TSD 2016, significant attenuation of the indicator organism for freshwaters, *E. coli*, occurs at higher salinities (10 ppt

²⁵ Certain estuarine areas unable to support shellfish harvest are identified as coastal contact recreation waters without overlapping shellfish harvesting waters.

or higher), and for 10 ppt, after two days of constant exposures, survival remained high (approximately 100 percent survival). Similarly, data reported in Hanes and Fragala, 1967,²⁶ which served as one line of evidence for the recommendation to apply *E. coli* to primarily fresh waters in the U.S. EPA's Health Effects Criteria for Marine Waters – Part 1,²⁷ demonstrated that up to approximately 11 ppt (33% seawater) salinity constant exposures for two days, no attenuation in *E. coli* occurred and in fact *E. coli* density increased for one strain; at higher salinity exposures at approximately 23 and 34 ppt (67 and 100% seawater, respectively), average cell death rate increased significantly. Therefore, in delineating where *E. coli* is a valid indicator and applied to protect freshwater contact recreation with *E. coli*, Oregon appropriately targeted areas with typically less than two days' exposure to 10 ppt or greater salinity.²⁸ To analyze each of the basins, Oregon analyzed annual median salinities and found that salinities greater than 10 ppt at the boundary locations on the maps generally were limited to times of high tide, with the dominant condition freshwater. Using ODEQ's full database screened for data collected since 1985 (collected with improved data collection methods) and sites with at least 50 months of data to capture interannual variability, the State clearly demarcated freshwaters and coastal waters for purposes of identifying where each bacterial indicator and criterion applies. Where sufficient salinity data were not available for certain coastal bays without significant sloughs, Oregon identified the full extent of each bay for coastal contact recreation use. Upstream of the coastal water contact recreation demarcation, freshwater contact recreation is designated throughout Oregon freshwaters as identified in the tables and text associated with all of Oregon's basin-specific WQS.

Under the BEACH Act, rivers that flow freely to ocean waters are not coastal waters for purposes of applying marine (coastal) contact recreation criteria. Oregon determined that the Sixes, Chetco, and Rogue rivers, as well as the many smaller rivers and creeks unnamed in the basins maps above, flow freely to the ocean, and, therefore, do not have sufficient saltwater intrusion to be considered coastal waters. Oregon's adopted rules clarify that freshwater contact recreation use is designated for the entire extent of the rivers and creeks. The marine waters adjacent to the mouths of the free-flowing rivers and creeks are designated as coastal water contact recreation in the adopted rules. Oregon relied on salinity information as well as expert judgment and public input in making the determinations that these rivers and creeks are free-

²⁶ Hanes, N. Bruce, and Robert Fragala. *Effect of Seawater Concentration on Survival of Indicator Bacteria*. Journal (Water Pollution Control Federation), vol. 39, no. 1, 1967, pp. 97–104. JSTOR, www.jstor.org/stable/25035720.

²⁷ Cabelli, V.J. 1983. Health Effects Criteria for Marine Recreational Waters, Technical Report. U.S. Environmental Protection Agency, Health Effects Research Laboratory: Research Triangle Park, NC. EPA 600/1-80-031.

²⁸ Note that because the coastal water and freshwater contact recreation boundary has been derived in reference to the tolerance of *E. coli*, the application of the coastal water and freshwater contact recreation maps may not be appropriate for the purposes of applying pollutant criteria or indicators other than *E. coli*. Accordingly, the maps are referenced in the "Bacteria Criteria" provisions of OAR 340-041-0009. Should Oregon wish to apply other pollutant criteria to protect coastal water contact and freshwater contact recreation uses, which behave differently than *E. coli* when exposed to excess salinity or other estuarine conditions, Oregon should either develop new maps specific to such criteria or update the coastal water contact and freshwater contact recreation maps, in order to be protective of human health.

flowing, and, based on the data and analysis provided, the EPA finds that Oregon's assessment is appropriate.

Pursuant to §131.10(c), states may adopt sub-categories of a use and set the appropriate criteria to reflect varying needs of such sub-categories of uses; warm water fishery for example is a subcategory of an aquatic life use and shellfish harvesting is a subcategory of a fishing use. Oregon had previously applied fecal coliform criteria to "marine and estuarine shellfish growing waters", a subset of the "Fishing" designated use in Oregon's previously effective WQS, but the State had not identified where the use occurs in rule. In the 2016 adoption, Oregon clarified that the designated use protected by the shellfish bacteria criteria, is a "shellfish harvesting" use. The State then clarified the extent of the shellfish harvesting use based on where shellfish suitable for harvesting are located. As such, Oregon clarified that the designated uses applicable to all marine waters are coastal water contact recreation and shellfish harvesting, and identified the estuarine locations of shellfish harvest and coastal contact recreation in the basin-specific Maps and Tables for the major estuaries of Oregon (Sections OAR 340-041-0101, 340-041-0220, 340-041-0230, 340-041-0300, and 340-041-0320).

