

Translating ocean science to policy under the Clean Water Act: information needs and opportunities for collaboration



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DEQ Water Quality Assessment Program

- Operates under the Clean Water Act framework
- Integrated Report
 - Assessment Methodology
 - Assembly all readily available data
 - Reporting to U.S. EPA every 2 years
 - Overall status of water quality in the state
 - Identification of impaired waters (303(d) list)
- Scientifically and technologically robust and defensible



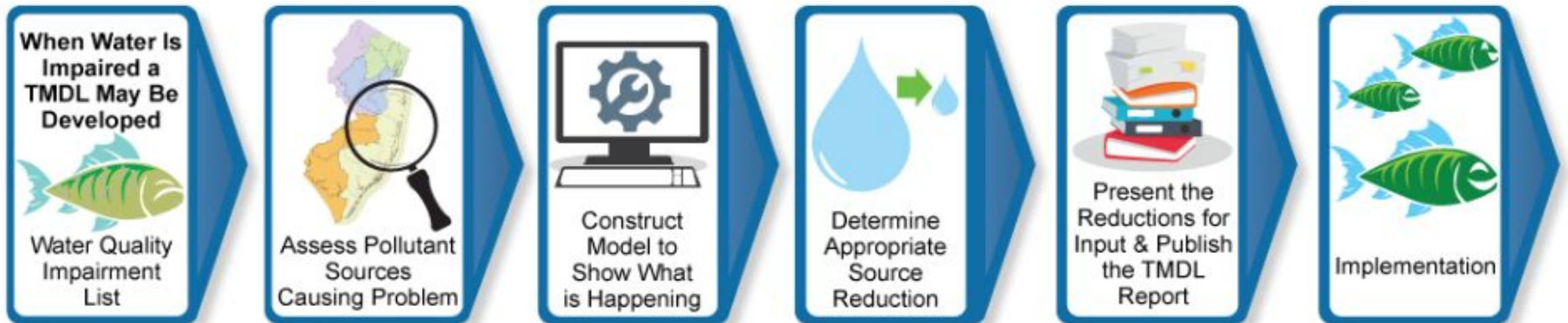
Identification of Impaired Waters and Next Steps

303(d) list =
Waterbodies
where one or
more beneficial
use is not *fully*
supported

A Total Maximum Daily Load (TMDL) is typically
required – Complex and timely process

Water Quality
Management Plan to
implement reductions

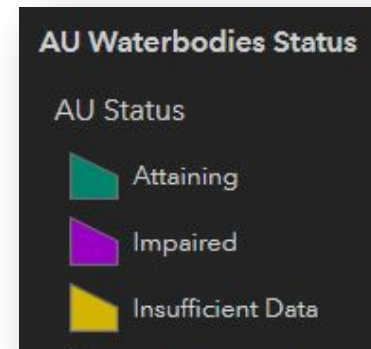
Option available to
use an Alternative
Restoration Plan



<https://www.nj.gov/dep/wms/bears/tmdls-tmdl-process.html>

Coastal assessment in Oregon

- DEQ has received comments and data on ocean acidification and hypoxia since 2010 IR cycle
- 2020/2022 – Marine waters listed as potential concern for OAH impacts to fish and aquatic life
 - No assessment methodology in place to determine impairment
 - Committed to forming a technical workgroup



2022 OAH workgroup – translating science to policy



Composed of OAH technical experts from across the region

Our goal: Assess aquatic life beneficial use support within state waters (0-3 nautical miles)

- Oregon is the first West Coast state to address this topic in the Clean Water Act reporting process

Outcome: Procedures to assess OAH impacts based on the best available science

- Public comment period on draft methodology May 2023 – July 2023
- [Methodology](#) currently in use for the 2024 Integrated Reporting to EPA

Potential Future Directions



Data and Information to inform WQ Management

Data Collection

- Biological and chemical indicators identified in DEQ's 2024 Assessment Methodology
- Known Data Quality
 - Project plan that includes QA/QC protocols
 - Use widely approved sampling and analysis methods
 - Document metadata

Data Management

- Submitted to DEQ during data solicitation
 - Must use DEQ marine templates
 - Made available to the public via DEQ's AWQMS database
- Reported to a publicly available data base
 - All results are in a consistent reporting format
 - Data quality flags
 - Sufficient metadata

