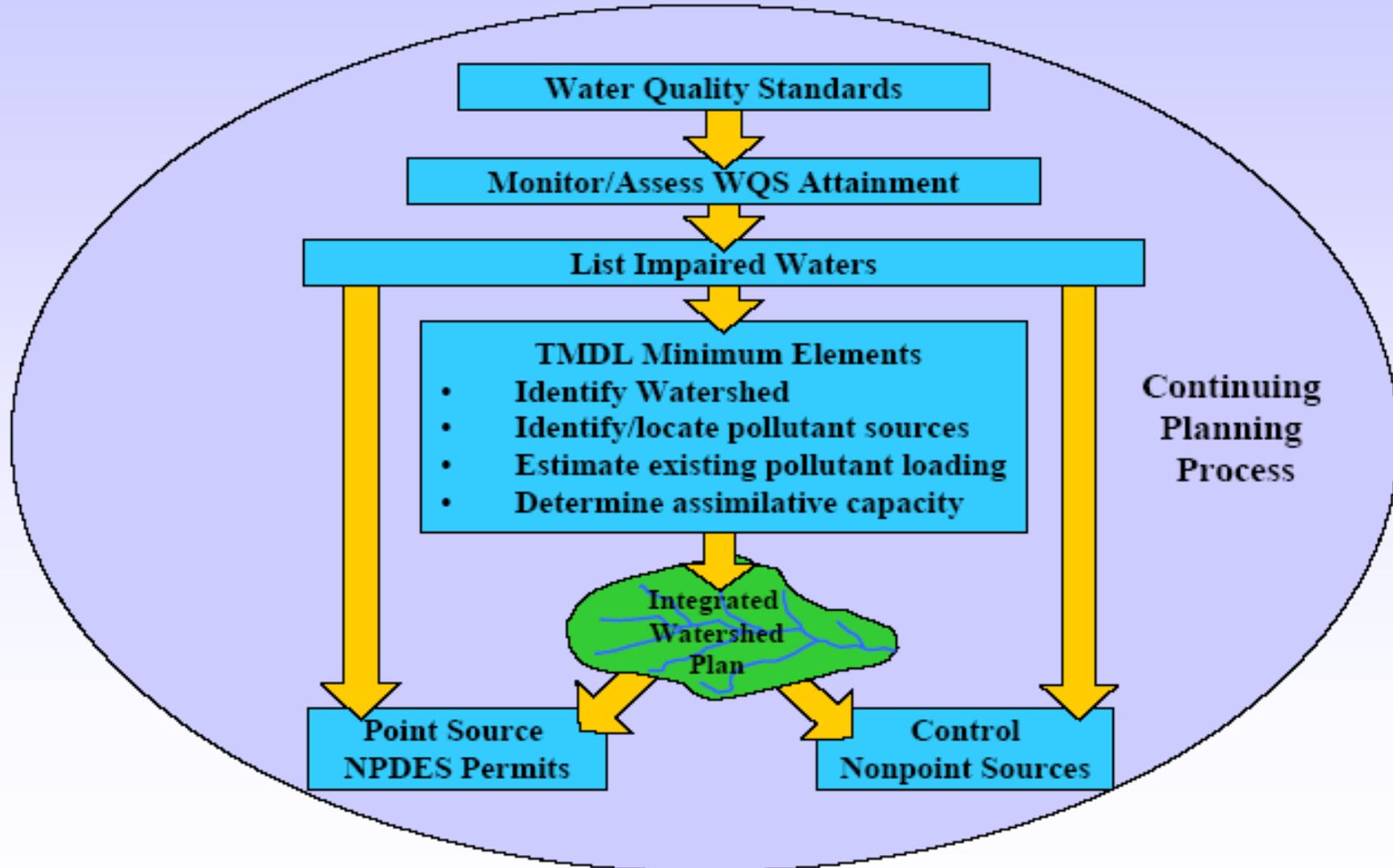


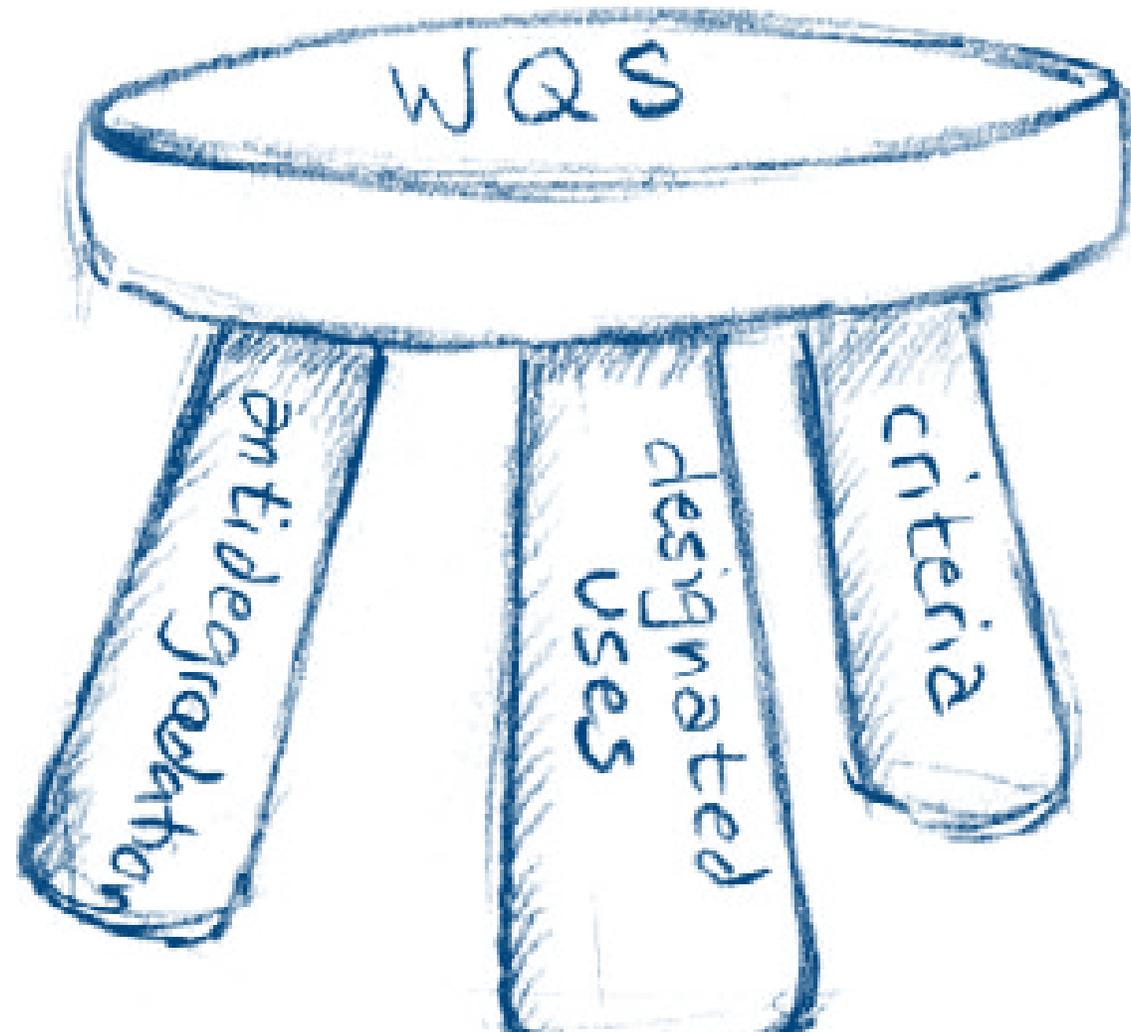
Water Quality Standards, Integrated Report, and TMDLs



Clean Water Act Framework



Water Quality Standards are developed to provide adequate water quality to protect the most sensitive uses of water



Water Quality Standards - Uses

Table 340A

Designated Beneficial Uses
Willamette Basin
(340-041-0340)

Beneficial Uses	Willamette River Tributaries						Main Stem Willamette River			
	Clackamas River	Molalla River	Santiam River	McKenzie River	Tualatin River	All Other Streams & Tributaries	Mouth to Willamette Falls, Including Multnomah Channel	Willamette Falls to Newberg	Newberg to Salem	Salem to Coast Fork
Public Domestic Water Supply ¹	X	X	X	X	X	X	X	X	X	X
Private Domestic Water Supply ¹	X	X	X	X	X	X	X	X	X	X
Industrial Water Supply	X	X	X	X	X	X	X	X	X	X
Irrigation	X	X	X	X	X	X	X	X	X	X
Livestock Watering	X	X	X	X	X	X	X	X	X	X
Fish & Aquatic Life ²	X	X	X	X	X	X	X	X	X	X
Wildlife & Hunting	X	X	X	X	X	X	X	X	X	X
Fishing	X	X	X	X	X	X	X	X	X	X
Boating	X	X	X	X	X	X	X	X	X	X
Water Contact Recreation	X	X	X	X	X	X	X ³	X	X	X
Aesthetic Quality	X	X	X	X	X	X	X	X	X	X
Hydro Power	X	X	X	X	X	X	X	X		
Commercial Navigation & Transportation							X	X	X	