To develop the shellfish harvesting maps, Oregon likewise used multiple lines of evidence, including the following resources:

- Oregon Department of Fish and Wildlife's (ODFW) "Where to Dig" maps, available on its website, which show easily accessible clamming areas in the State. (ODFW 2015);
- Oregon Department of Agriculture's (ODA) Commercial Harvesting Areas, which indicate where the agency allows commercial shellfish to be grown within the Coos, Netarts, Tillamook, Umpqua and Yaquina Estuaries;
- A 1979 cooperative report between the Oregon State University Sea Grant Program and the Oregon Department of Fish and Wildlife detailing subtidal clam distribution in many Oregon estuaries (Hancock, et al. 1979), as well as a number of 1970s "Resource Use" studies published by the Oregon Department of Fish and Wildlife;
- Online maps showing clam harvesting areas from two websites: www.clamdigging.info and www.razorclamming.com;
- Reports on clam distribution in the Columbia River Estuary from various sources cited in Oregon's TSD 2016; and
- Personal communications with tribal governments, the Oregon Department of Fish and Wildlife's Shellfish and Estuarine Assessment of Coastal Oregon program, and EPA's Western Ecology Lab in Newport, Oregon.

Oregon also used salinity data as a secondary line of evidence in demarcating the extent of a shellfish harvesting use. As a basis to determine where shellfish harvesting is attainable, Oregon identified the preferred salinity range for survival of Oregon shellfish, including Pacific oysters (*Crassostrea gigas*), which tolerate salinity as low as 10 ppt, and nonnative softshell clams (*Mya arenaria*), which tolerate salinity as low as 5 ppt but have a preference for 10 to 20 ppt salinity (Newell and Hidu 1986, Strasser 1999; Emmett, et al. 1991; pers. comm., Ted DeWitt, U.S. EPA Western Ecology Division, 8/9/2016). Oregon found that there were some reports of shellfish occurring upstream of the 10 ppt long-term annual median salinity, possibly because

bottom salinities in those areas were higher than the surficial salinities. However, Oregon did not have enough bottom salinity data to calculate the extents (the database was dominated by surface data) therefore, Oregon used the complete salinity datasets to identify where shellfish have the potential to survive and therefore where shellfish harvesting has the potential to occur. To validate where shellfish harvest occurs, Oregon looked at patterns of harvesting and used harvest patterns as a primary line of evidence (all known harvest areas are designated) and as a secondary line of evidence, reports of *Mya arenaria* presence together with adequate salinity for robust propagation to determine the upstream extent of shellfish harvesting use. Oregon generally relied more heavily on lines of evidence that revealed harvest patterns in demarcating the extent of estuarine shellfish harvest, rather than salinity alone, for the estuaries where the State found evidence of shellfish harvest upstream of the 10 ppt median annual salinity demarcation.^{29,30}

The EPA would like to note that estuaries are dynamic environments that are subject to change at timescales ranging from hourly, daily, seasonal, and interannual, to multi-decadal. In particular, river flows can vary in cycles and influence the upstream extent of salinity intrusion, and it is important to evaluate environmental trends and compare the trends to the assumptions made in developing the maps that rely on salinity data over time. Oregon identified the demarcations between coastal and freshwater contact recreation and the upstream-most extent of shellfish harvesting designated uses using the best available long-term data, studies, historical shellfish harvest reports, shellfish data, expert judgment and observations, and anecdotal information, among other sources that are relevant to the location of the designated uses. Although Oregon has used the sum of the data and observations collected to clarify the location of the uses broadly, the EPA encourages ODEQ and other state agencies to continue collecting the relevant shellfish harvest, substrate, and salinity data and to request new data and information from the public during triennial reviews of the State's WQS. Should new data result in a need to revise the maps, the EPA recommends that ODEQ prioritize updating the maps to reflect new information during its WQS triennial reviews.³¹ Although not the subject of Oregon's 2016 revisions, which clarify the application of the fecal coliform criteria to marine and estuarine shellfish harvesting areas, the EPA recommends that Oregon solicit input, in its next triennial review, regarding whether fecal coliform criteria are likewise needed to protect freshwater shellfish harvest, for example to protect the harvest of freshwater mussels.

Similarly, in Oregon's previous work prior to the 2016 adoption, in certain TMDLs for the coastal basins, and in permitting dischargers under the NPDES program, Oregon has from time to time identified discharges or nonpoint sources upstream of the shellfish harvesting extents that

²⁹ Note that because the shellfish harvest maps have been derived to protect human health and specifically consumers of bivalve shellfish from bacterial pollution, it could be inappropriate to apply pollutant criteria other than the fecal coliform criteria reviewed in the 2016 adoption. Accordingly, the maps are referenced in the "Bacteria Criteria" provisions of OAR 340-041-0009.

