Water Quality Update Regarding Water Quality Regulation on Forestlands, Temperature Water Quality Standard, and MidCoast Total Maximum Daily Load (TMDL) Development

Informational Item: Board of Forestry Meeting
March 05, 2014
Informational Item: Environmental Quality Commission Meeting
March 20, 2014

Gene Foster: DEQ
Peter Daugherty: ODF

Presentation Purpose

- Brief review of the Commission's and Board's roles and responsibilities for water quality regulation and management on state and private forestlands
- Review of the cooperative mechanisms between the Commission and the Board established by the legislature
- Recent external factors affecting the State's work on forestland water quality
- Summary of the temperature standard, including the Protecting Cold Water (PCW) Criterion, the Board's rule analysis process on meeting the PCW Criteria, the TMDL process, and the MidCoast TMDL status

Commission's role and responsibility for water quality

- Implementation of the federal Clean Water Act and State law (ORS 468B), which includes:
  - Approval of rules including water quality standards
  - Water Quality permitting system (NPDES, etc)
  - Nonpoint Source Program (Sect. 319 CWA)
  - Water Quality Limited waterbodies
  - TMDLs

Board's role and responsibility for water quality

- Supervise all matters of forest policy and management under the jurisdiction of the state …(ORS 526.016)
- The Forest Practices Act (FPA), vest in the Board exclusive authority to adopt and enforce rules governing forest practices (ORS 527.630)

Board's role and responsibility for water quality

- The FPA requires the Board to

  … establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state (ORS 527.765)

Relationship between Commission and Board

- Oregon statutes create a unique cooperative relationship between the Board and the Commission that ensures water quality protection on forestland
  - The Commission has primary responsibility for complying with the mandates of the federal Clean Water Act (CWA), and
  - The Board has exclusive responsibility for regulating forest practices

Relationship between Commission & Board

- The legislature recognized and addressed the potential for regulatory conflict or overlap
  - by exempting forest practices from certain aspects of the Commission's jurisdiction,
  - providing the Board with limited water quality regulatory authority, and
  - providing each body with a formal process to request that the other consider its concerns

Forestry Exemption

- Unless required to do so by the provisions of the [CWA], neither the [Commission nor the DEQ] shall promulgate or enforce any effluent limitation upon nonpoint source discharges of pollutants resulting from forest operations on forestlands in this state …ORS 468B.110(2)

Board's Water Quality Regulatory Authority

- Board required to adopt best management practices to maintain water quality and meet Commission standards (ORS 527.765)
- FPA provides that operations conducted in accordance with BMPs shall not be considered in violation of any water quality standards (BMP Shield ORS 527.770)

Relationship between Commission & Board

- The forestry exemption, BMP rule requirement, and BMP shield, are narrowly drawn. Apart from these provisions, the Commission retains full enforcement authority
- FPA requires forest operations to be conducted in full compliance with the rules and standards of the Commission relating to air and water pollution controls (ORS 527.724)

Potential for Conflict between the Commission and Board

- Despite the relative clarity of this division of authority and responsibility, possibility of conflict remains because the agencies might disagree over the appropriate level of regulation
  - The Commission might believe that the Board has not appropriately applied its BMP authority (ORS 527.765); conversely,
  - The Board might take issue with the Commission's water quality standards as they affect forest operations (ORS 468B.105)

Cooperative Mechanism for Review of Forest Water Quality Rules

- Special procedures govern review of existing BMPs
  - Board required to consider petitions seeking review, if the petitions meet minimum criteria,
  - Dismissal must include findings regarding allegations in the petition, and Board's reasons and conclusions
  - If the Commission is the entity petitioning for review, the Board has two options: terminate review with the Commission's concurrence, or begin rulemaking

Cooperative Mechanism for Review of Forest Water Quality Rules

- With respect to WQSs, the process anticipates dialog between the Board and Commission.
- With respect to BMPs, the process anticipates significant public involvement in Board decision making, with the Commission given a special role in the process
  - At their March 2013 meetings, the Board and Commission established recognized liaison positions between the Board and Commission, with Board member Gary Springer and Commission member Ed Armstrong to serve in those roles.