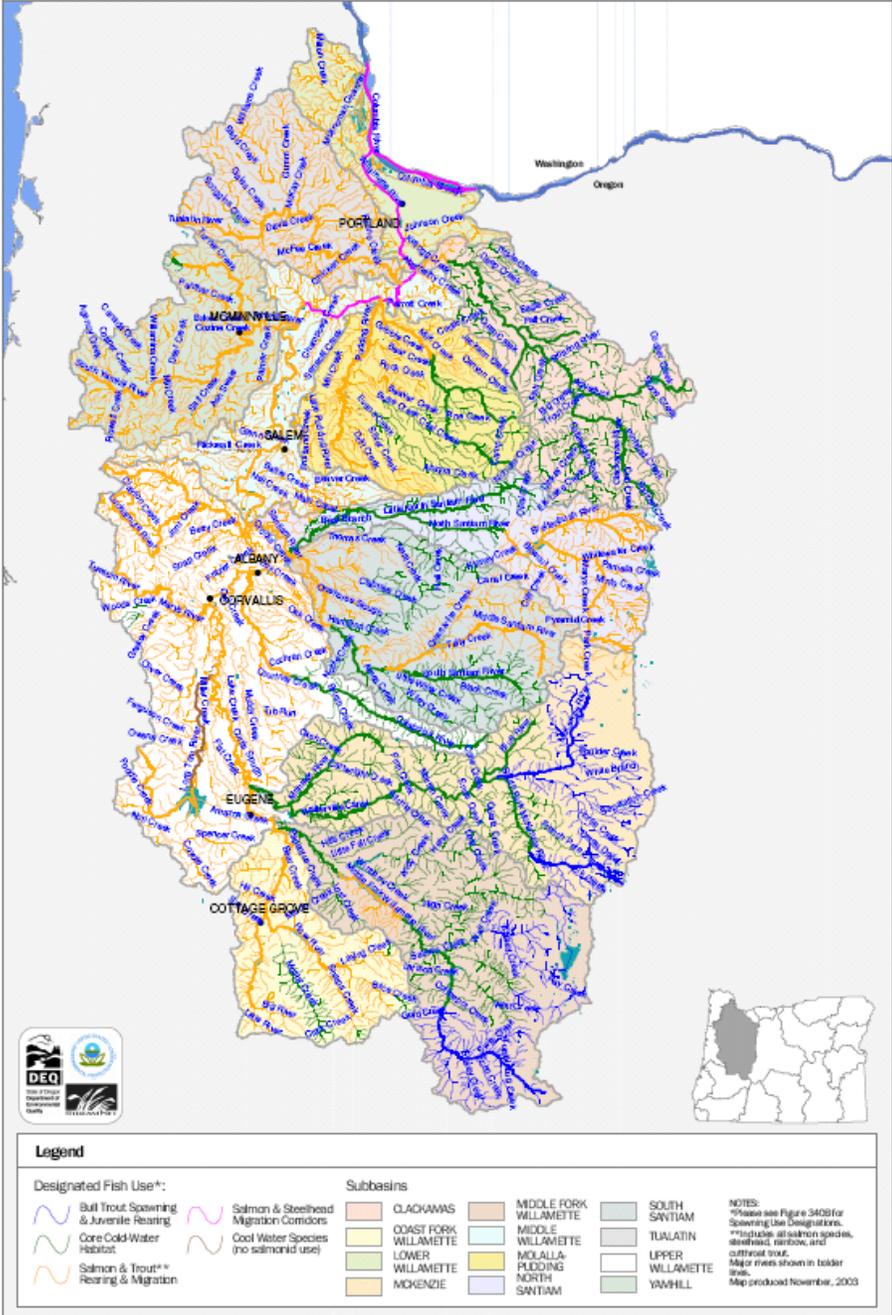
¹ With adequate pretreatment and natural quality that meets drinking water standards.

² See also Figures 340A and 340B for fish use designations for this basin.

³ Not to conflict with commercial activities in Portland Harbor.

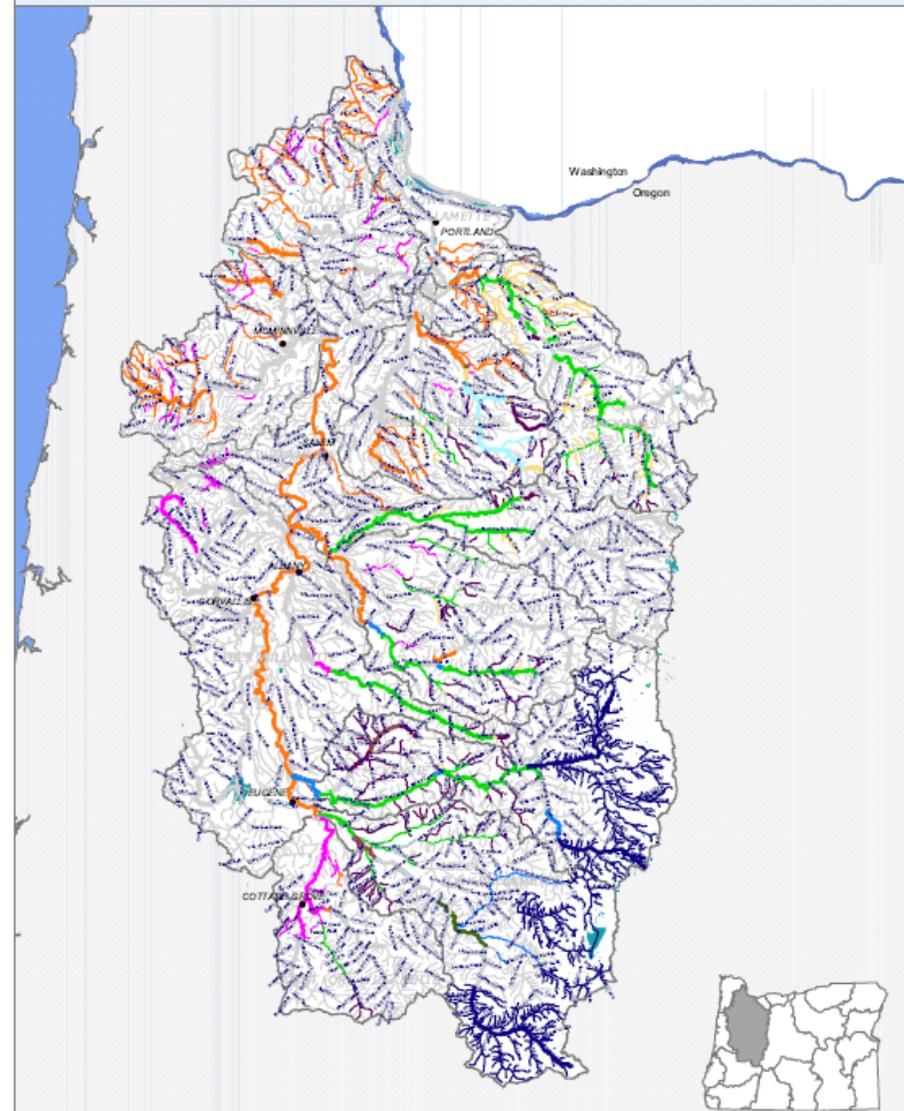
Water Quality Standards - Uses

Figure 340A: Fish Use Designations*
Willamette Basin, Oregon



Water Quality Standards - Uses

Draft Revised Figure 340B: Salmon and Steelhead Spawning Use Designations,* Willamette Basin, Oregon