³⁰ Information used to derive the maps is described in the Oregon Public Notice Package (Item I), 2016, as well as the Oregon Issue Paper 2016.

³¹ 2016. Response from ODEQ to the Grand Ronde Tribe regarding the Columbia River shellfish use designation.

the State assigned permit limits, wasteload allocations, or load allocations, respectively, for fecal coliform. Oregon has a responsibility under the Clean Water Act to establish permit limits under the NPDES program and establish load and wasteload allocations from upstream sources under the TMDL program where needed in order to be protective of downstream designated uses and meet downstream water quality standards. Since upstream loading can be significant, as indicated by the levels of fecal coliform identified, for example, in the Nehalem Estuary (part of the North Coast TMDL) present just upstream of where the shellfish harvesting use is designated in the 2016 adoption and as described in the TMDL,³² it is imperative that such upstream sources continue to be monitored and controlled as necessary and required per CWA authorities vested in the State.

OAR 340-041-0101

Oregon has added a provision at OAR 340-041-0101(3), to indicate that coastal water contact recreation and shellfish harvesting are to be protected in the portion of the Columbia River mainstem where identified in the map (Figure 101A). These are simply clarifications that the extent of shellfish harvesting and coastal water contact recreation are indicated on a map rather than just narratively in the State's WQS. Similarly, in Table 101A, Oregon has added a footnote (footnote 3) to the designated use table to indicate that the subcategories of the fishing use (shellfish harvesting) and water contact recreation use (coastal water contact recreation) are identified in Figure 101A. The EPA approves these clarifications regarding the specific articulation in the tables and maps where the uses apply.

For Figure 101A, Oregon has clarified that for the mainstem Columbia River, areas west of Trestle Bay include shellfish harvesting areas, while waters west of Astoria, Oregon are coastal water contact recreation waters, and waters upstream are freshwater contact recreation waters. Oregon demarcated the line between freshwater contact recreation and coastal contact recreation using the annual median salinity of 10 ppt as described earlier. To identify the upstream extent of the shellfish harvesting area, Oregon relied on studies and reports that show native harvestable shellfish are uncommon in the Columbia River, likely due to high natural flows. However, the State also cited evidence regarding shellfish abundance, harvest, and the likelihood of the presence of the most freshwater-tolerant, nonnative consumable species of clam, the adult *Mya arenaria*, within the Columbia River mainstem west of Trestle Bay to clarify where the use applies.³³ In Oregon's map, the shellfish harvesting use is identified west of Trestle Bay, although in two samples from two separate studies (one sample per study), *Mya arenaria* clams were found at two locations upstream of Trestle Bridge during two different studies, the Western Environmental Monitoring and Assessment Program, (EMAP-West) and the Lower Columbia River Aquatic Nonindigenous Species Survey (LCRANS), during two different years.³⁴ Oregon clarified that the shellfish harvest use extends up to Trestle Bay but not beyond, given the low estimated salinities during spring (mean bottom salinity of 1 practical salinity unit; PSU

³² Oregon Dept. of Environmental Quality. 2003. North Coast Subbasins TMDL. Appendix B. Bacteria Modeling. Available at: <http://www.oregon.gov/deq/FilterDocs/NCSappxb.pdf>

³³ Personal communication from Ted DeWitt, EPA's Western Ecology Division, 8/9/2016.

³⁴ Personal communication from Ted DeWitt, EPA's Western Ecology Division, 8/9/2016.

functionally equivalent to ppth) east of Trestle Bay and evidence of only two *Mya arenaria* detections out of many sampling events east of Trestle Bay.

EPA's regulation at 40 CFR 131.10(b) requires states and authorized tribes to "take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." The Columbia River is a shared water with the state of Washington. Washington does not apply its criteria to protect shellfish harvesting use within the mainstem Columbia River;³⁵ for the waters shown in Figure 101A, Washington's fecal coliform criteria to protect shellfish harvest only apply to marine waters and not estuarine waters in the Columbia. Oregon's fecal coliform criteria to protect its shellfish harvesting use that applies in the shared estuarine waters is more stringent than Washington's fecal coliform criteria to protect contact recreation. Therefore, Oregon's fecal coliform criteria applicable to the shellfish harvesting use in the Columbia River mainstem to Trestle Bay, together with its revised criteria to protect coastal water and freshwater contact recreational uses consistent with §131.11 throughout the Columbia River, are protective of shared/downstream Washington waters and consistent with §131.10(b). The EPA encourages Oregon to work with Washington on the implementation of the shellfish harvesting use and the coastal water contact and freshwater contact recreation use and the associated criteria in these shared waters.

Oregon based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation applies upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided by Oregon the EPA approves Figure 101A.

Lastly, Oregon has included non-substantive edits to an editorial note indicating that figures and tables cited in OAR 340-041-0101 are included as pdfs at a hyperlinked location. The EPA is approving these non-substantive edits to the editorial note.