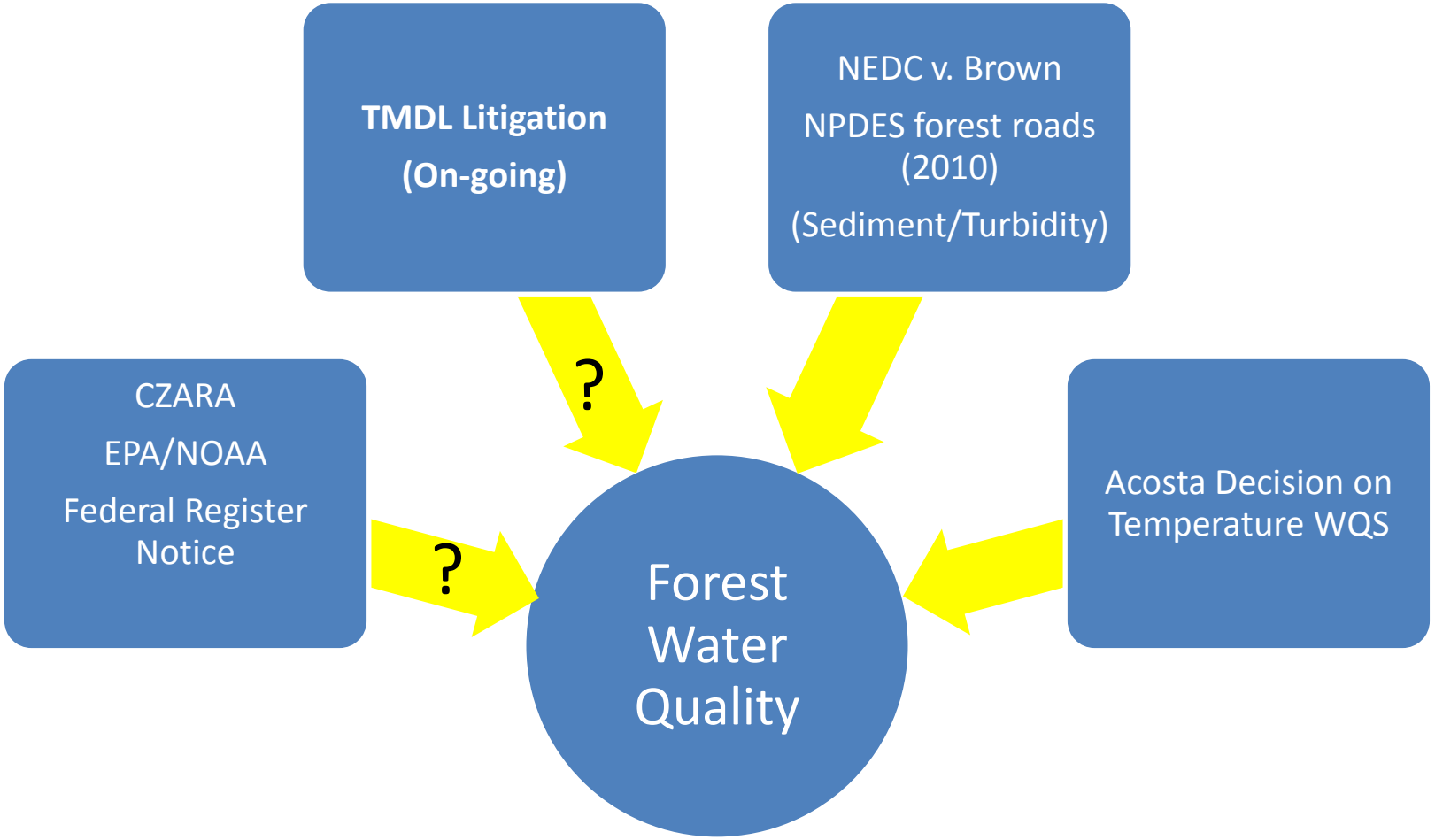
Cooperative Mechanism for Review of Forest Water Quality Rules

- The legislature included a disincentive intended to discourage Board inaction:
  - the “BMP shield” is lost if the Board fails to complete BMP revisions, or make a finding that revisions are not required ORS 527.770.
- While the legislature has not mandated agreement between Commission and the Board, it has provided a process and incentives to reach agreement.

Cooperative Mechanism for Review of Forest Water Quality Rules

- Neither the Board nor Commission has exercised its formal authority to raise disagreements.
- The petition option in ORS 527.765 has not been exercised by any party since these laws were passed in 1991.

Recent External Factors Affecting Forest Water Quality Regulation and Management



Oregon Temperature WQS

(OAR 340-041-0028)(2)

Commission's Policy is:

- Protect aquatic ecosystems from adverse warming and cooling caused by anthropogenic activities;
- Minimize the risk to cold-water aquatic ecosystems from anthropogenic warming;
- Encourage the restoration and protection of critical aquatic habitat;
- Control extremes in temperature fluctuations due to anthropogenic activities;
- Minimize additional warming due to anthropogenic sources

Temperature Standard History

The current temperature standard is based on years of review by multiple advisory committees :

- **1992 - 1994:** DEQ Technical Advisory Committee (TAC) of scientists from state & federal agencies, universities, private industry, and tribal experts reviewed the literature and made recommendations for revisions to the temperature standard
- **1996:** Commission adopted significantly revised standard that included emphasis on: natural thermal regime; reduction of anthropogenic warming; and fish life stage and species designations for numeric criteria
- **1999 - 2002:** EPA Temperature Technical Work Group (TWG) of state & federal agencies & tribal experts developed regional temperature guidance

Temperature Standard History (cont.)

- **2000 - 2002:** EPA TWG recommendations were peer reviewed by a panel of experts from universities, consulting firms and federal agencies
- **2001 – 2003:** A new DEQ TAC was formed to review the EPA guidance, temperature literature and make recommendations for temperature standard revisions
- **2003:** EPA finalized regional temperature guidance
- **2003:** Commission adopted revised temperature standard that added additional fish species and life stage categories
- **1996 – 2004:** Independent Multidisciplinary Science Team (IMST) review of temperature standard stating that the scientific basis of the temperature standard is credible

Temperature Standard History (cont.)

- **2004:** EPA approved the revised temperature standard (except for lakes, ocean and cool water narratives), following ESA consultation with NMFS and USFWS
- **2009:** ODF's Dynamic Ecosystem Policy Project (INR) found that the CWA allowed sufficient flexibility to address ecosystem dynamics & restoration, and recommended use of regime standards such as DEQ's temperature standard
- **2012:** Acosta decision struck down the Natural Conditions Criterion (NCC) but upheld the other criteria, including the Protecting Cold Water Criterion. In addition, the Services needed to re-review the Biological Numeric Criteria
- **2013:** EPA disapproved the NCC; the Services are reviewing the Biological Numeric Criteria

Oregon's Temperature Standard

- Biologically-Based Numeric Criteria (BBNC; OAR 340-041-0028(4))
  - Thresholds above which increasing risk of harm is expected
  - Maps & tables show species uses by location & season
  - Used for listing waterbodies as impaired
- Protecting Cold Water criterion (PCW; OAR 340-041-0028(11))
  - Restricts warming in waterbodies consistently meeting the BBNC
  - No more than a 0.3^{o}C increase by all sources at the point of maximum impact
- Human Use Allowance (HUA; OAR 340-041-0028(12)(b))
  - Restricts warming in waterbodies exceeding the BBNC
  - No more than a 0.3^{o}C increase per source prior to a TMDL
  - TMDL will then allocate a total increase of 0.3^{o}C among all anthropogenic sources
- ~~Natural Conditions Criterion~~

Protecting Cold Water Criterion (OAR 340-041-0028(11))

- PCW limits temperature increases to 0.3^{o}C in waterbodies colder than the numeric criteria, measured for all sources combined at the point of maximum impact where salmon, steelhead or bull trout are present [OAR …(11)(a)].
    - Natural thermal regime provides best conditions for fish.*
    - Value in diversity of temperatures, including colder than BBNC.*
    - Prevent accumulation of heat in fish-bearing reaches.*

- Point sources must also limit warming in spawning reaches [OAR …(11)(b)].