Legend

Designated Salmon and Steelhead Spawning Use*:

- | | | |
|---|--|---|
|  August 15-June 15 |  September 15-June 15 |  January 1-June 15 |
|  September 1-May 15 |  October 15-May 15 |  No Spawning Use |
|  September 1-June 15 |  October 15-June 15 | |
|  September 15-May 15 |  January 1-May 15 |  Subbasins |

Bull Trout Spawning and Rearing Use:

-  Bull Trout Spawning and Rearing Habitat

NOTES:
*See Figure 340A for Fish Use Designations.
Major rivers shown in bolder lines.
Map produced August, 2005

Water Quality Standards - Criteria

Table 2-2: Temperature Criteria - Where and When they Apply

Temperature Criterion	WaterbodyType	Beneficial Use	When Criterion Applies	OAR 340-041-0028
13.0 °C 7day aver. maximum	Flowing freshwater	Salmon & steelhead spawning	Spawning use dates ¹	(4)(a)
16.0 °C 7day aver. maximum	Flowing freshwater and reservoirs	Core cold water habitat	Year round ²	(4)(b)
18.0 °C 7day aver. maximum	Flowing freshwater and reservoirs	Salmon and trout rearing and migration	Year round	(4)(c)
20.0 °C 7day aver. maximum	Flowing freshwater and reservoirs	Migration corridor	Year round	(4)(d)
Coldwater refugia narrative	Flowing freshwater and reservoirs	Migration corridor	Year round	(4)(d)
Seasonal thermal pattern narrative	Flowing freshwater and reservoirs	Migration corridor – Columbia and Snake Rivers only	Year round	(4)(d)
20.0 °C 7day aver. maximum	Flowing freshwater and reservoirs	Lahontan cutthroat or redband trout ³	Year round	(4)(e)
12.0 °C 7day aver. maximum	Flowing freshwater and reservoirs	Bull trout spawning and juvenile rearing	Year round	(4)(f)
Bull trout spawning narrative	Flowing freshwater and reservoirs	Bull trout spawning and juvenile rearing ⁴	Aug 15 to May 15	(4)(f)
Natural lakes narrative ⁵	Natural Lakes	Fish and aquatic life	Year round	(6)
Oceans and bays narrative ⁵	Oceans and bays	Fish and aquatic life	Year round	(7)
Natural conditions narrative ⁵	All	All	Year round	(8)
Cool water species narrative ⁵	Flowing freshwater and reservoirs	Cool water species	Year round	(9)

Water Quality Standards – Criteria

Bacteria – Numeric

(a) Freshwater contact recreation:

- (A) A 90-day geometric mean of 126 E. coli organisms per 100 mL;
- (B) No single sample may exceed 406 E. coli organisms per 100 mL.

Turbidity – Narrative

No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity.

Integrated Report – 305b & 303d

Section 305(b) of the Clean Water Act (CWA) requires States to report on the extent to which all navigable waters meet water quality standards.