OAR 340-041-0220

Oregon has added provisions at OAR 340-041-0220(3) and (4), to indicate that coastal water contact recreation and shellfish harvesting are to be protected in all Mid Coast Basin marine waters and in the portion of the estuaries clarified in the maps (Figures 220C-H). These new provisions are simply further clarifications that all marine waters in the Mid Coast Basin are designated as shellfish harvesting and coastal water contact (marine) recreation, and to show the demarcation lines between the various uses. Similarly, in Table 220A, Oregon has added a footnote (footnote 3) to the designated use table to clarify the extent of shellfish harvesting and coastal water contact recreation in Figures 220C-H. The EPA approves provisions (3) and (4) and the revision to include footnote 3 in Table 220A.

³⁵ WAC 173-201A-210 shellfish harvest bacteria criteria only apply to marine waters

For Figures 220C-H, Oregon has explained how the State identified the areas to apply the coastal contact recreation and shellfish harvesting uses. The State has clarified that both coastal water contact and shellfish harvesting uses are present to the upstream-most extent of the shellfish harvesting use, which may be further upstream than what the 10 ppt median salinity would indicate is necessary to minimize *E. coli* attenuation. This is a protective assumption, given that the use of enterococci is an appropriate indicator in both fresh and marine waters, and the co-location of the coastal water contact recreation use with the shellfish harvest use simply applies the enterococci criteria further upstream.

Figures 220C-H:

220C Salmon River Estuary

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The coastal water contact recreation use applies at the same location over the same extent within the estuary as the shellfish harvesting use, with the estuarine extent identified on the map. The estuarine extent identified on the map is based on the upstream most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Upstream of the coastal water contact recreation and shellfish harvesting use, freshwater contact recreation use applies. Based on our review of the data and analysis provided by Oregon, the EPA approves Figure 220C.

220D Siletz Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of Siletz Bay, with the estuarine extent identified on the map. The estuarine extent identified on the map is based on the upstream most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*. The coastal water contact recreation use applies at the same location over the same extent within the estuary as the shellfish harvesting use. Upstream of this demarcation, freshwater contact recreation is identified. Based on our review of the data and analysis provided by Oregon, the EPA approves Figure 220D.

220E Yaquina Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of Yaquina Bay, with the estuarine extent identified on the map based on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya*

arenaria together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. The coastal water contact recreation use applies at the same location over the same extent within the estuary as the shellfish harvesting use. Oregon has also clarified that freshwater contact recreation applies upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided by Oregon the EPA approves Figure 220E.

220F Alsea Bay

Oregon used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that coastal water contact recreation and shellfish harvesting uses apply to all of Alsea Bay (upstream of which freshwater contact recreation applies). The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation applies upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided by Oregon the EPA approves Figure 220F.

220G Yachats River

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Yachats River Estuary up to Highway 101 (upstream of which freshwater contact recreation applies), based on the upstream-most extent of the data available on shellfish harvesting, together with salinity data that indicates where shellfish survive and propagate and thus where shellfish harvesting is attainable. The coastal water contact recreation use applies at the same location over the same extent within the estuary as the shellfish harvesting use. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided by Oregon the EPA approves Figure 220G.

220H Siuslaw River

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Siuslaw River Estuary, with the estuarine extent identified on the map (upstream of which freshwater contact recreation applies), based on the upstream most extent of the shellfish harvest data and extent of *Mya arenaria*. The coastal water contact recreation use applies at the same location over the same extent within the estuary as the shellfish harvesting

use. Based on our review of the data and analysis provided by Oregon, the EPA approves Figure 220H.

Lastly, Oregon has included nonsubstantive edits to an editorial note indicating that figures and tables cited in OAR 340-041-0220 are included as pdfs at a hyperlinked location. The EPA is approving these nonsubstantive edits to the editorial note.

OAR 340-041-0230

Oregon has added provisions at OAR 340-041-0230(3) and (4), to indicate that coastal water contact recreation and shellfish harvesting are to be protected in all North Coast Basin marine waters (3) and in the portion of the estuaries where identified in the maps (Figure 230C-H). These new provisions are simply clarifications added to further clarify that all marine waters are designated as shellfish harvesting and coastal water contact (marine) recreation, and to show the demarcation lines between the various uses. Similarly, in Table 230A, Oregon has added a footnote (footnote 3) to clarify the extent of shellfish harvesting and coastal water contact recreation in Figures 230C-H. The EPA approves these provisions (3) and (4) and revision to include footnote 3 in Table 230A.

For Figures 230C-H, Oregon has provided justifications to clarify where the coastal water contact recreation and shellfish harvesting uses apply, with the upstream-most extent of the shellfish harvesting use in certain locations identified further upstream than what the 10 ppt median salinity would indicate is necessary to minimize *E. coli* attenuation. This is a protective assumption, given that enterococci is an appropriate indicator in both fresh and marine waters, and the co-location of the coastal water contact recreation use with the shellfish harvest use simply applies the enterococci criteria further upstream.