- Some waterbodies may also be covered by a temperature TMDL. Meeting TMDL allocations should ensure PCW compliance.

*From Summary of 2003 TAC findings.

Board's Riparian Rule Analysis - Background:

- Emerged from the ODF and DEQ 2002 sufficiency analysis conclusion that riparian protection "for some medium and small Type F streams in western Oregon may result in short term temperature increases at the site level."
- Riparian Function and Stream Temperature (RipStream) study designed to address this concern.
  - Objective: Evaluate effectiveness of forest practices rules and strategies at protecting stream temperature and promoting riparian structure.
  - 33 Sites (18 Private, 15 State, on medium and small fish streams)
  - Examined Forest Practices Act and State Forests Management Plan riparian protections

Board's Riparian Rule Analysis – RipStream Study Results:

- All sites effective in meeting the Biologically-Based Numeric Criteria.
- State Forest strategy effective at meeting PCW threshold – same frequency as background, average temperature change of 0.0.
- FPA buffers not effective at meeting PCW threshold – higher frequency than background (40 % vs. 5 %), average temperature change of 0.7 degrees C (- 0.9 °C to 2.5 °C).

Board's Riparian Rule Analysis – Update:

- January 2012, Board determine that there is monitoring evidence that documents that degradation of resources maintained (i.e., cold water) (ORS 527.714 5(a) finding).
- Directed the department to begin a rule analysis process that could lead to revision of the riparian protection standards to increase the maintenance and promotion of shade on small and medium fish streams.

Board's Riparian Rule Analysis – Update:

- April 2012, Board approve a rule analysis plan for developing alternative and decision timeline (informal checklist) on findings.
- The Board defined the objective of the rule analysis as follows:
  - Establish riparian protection measures for small and medium fish-bearing streams that maintain and promote shade conditions that insure, to the maximum extent practicable, the achievement of the Protecting Cold Water criterion.

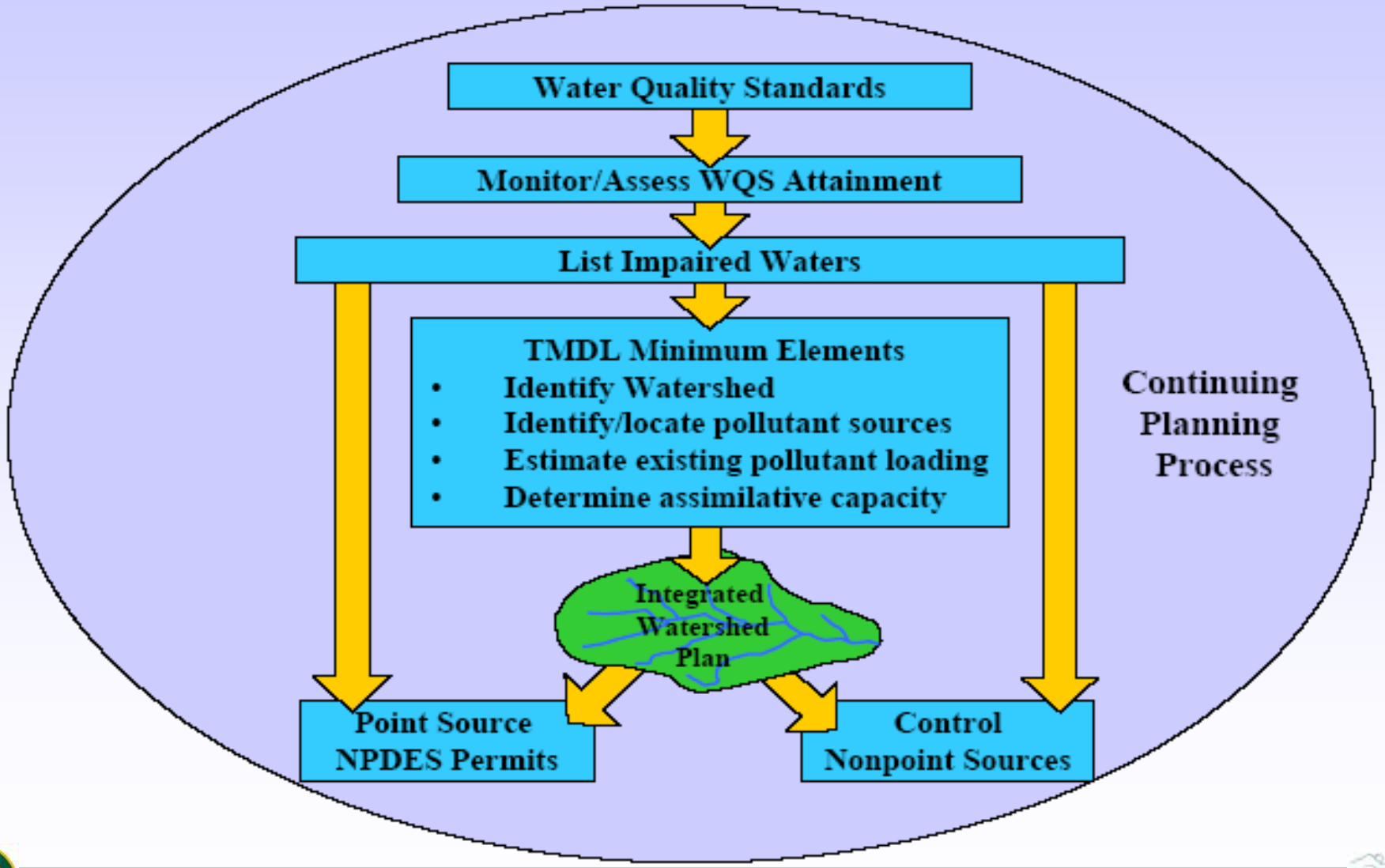
Board's Riparian Rule Analysis – Checklist and Decisions:

Finding / Board Direction	Decision / Action	When	Comp	Reference
Monitoring indicates degradation of resources	Resource degraded is cold water (Protecting Cold Water Criterion).	Jan 2012	√	ORS 527.714(5)(a)
Objectives of the proposed rule are clearly defined.	Set objective(s) the alternatives must address.	April 2012	√	ORS 527.714(5)(d)
Initial alternatives development, including non-regulatory approaches – the Board must considered an appropriate range of alternatives.	Review and define the initial range of alternatives to consider.	July 2012	√	ORS 527.714(5)(e)
Determine the meaning of the term maximum extent practicable (MEP) for this rule analysis.	Each alternative must meet the MEP standard; working definition needed to evaluate alternatives.	Nov. 2012	√	ORS 527.765
Proposed rule reflects available scientific information.	Review and provide direction on Science Review outline and approach.	March 2013	√	ORS 527.714(5)(c)

Board's Riparian Rule Analysis – Checklist and Decisions:

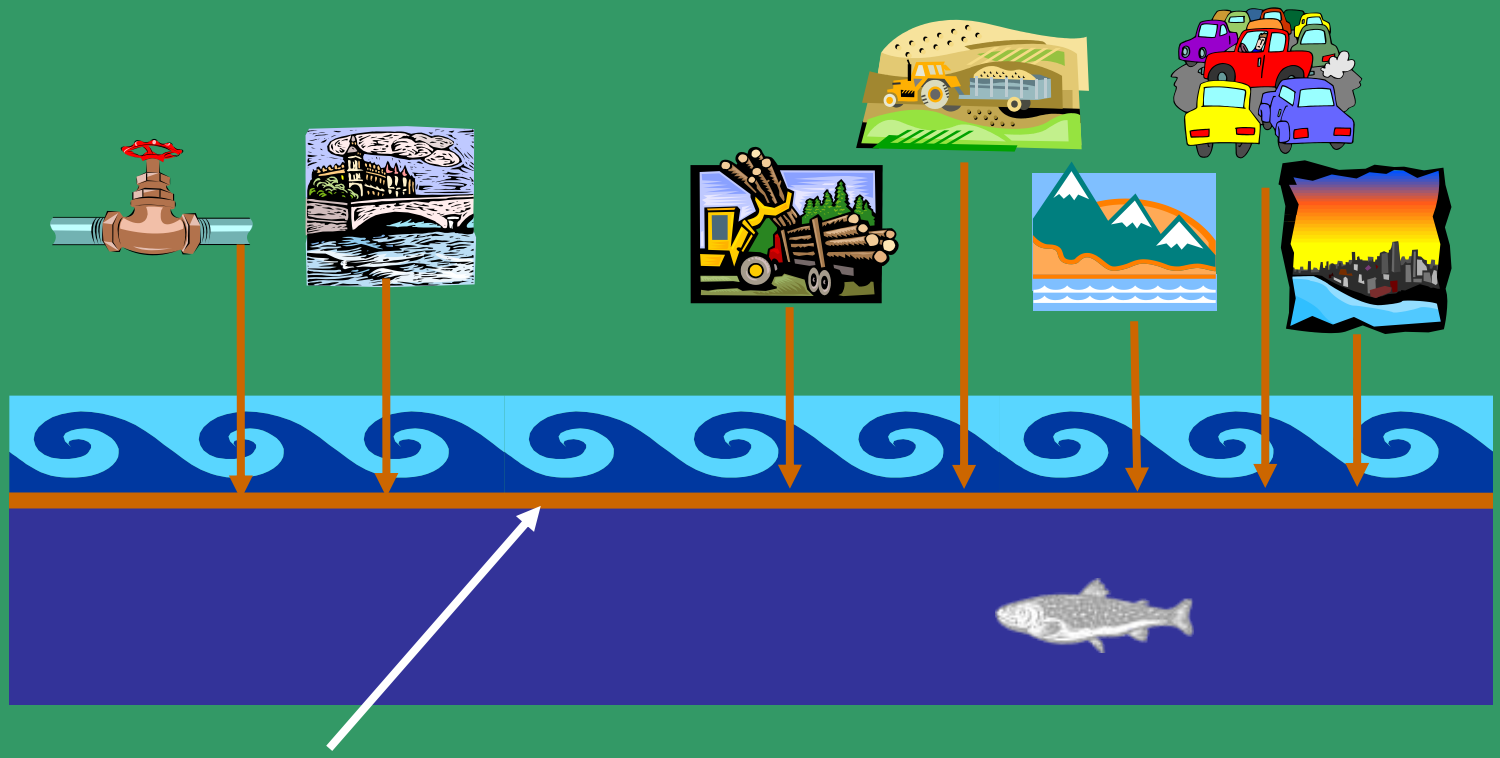
Finding / Board Direction	Decision / Action	When	Comp	Reference
Proposed rule reflects available scientific information and appropriate factors have been considered.	Determine if proposed alternatives reflect available scientific information.	Nov. 2013	√	ORS 527.714(5)(c) 527.765(1)
Determine geographic scope (forest practice regions) to which alternatives apply	Review science on applicability of alternatives	**TBD**		ORS 527.710(1)
Restrictions on practices directly relate to, and substantially advance the objective	Evaluate alternatives in terms of restrictions on practices; provide input on alternatives	**TBD**		ORS 527.714(5)(d)
The least burdensome alternative must be chosen and resource benefits achieved by the rule must be proportional to the harm cause by forest practices	Select alternative(s) to carry into rule language development and/or voluntary measure(s)	**TBD**		ORS 527.714(5)(e) 527.714(5)(f)