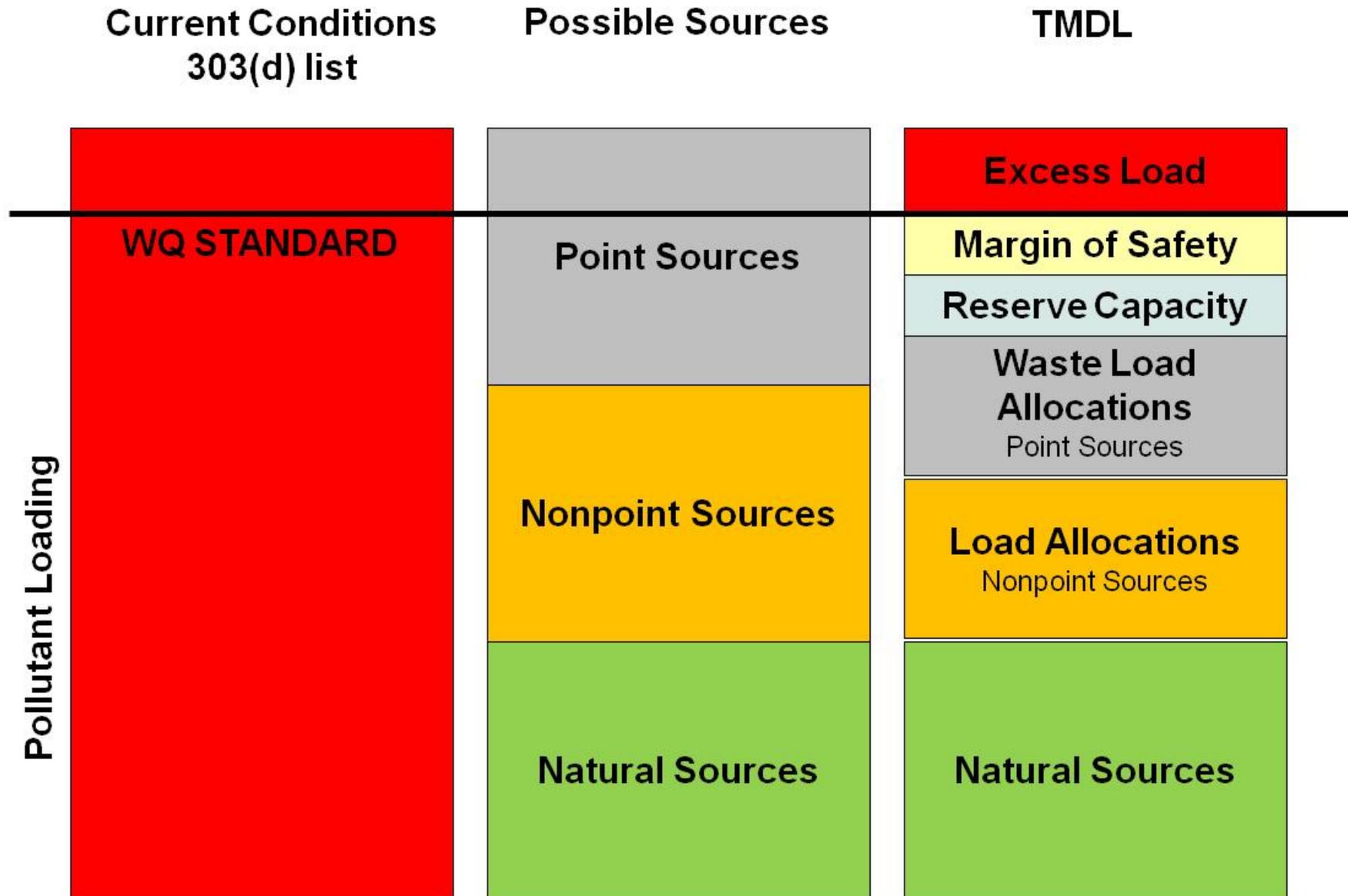
Section 303(d) of the CWA requires each State to identify those waters for which existing required pollution controls are not stringent enough to achieve that State's water quality standards.

IR Assessment Methodology – Methodology for Oregon's 2012 Water Quality Report and List of Water Quality Limited Waters (Pursuant to Clean Water Act Sections 303(d) and 305(b) and OAR 340-041-0046)

A TMDL is the Total Maximum Daily Load of a pollutant that can be in a waterbody and still meet water quality standards

$$\text{TMDL} = \text{LA} + \text{WLA} + \text{MOS} + \text{RC}$$

- LA: Load Allocation (nonpoint sources)
- WLA: Waste Load Allocation (point sources)
- MOS: Margin of Safety (account for uncertainty)
- RC: Reserve Capacity (set aside for future development)



TMDL Development

Components of a TMDL:

- Waterbody
- Pollutant
- Water quality standard and beneficial uses
- Loading capacity
- Excess load
- Sources or source categories
- Wasteload allocations
- Load allocations
- Margin of safety;
- Seasonal variation
- Reserve capacity

TMDL Development Process

- Identify water quality concerns
- Determine loading capacity and excess load
- Identify pollution sources and conditions contributing to water quality concerns
 - Point sources
 - Nonpoint sources
- Link sources and conditions to water body
- Allocate pollutant loads that when implemented would result in water quality standard attainment