The exception to this co-location of the upstream-most extent of the coastal water contact recreation and shellfish harvesting uses is the map for the Necanicum Estuary, which is discussed further below.

Lastly, Oregon has included non-substantive edits to an editorial note indicating that figures and tables cited in OAR 340-041-0230 are included as pdfs at a hyperlinked location. The EPA is approving these non-substantive edits to the editorial note.

Figures 230C-H:

230C Necanicum

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the shellfish harvesting use applies to the southern portion of the estuary together with coastal water contact recreation, whereas only coastal water contact recreation use is designated further upstream (and further upstream of the coastal water contact recreation use, freshwater contact recreation applies). The spatial extent of the shellfish harvesting use is based on shellfish harvesting reports, best professional expert judgment, and

anecdotal information obtained from clamming websites, as well as the configuration of the estuary. Because the presence of *Mya arenaria* and shellfish harvest extent was not found to extend further than where designated on the map, the upstream extent of the coastal water contact recreation use is based on the median annual 10 ppt salinity demarcation, further upstream of the shellfish harvest use. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation use. Oregon has used the best data available to identify the upstream-most extent of the use. Therefore, the EPA approves Figure 220C based on the evidence provided.

230D Nehalem Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Nehalem Bay, with the estuarine extent identified on the map (upstream of which freshwater contact recreation applies). The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 230D.

230E Tillamook Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Tillamook Bay (upstream of which freshwater contact recreation applies), with the upstream extent identified on the map. The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 230E.

230F Netarts Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Netarts Bay, with the estuarine extent identified on the map based on the upstream most extent of the data available on shellfish harvesting, including the presence of *Mya arenaria*. Oregon has also clarified that freshwater contact recreation is upstream of the coastal

contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 230F.

230G Sand Lake

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Sand Lake (upstream of which freshwater contact recreation applies). The State based the clarification on the extent of the data available on shellfish harvest, including the presence of *Mya arenaria*. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 230G.

230H Nestucca Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Nestucca Bay south to the Little Nestucca River at Highway 101 and north to the Nestucca River at the south end of Airport Way, Pacific City, Oregon, with the estuarine extent identified on the map. The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 230H.

OAR 340-041-0300

Oregon has added provisions at OAR 340-041-0300(3) and (4), to indicate that coastal water contact recreation and shellfish harvesting are to be protected in all South Coast Basin marine waters and in the portion of the estuaries where identified in the maps (Figure 300C-D). These new provisions are simply clarifications added to further clarify that all marine waters are designated as shellfish harvesting and coastal water contact (marine) recreation and to show the demarcation lines between the various uses. Similarly, in Table 300A, Oregon has added a footnote (footnote 3) to clarify the extent of shellfish harvesting and coastal water contact recreation in Figures 300C-D. The EPA approves these provisions (3) and (4) and new footnote 3 included in Table 300A.

For Figures 300C-D, Oregon has provided justifications for the marine and shellfish clarifications, and for both maps has clarified that both coastal water contact and shellfish harvesting uses are located at the upstream-most extent of the shellfish harvesting use, which

may be further upstream than what the 10 ppt median salinity would indicate is necessary to minimize *E. coli* attenuation. This is a protective assumption, given that enterococci is an appropriate indicator in both fresh and marine waters, and the co-location of the coastal water contact recreation use with the shellfish harvest use simply applies the enterococci criteria further upstream.

Figures 300C-D:

300C Coos Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Coos Bay, with the estuarine extent identified on the map (upstream of which freshwater contact recreation applies). The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 300C.

300D Coquille River Estuary

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Coquille River Estuary, east to the Fahys Creek confluence, with the estuarine extent identified on the map (upstream of which freshwater contact recreation applies). The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our analysis of the data and analysis provided the EPA approves Figure 300D.

Lastly, Oregon has included non-substantive edits to an editorial note indicating that figures and tables cited in OAR 340-041-0300 are included as pdfs at a hyperlinked location. The EPA is approving these non-substantive edits to the editorial note.

OAR 340-041-0320

Oregon has added provisions at OAR 340-041-0320(3) and (4), to indicate that coastal water contact recreation and shellfish harvesting are to be protected in all marine waters adjacent to the Umpqua River (3) and in the portion of the estuary where identified in one map (Figure 320C). These new provisions are simply clarifications added to further clarify that all marine waters

adjacent to the Umpqua River are identified as shellfish harvesting and coastal water contact (marine) recreation, and to show the demarcation lines between the various uses. Similarly, in Table 320A, Oregon has added a footnote (footnote 3) to clarify the extent of shellfish harvesting and coastal water contact recreation in Figures 320C. The EPA approves these provisions (3) and (4) and new footnote 3 included in Table 320A.