Clean Water Act Framework



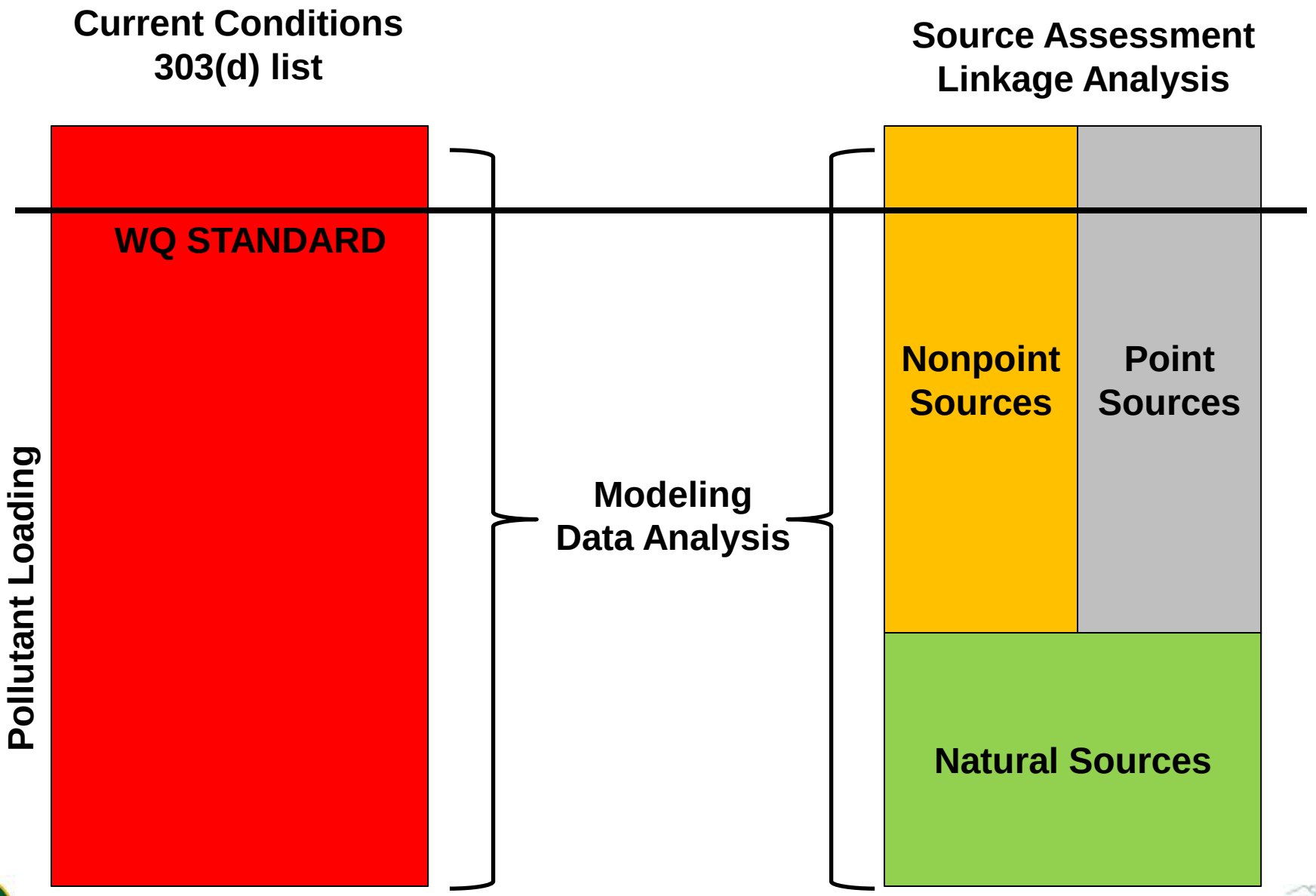
Total Maximum Daily Load

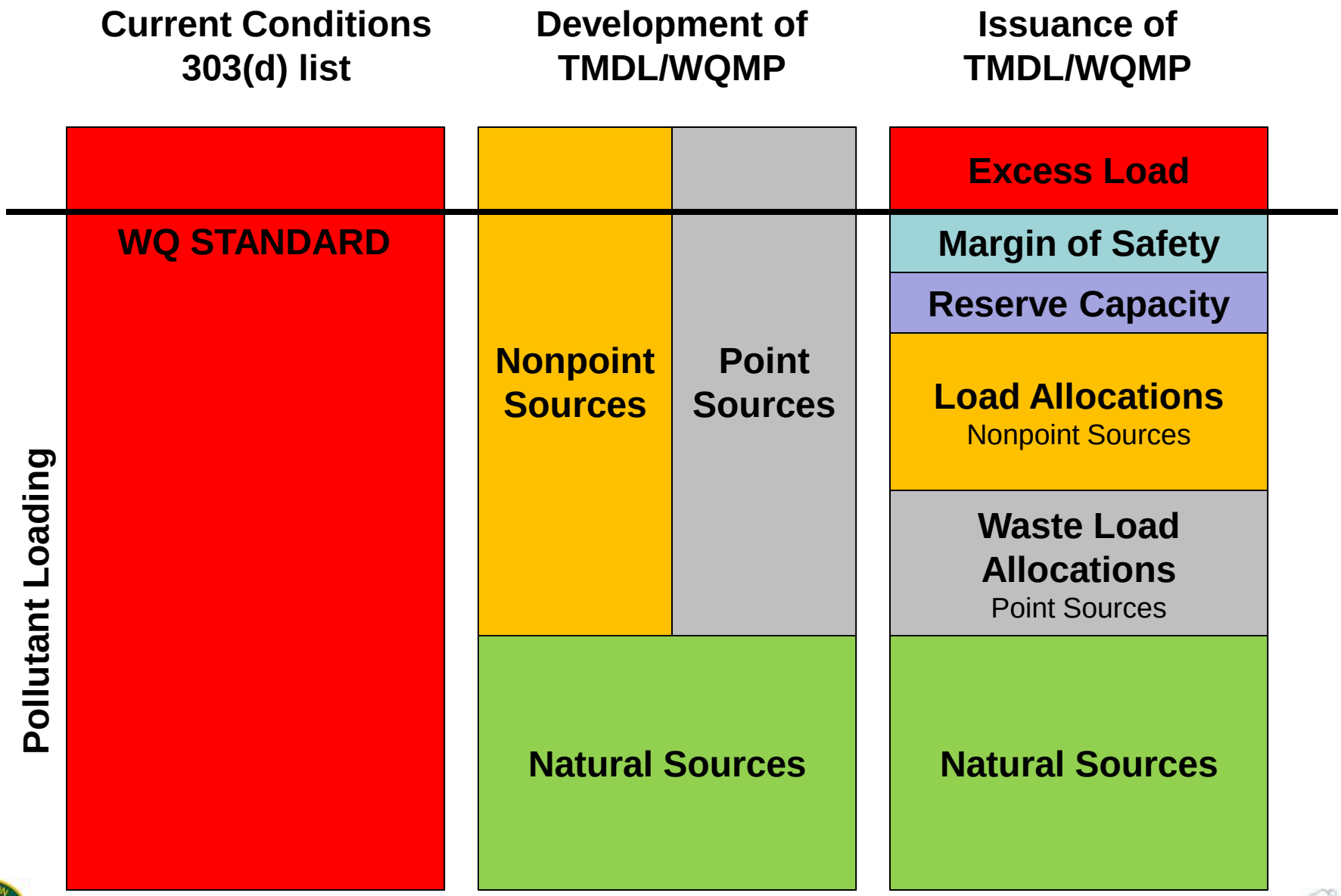
Point Sources **Non-Point Sources**



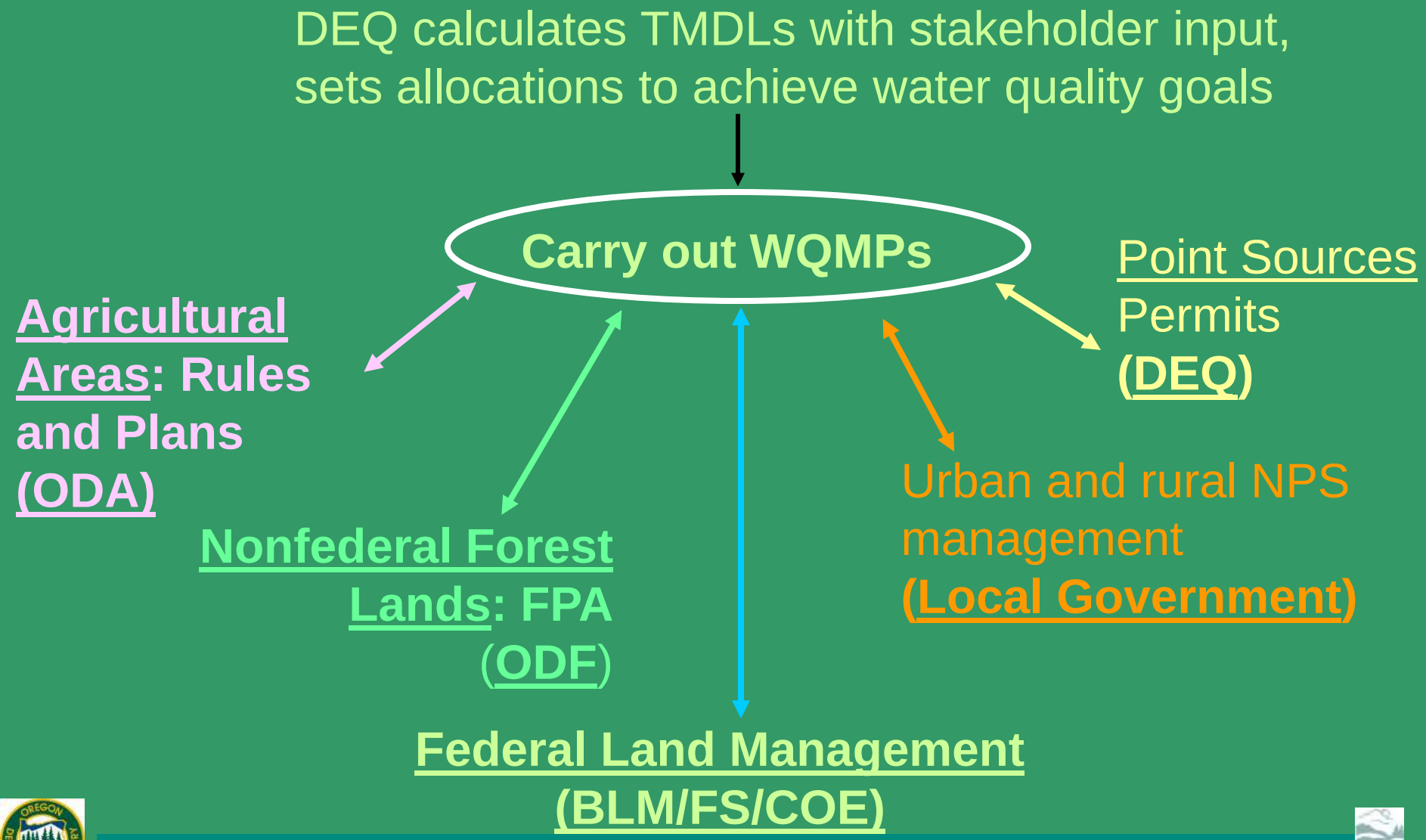
$$TMDL = WLA + La_{np} + La_{bs} + MOS + RC$$

Waste Load Allocation	Load Allocation Non-point Source	Background Source	Margin of Safety	Reserve Capacity


Current Conditions
303(d) list
Source Assessment
Linkage Analysis
WQ STANDARD
Pollutant Loading
Modeling
Data Analysis
Nonpoint
Sources
Point
Sources
Natural Sources