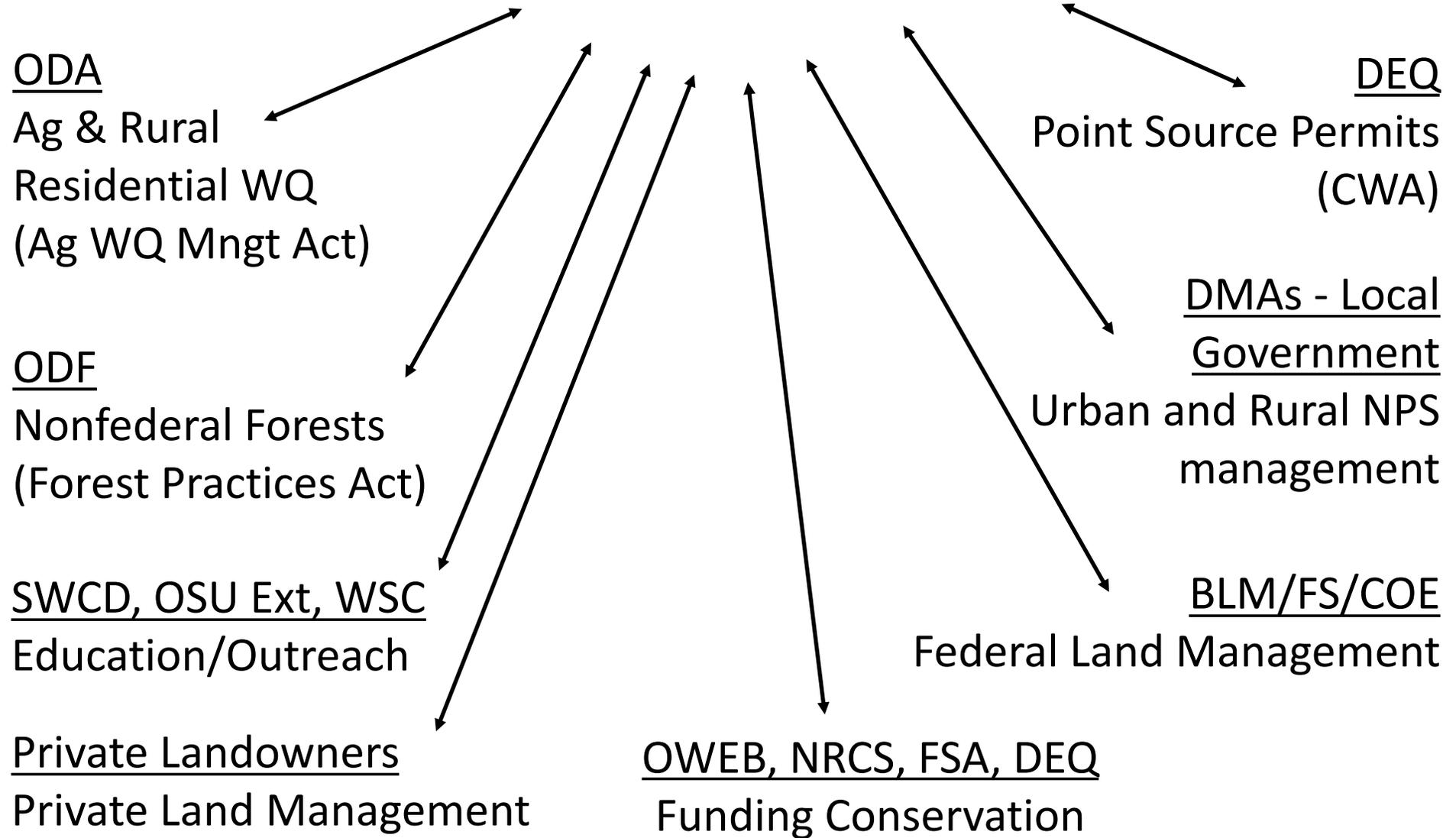
TMDL Implementation Process – WQMP

WQMP = Water Quality Management Plan: Framework for management actions used to direct TMDL implementation

WQMP Components are:

- Identify management alternatives that reduce pollutant loads allocated in the TMDL
- Quantify amount of management alternatives to meet load reductions
- Identify priority areas in watershed
- Develop timeline and budget
- Set milestones for implementation and interim water quality goals
- Adaptive Management: Implement - Monitor - Share Information - Learn - Improve

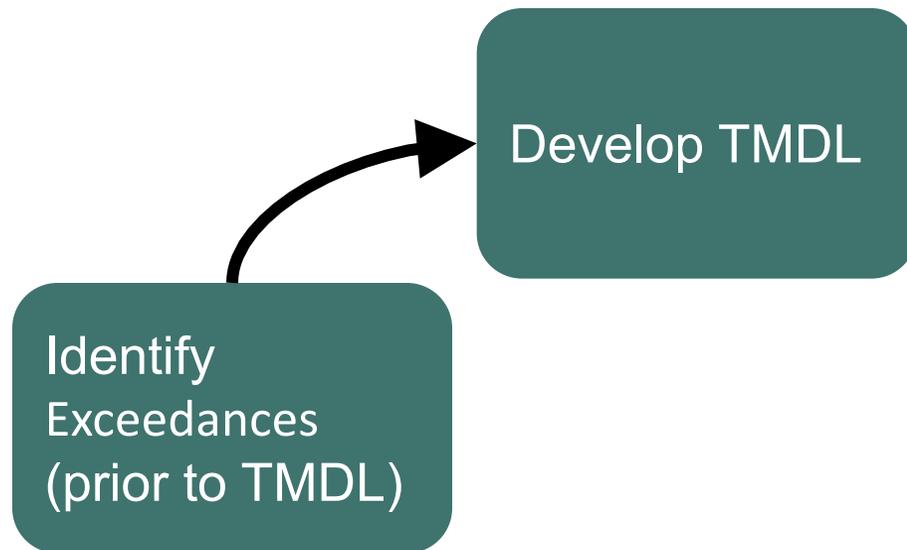
TMDL Implementation – Water Quality Management