For Figure 320C, Oregon has provided justifications for the marine and shellfish clarifications, and for Figure 300C has identified both coastal water contact and shellfish harvesting uses to the upstream-most extent of the shellfish harvesting use, which may be further upstream than what the 10 ppt median salinity would indicate is necessary to minimize *E. coli* attenuation. This is a protective assumption, given that enterococci is an appropriate indicator in both fresh and marine waters, and the co-location of the coastal water contact recreation use with the shellfish harvest use simply applies the enterococci criteria further upstream.

Figure 320C Umpqua River Estuary/Winchester Bay

Oregon has used all available data identified in its review and public comment period to clarify the upstream-most extent of the shellfish harvesting and coastal contact recreation uses and demarcate the line between the freshwater contact recreation and coastal water contact recreation use. The State has clarified that the coastal water contact recreation and shellfish harvesting uses apply to all of the Umpqua River Estuary/Winchester Bay, with the estuarine extent identified on the map (upstream of which the freshwater contact use applies). The State based the clarification on the upstream-most extent of the data available on shellfish harvest, including the presence of *Mya arenaria*, together with salinity data that indicates where shellfish can survive and propagate and thus where shellfish harvesting is attainable. Oregon has also clarified that freshwater contact recreation is upstream of the coastal contact recreation and shellfish harvest uses. Based on our review of the data and analysis provided the EPA approves Figure 320C.

Lastly, Oregon has included non-substantive edits to an editorial note indicating that figures and tables cited in OAR 340-041-0320 are included as pdfs at a hyperlinked location. The EPA is approving these non-substantive edits to the editorial note.

IV. Revisions Which the EPA Is Not Taking Action On

In the State's September 7, 2016 submittal, Oregon included the following revisions to OAR 340-041-0009(2)-(11):

~~(42)~~ A minimum of five samples in a 90-day period is required for calculating the criteria in sections (1)(a)(A) and (1)(b)(A) and (B) of this rule.

~~(23)~~ Raw Sewage Prohibition: No sewage may be discharged into or in any other manner be allowed to enter the waters of the State, unless such sewage has been treated in a manner the Department approved ~~by the Department~~ or otherwise allowed by these rules.

~~(24)~~ Animal Waste: Runoff contaminated with domesticated animal wastes must be minimized and treated to the maximum extent practicable before it is allowed to enter waters of the State.

~~(25)~~ Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or shellfish propagation, or otherwise injurious to public health may not be allowed.

~~(26)~~ Effluent Limitations for Bacteria Implementation in NDPES Permits: Except as allowed in subsection (c) of this section, upon NPDES permit renewal or issuance, or upon request for a permit modification by the permittee at an earlier date, bacteria in effluent discharges to freshwaters, and estuarine waters other than shellfish growing waters associated with fecal sources may not exceed the following amounts:

(a) In waters designated for coastal water contact recreation:

(A) A monthly geometric mean of 35 enterococcus organisms per 100 mL, and

(B) Not more than ten percent of samples in a month may exceed 130 enterococcus organisms per 100 mL.

(b) In waters designated for freshwater contact recreation:

(A) ~~A~~ monthly ~~log~~ geometric mean of 126 E. coli organisms per 100 ~~mL~~, and

(B) ~~No~~ single sample may exceed 406 E. coli organisms per 100 ~~mL~~. However,

(C) ~~No~~ violation will be found for an exceedance if the permittee takes at least five consecutive re-samples at four-hour intervals beginning as soon as practicable (preferably within 28 hours) after the original sample was taken and the ~~log~~ geometric mean of the five re-samples is less than or equal to 126 organisms per 100 mL of E. coli. However, The following conditions apply:

(a) ~~If~~ the Department finds that re-sampling within the timeframe outlined in this section would pose an undue hardship on a treatment facility, a more convenient schedule may be negotiated in the permit, provided that the permittee demonstrates that the sampling delay will result in no increase in the risk to water contact recreation in waters affected by the discharge:

(b) ~~The aquatic life criteria for chlorine established in the water quality toxic substances rule under OAR 340-041-0033 must be met at all times outside the assigned mixing zone:~~

(c) For sewage treatment plants that are authorized to use recycled water ~~under~~ pursuant to OAR 340, division 55, and that also use a storage pond as a means to dechlorinate their effluent prior to discharge to public waters, effluent limitations for bacteria may, upon a permittee's request by the permittee, be based upon appropriate total coliform limits as ~~required by OAR 340-055-0012, division 55, requires:~~

(~~A~~) Class C limitations: No two consecutive samples may exceed 240 total coliform per 100 ~~milliliter~~ mL.

(~~B~~) Class A and Class B limitations: No single sample may exceed 23 total coliform per 100 ~~milliliter~~ mL.