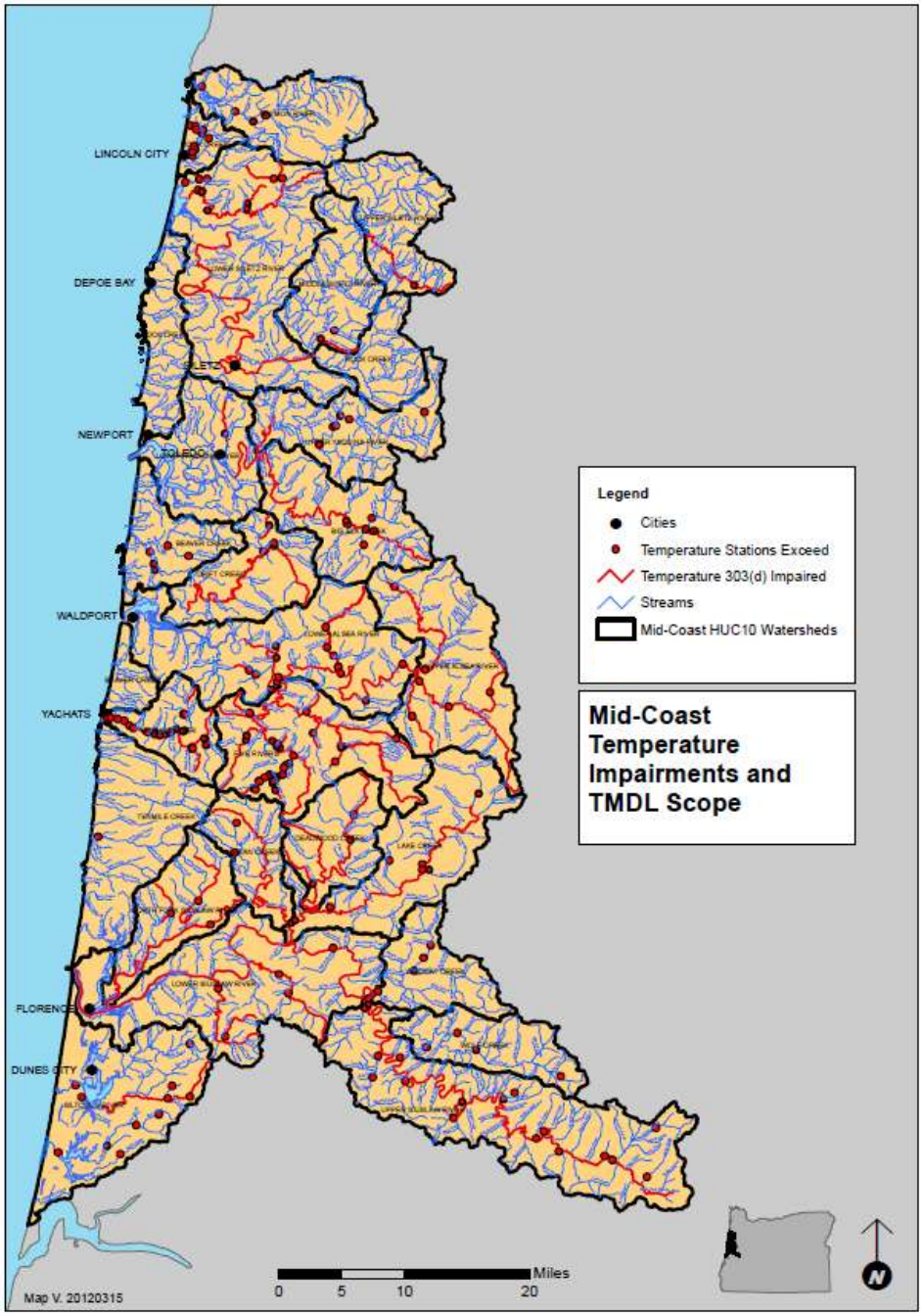

Current Conditions
303(d) list
Development of
TMDL/WQMP
Issuance of
TMDL/WQMP
Pollutant Loading
WQ STANDARD
Nonpoint
Sources
Point
Sources
Natural Sources
Excess Load
Margin of Safety
Reserve Capacity
Load Allocations
Nonpoint Sources
Waste Load
Allocations
Point Sources
Natural Sources

TMDL Implementation Responsibilities



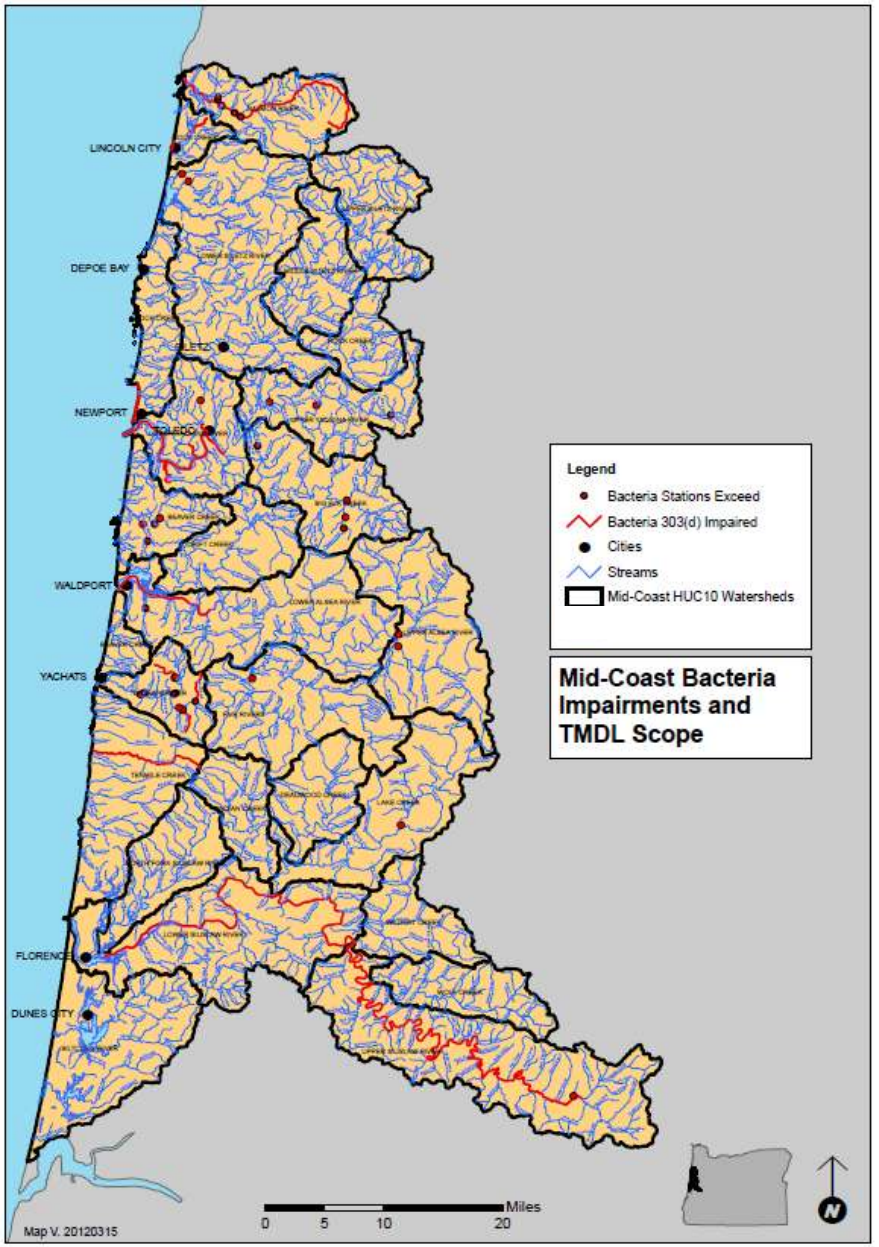
TMDL Development for Temperature Impairments in the MidCoast