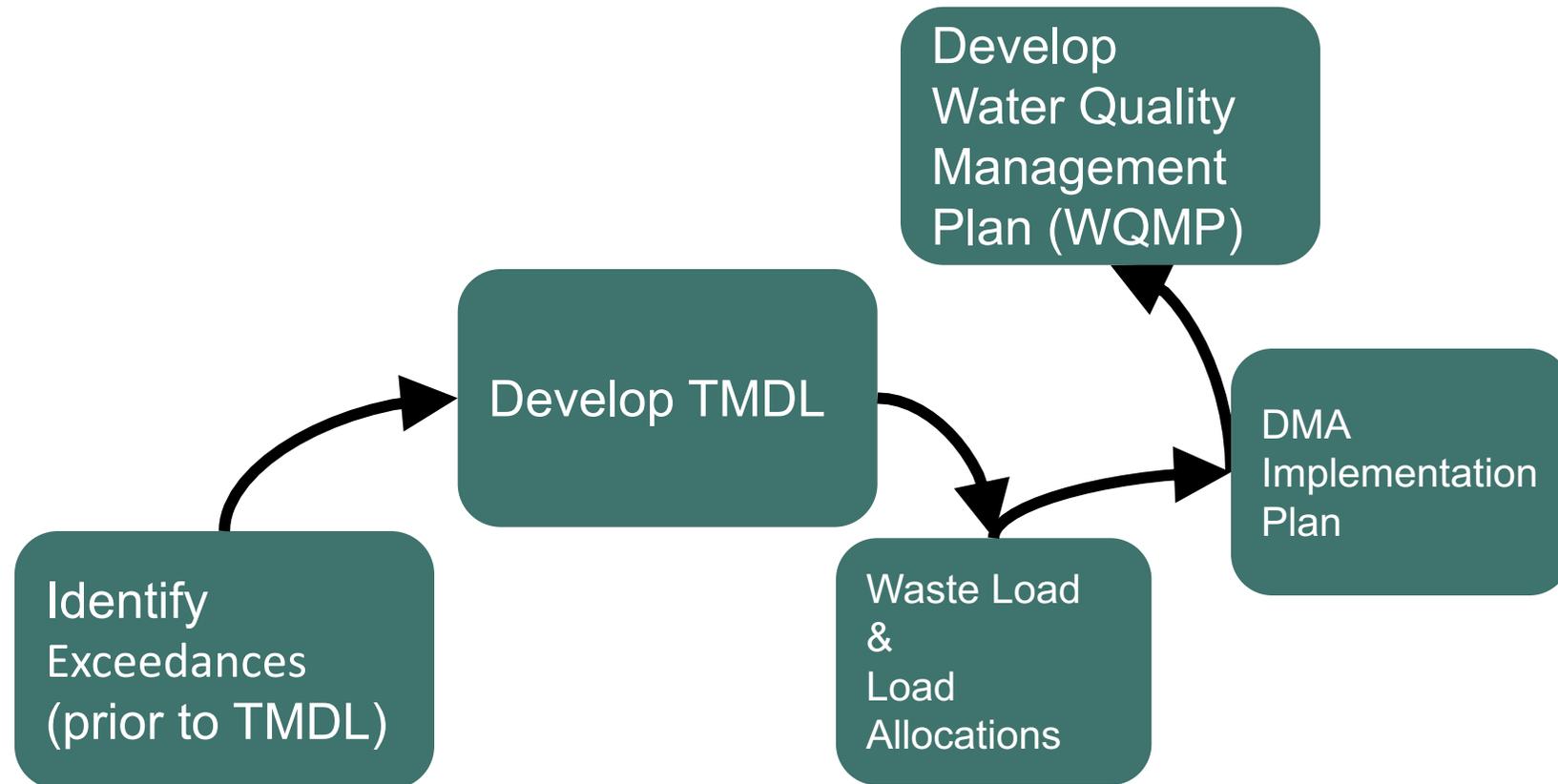
Concept: TMDL Development Process

Identify
Exceedances
(prior to TMDL)