(~~C~~) No violation will be found for an exceedance under this paragraph if the permittee takes at least five consecutive re-samples at four hour intervals beginning as soon as practicable (preferably within 28 hours) after the original sample(s) were taken; and in the case of Class C recycled water, the log mean of the five re-samples is less than or equal to 23 total coliform per 100 ~~milliliter~~ mL; or, in the case of Class A and Class B recycled water, if the log mean of the five re-samples is less than or equal to 2.2 total coliform per 100 ~~milliliter~~ mL.

(~~6~~) Sewer Overflows in winter: Domestic waste collection and treatment facilities are prohibited from discharging raw sewage to waters of the State during the period of November 1 through May 21, except during a storm event greater than the one-in-five-year, 24-hour duration storm. However, the following exceptions apply:

(a) The Commission may on a case-by-case basis approve a bacteria control management plan to be prepared by the permittee, for a basin or specified geographic area which describes hydrologic conditions under which the numeric bacteria criteria would be waived. These plans will identify the specific hydrologic conditions, ~~and identify~~ the public notification and education processes that will be followed to inform the public about an event and the plan, describe the water quality assessment conducted to determine bacteria sources and loads associated with the specified hydrologic conditions, and describe the bacteria control program that is being implemented in the basin or specified geographic area for the identified sources.

(b) Facilities with separate sanitary and storm sewers existing on January 10, 1996, and ~~that~~ which currently experience sanitary sewer overflows due to inflow and infiltration problems, must submit an acceptable plan to the Department at the first permit renewal, which describes actions the facility will take ~~that will be taken~~ to assure compliance with the discharge prohibition by January 1, 2010. Where discharges occur to a receiving stream with sensitive beneficial uses, the Department may negotiate a more aggressive schedule for discharge elimination.

(c) On a case-by-case basis, the Department may define the beginning of winter ~~may be defined~~ as October 15, if the permittee so requests and demonstrates to the Department's satisfaction that the risk to beneficial uses, including water contact recreation, will not be increased due to the date change.

~~(7)~~ **(8) Sewer Overflows in summer:** Domestic waste collection and treatment facilities are prohibited from discharging raw sewage to waters of the State during the period of May 22 through October 31, except during a storm event greater than the one-in-ten-year, 24-hour duration storm. The following exceptions apply:

(a) For facilities with combined sanitary and storm sewers, the Commission may on a case-by-case basis approve a bacteria control management plan such as that described in subsection (6)(a) of this rule.

(b) On a case-by-case basis, the Department may define the beginning of summer ~~may be defined~~ as June 1 if the permittee so requests and demonstrates to the Department's satisfaction that the risk to beneficial uses, including water contact recreation, will not be increased due to the date change.

(c) For discharge sources whose permit identifies the beginning of summer as any date from May 22 through May 31: If the permittee demonstrates to the Department's satisfaction that an exceedance occurred between May 21 and June 1 because of a sewer overflow, and that no increase in risk to beneficial uses, including water contact recreation, occurred because of the exceedance, no violation may be triggered, if the storm associated with the overflow was greater than the one-in-five-year, 24-hour duration storm.

~~(8)~~ **(9) Storm Sewers Systems Subject to Municipal NPDES Stormwater Permits:** Best management practices must be implemented for permitted storm sewers to control bacteria to the maximum extent practicable. In addition, a collection-system evaluation must be performed prior to permit issuance or renewal so that illicit and cross connections are identified. Such connections must be removed upon identification. A collection system evaluation is not required where the Department determines that illicit and cross connections are unlikely to exist.

~~(9)~~ **(10) Storm Sewers Systems Not Subject to Municipal NPDES Stormwater Permits:** A collection system evaluation must be performed of non-permitted storm sewers by January 1, 2005, unless the Department determines that an evaluation is not necessary because illicit and cross connections are unlikely to exist. Illicit and cross-connections must be removed upon identification.

~~(10) Water Quality Limited for Bacteria:~~ In those water bodies, or segments of water bodies identified by the Department as exceeding the relevant numeric criteria for bacteria in the basin standards and designated as water quality limited under section 303(d) of the Clean Water Act, the requirements specified in section 11 of this rule and in OAR 340-041-0061(11) must apply.

(11) In water bodies ~~designated~~ the Department identifies ~~designated by the Department~~ as water-quality limited for bacteria, and in accordance with priorities the Department establishes ~~by the Department~~, the Department may require those sources that the Department determines to be contributing to the problem to development and implementation of a bacteria management plan ~~may be required of those sources that the Department determines to be contributing to the problem~~. The Department may determine that a plan is not necessary for a particular stream segment or segments within a water-quality limited basin based on the contribution of the

segment(s) to the problem. The bacteria management plans will identify the technologies, best management practices and ~~or~~ measures and approaches to be implemented by point and nonpoint sources to limit bacterial contamination. For point sources, their National Pollutant Discharge Elimination System permit is their bacteria management plan. For nonpoint sources, designated management agencies will develop the bacteria management plan ~~will be developed by designated management agencies (DMAs) which~~ that will identify the appropriate best management practices or measures and approaches.