- 350+ data stations analyzed (1999 – 2011)
- 200+ stations exceed water quality standards
- 48+ streams identified as impaired - 303(d) list



TMDL Development for Bacteria Impairments in the MidCoast

- 165+ stations analyzed (1999 – 2011)
- 35+ stations exceed water quality standards
- 16+ streams identified as impaired - 303(d) list



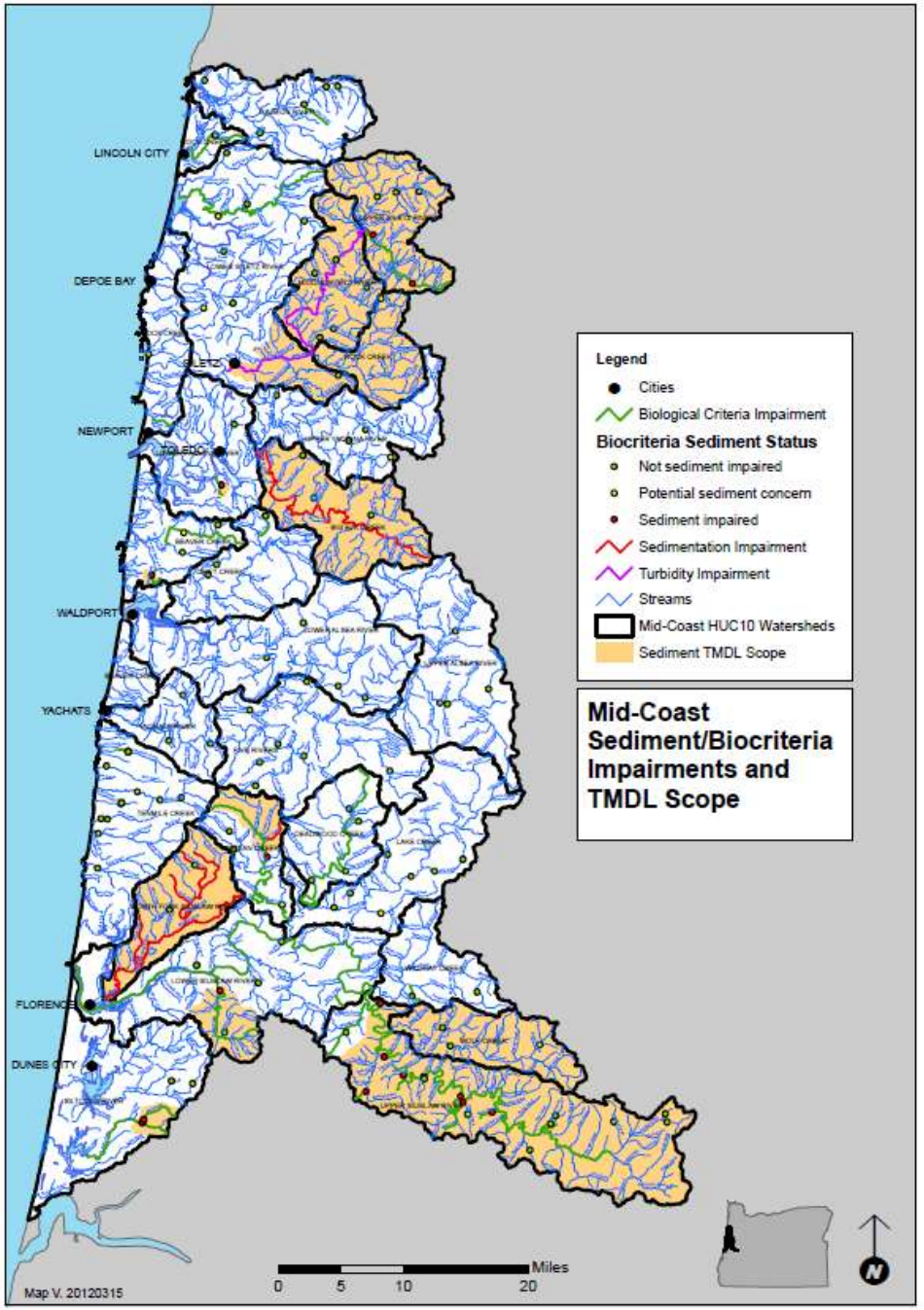
TMDL Development for Sediment Impairments in the MidCoast

8 streams identified as impaired - 303(d) list

- North Fork Siuslaw
- Big Elk Creek
- Siletz River (Turbidity)

Biological Criteria impairments

- 130+ data stations analyzed
- 18 stations indicate biological impairment from sediment



Questions?