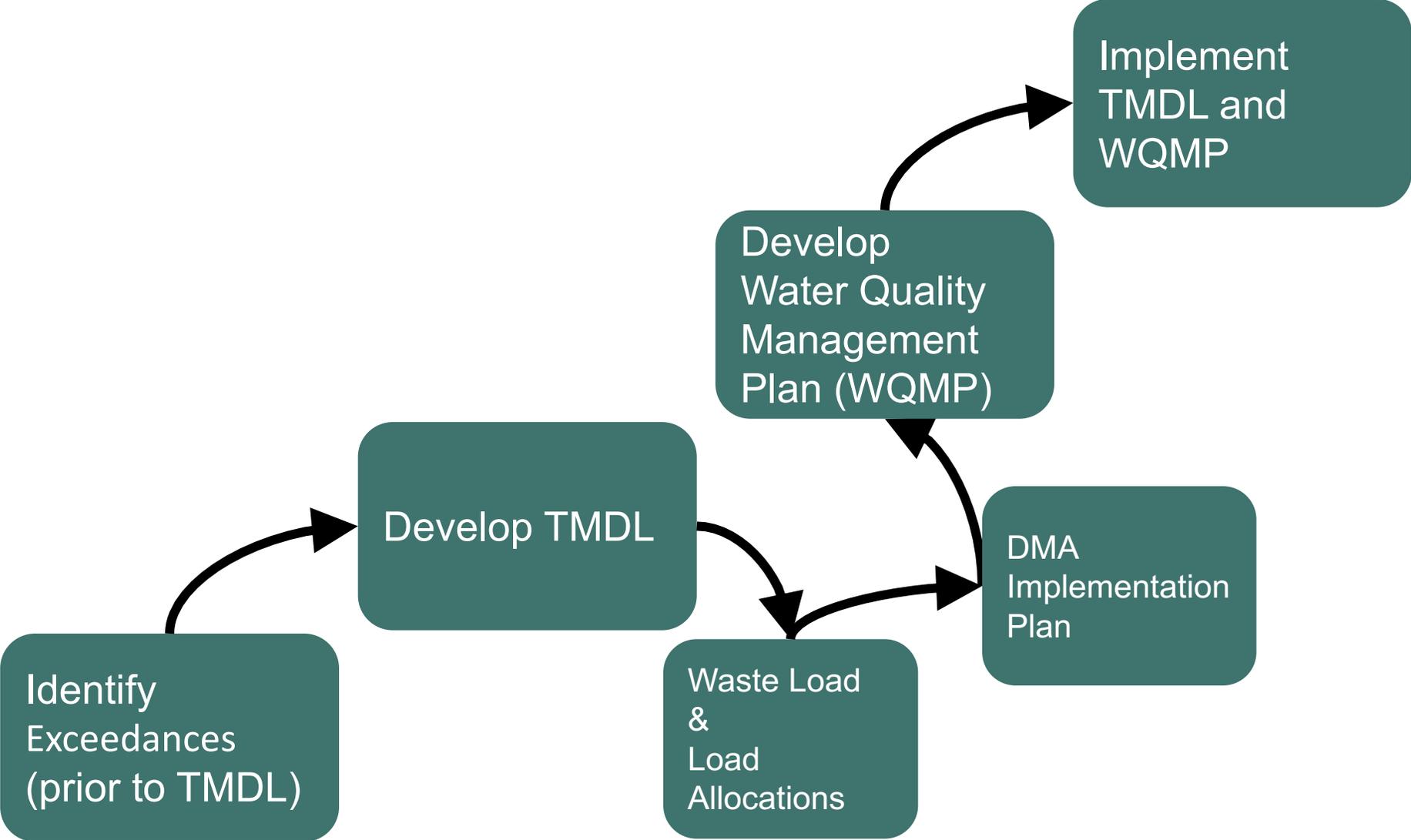
Concept: TMDL Development Process



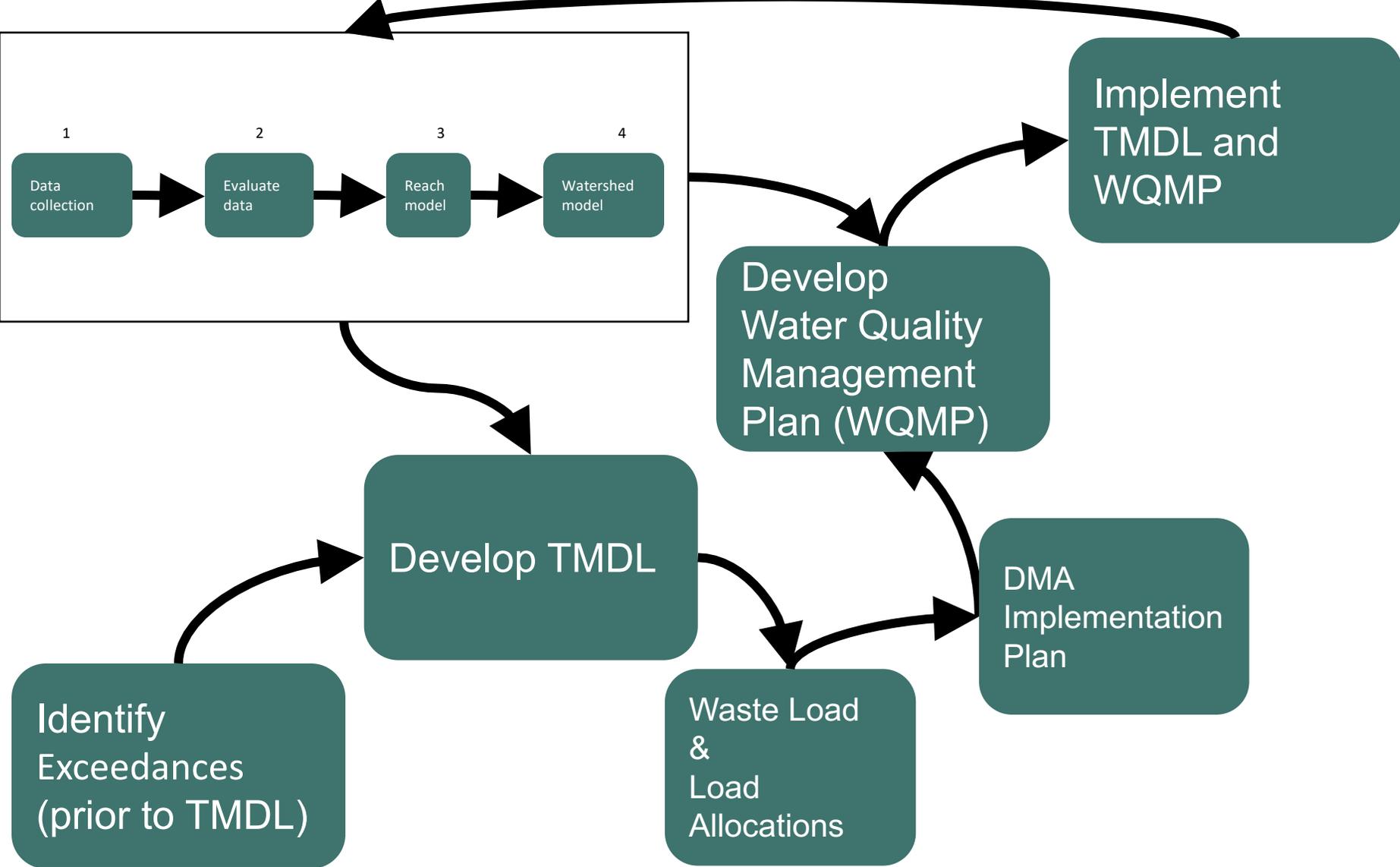
Concept: TMDL and WQMP Development Process



Concept: TMDL and WQMP Development Process



Concept: TMDL – WQMP – Adaptive Management Process



TMDLs Under Development

- Hood River revised temperature TMDL: DEQ developing RTC
- Klamath River and Lost River nutrient TMDL: DEQ developing RTC
- Willamette Basin mercury TMDL: April 2019 EPA Action (Court Ordered)
- Klamath temperature TMDL: April 2019 EPA Action (Court Ordered)
- Coquille TMDL for DO, pH, bacteria, temperature
- MidCoast TMDL for DO, pH, bacteria, biocriteria (sediment), temperature