The EPA has reviewed and concluded that the provisions at OAR 340-041-0009(2)-(11) are not WQS.

The provisions at OAR 340-041-0009(2)-(11), with the exception of 0009(5), are not new or revised WQS because they do not address designated uses, water quality criteria to protect designated uses, or anti-degradation requirements. Instead, these provisions address implementation issues related to sampling or set forth restrictions or limitations on certain sources of pollutants. For example, provisions 0009(6)(a)(A)-(B) and 0009(6)(b)(A)-(B) identify a 30-day (more stringent) duration specifically for facilitating the implementation of the bacteria WQS for NPDES-permitted discharges, and other provisions at 0009(6) address methods of NPDES compliance assessment. In addition, the provisions at OAR 340-041-0009(2)-(11), including 0009(5), are not WQS because they do not express or establish a desired ambient condition of a waterbody or instream level of protection. Further, 0009(5), is not legally binding, as it simply states that certain conditions “may not be allowed.” Therefore, the EPA is not taking action on all provisions at OAR 340-041-0009(2)-(11) because they do not constitute WQS.

The EPA previously determined that the implementation provisions revised in OAR 340-041-0009(2)-(11) are not WQS,³⁶ and we continue to affirm with today’s action that the provisions in OAR 340-041-0009(2)-(11) are not water quality standards.

Furthermore, Oregon previously submitted non-substantive revisions to the provisions at OAR 340-041-0009(2)-(11) that the EPA did not take action on because the EPA concluded the previously submitted provisions were not WQS.^{37,38} Accordingly, the EPA is again not taking action on the non-substantive revisions to these provisions.

Lastly, Oregon’s submission purports to identify as new text Tables 220A, 230A, 300A, and 320A as well as Figures 220A-B, 230A-B, 300A-B, and 320A-B on pages Item I 000042-44, Item I 000053-55, Item I 000064-66, and Item I 000070-72. Oregon’s identification of the material as new or revised was incidental to its intended action of moving the location of the

³⁶ Recommended Action for Partial Approval, Partial Disapproval Action of Oregon’s Dissolved Oxygen, Temperature, pH, and Bacteria Standards from Dru Keenan, Water Quality Standards Coordinator to Randy Smith, Director Office of Water Date: July 21, 1999

³⁷ Oregon Department of Environmental Quality, Aug. 17-18, 2016. Oregon Environmental Quality Commission meeting Rulemaking, Action Item I. Water Quality Bacteria Standards 2016

³⁸ Recommended Action for Partial Approval, Partial Disapproval Action of Oregon’s Dissolved Oxygen, Temperature, pH, and Bacteria Standards from Dru Keenan, Water Quality Standards Coordinator to Randy Smith, Director Office of Water Date: July 21, 1999

tables and figures from the Oregon Department of Environmental Quality website into Oregon's Administrative Rules. Accordingly, the identification of the above-cited tables and figures in the submission was done for the administrative purpose of consolidating the tables and figures in Oregon's rules and do not represent changes for CWA purposes.³⁹ Therefore, the EPA is not taking action on the edits to these Tables and Figures, or the previously approved water quality standards, and is only taking action, as described above, on the new or revised language, Tables, and Figures as described above in "III".

V. Today's Action and Federally Promulgated Recreational Criteria at 40 CFR 131.41

On November 16, 2004, the EPA promulgated bacteriological criteria for coastal recreation waters for those states not complying with CWA section 303(i)(1)(A) as established by the 2000 BEACH Act (Water Quality Standards for Coastal and Great Lakes Recreation Waters, 69 FR 67218). Oregon was included in that promulgation at 40 CFR 131.41. As explained in the preamble to that rule:

"State and Territorial standards for bacteria approved by the EPA pursuant to Clean Water Act sections 303(c) and 303(i) will be in effect for Clean Water Act purposes, and the Federal criteria for 40 CFR 131.41 will no longer apply. EPA recognizes that once it approves the water quality standards of a State or Territory, the Code of Federal Regulations will still include a reference to the State in 40 CFR 131.41 until EPA formally withdraws the State or Territory from the Federal rule, and thereby the Code of Federal Regulations. However, the State or Territorial standards for bacteria approved by the EPA pursuant to CWA sections 303(c) and 303(i) will be in effect for Clean Water Act purposes (and not the Federal criteria at 40 CFR 131.41) between the time EPA approves the State standards and formal withdrawal of the State or Territory from the Rule." 69 FR 67235.

As a result of the EPA's approval today, Oregon's bacteria criteria for marine coastal contact recreation waters at OAR 340-041-0009(1)(b) will be in effect for CWA purposes in Oregon. 40 CFR 131.41 will continue to include a reference to Oregon until the EPA formally withdraws Oregon from the federal rule.

³⁹ As clarified in an email from Aron Borok to Rochelle Labiosa, April 12, 2017.