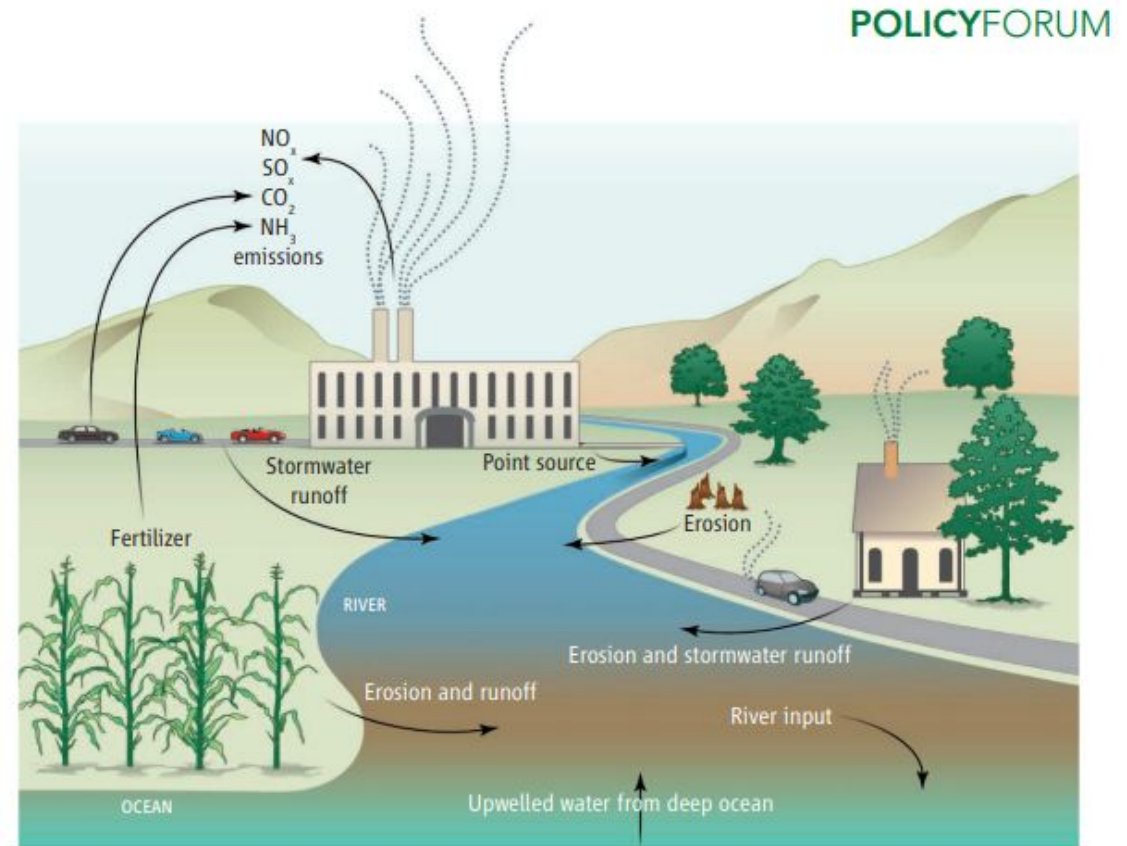
Tools for WQ Assessment and Management

Characterize Natural Background Condition

- Tools to apply global change estimates to the local reporting scale
- Tools to understand how spatial variability affects expected conditions (hotspots/refugia)

Source Identification

- Tools to identify relative contributions for impaired marine waters
 - Global vs. local contributions

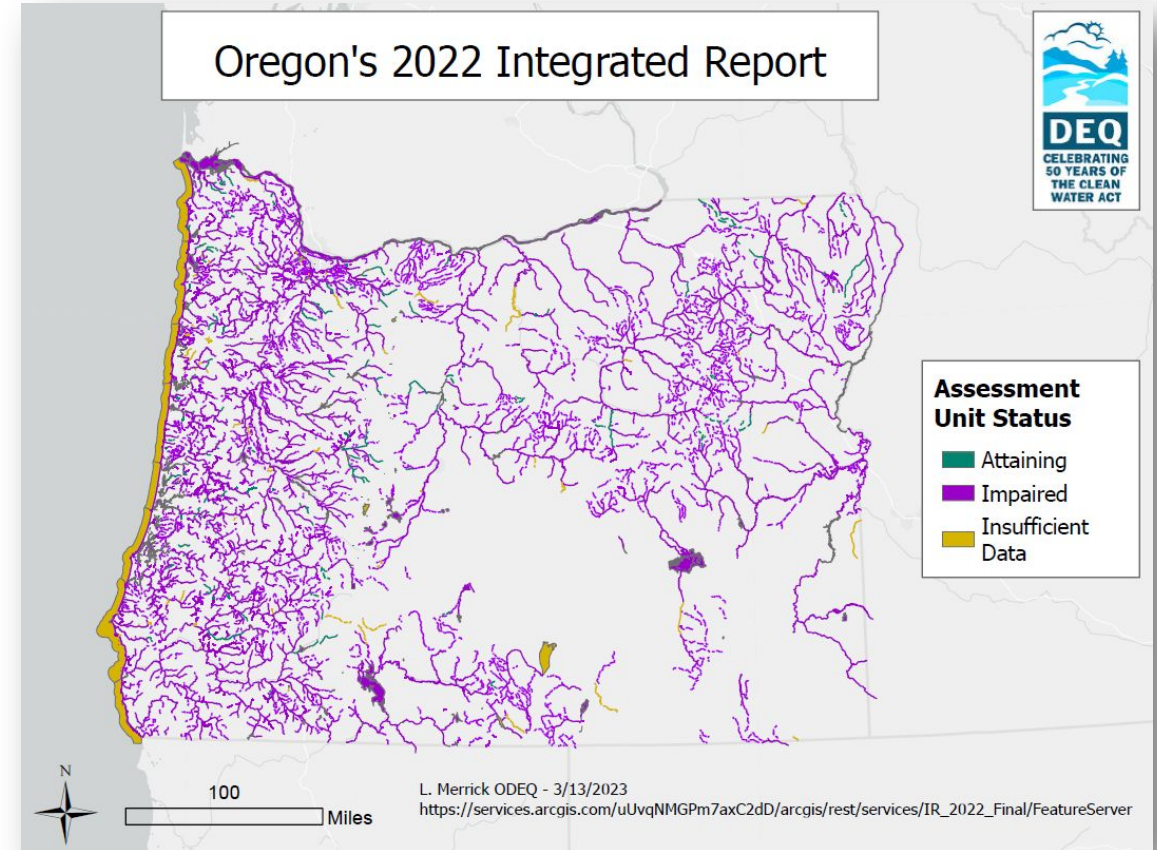


Contributors to ocean acidification. In addition to global atmospheric CO_2 , this figure depicts the major local (within 100 km) sources contributing to coastal ocean acidification.

Kelly et al., 2011

Continued Collaboration

- Build on progress made in Technical Workgroup
- Increase DEQ's involvement in coastal zone management and resilience
- New approaches to WQ management in the face of a changing climate



Thank you!

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Ocean Acidification Methodology

- Identify impacts to Fish and Aquatic Life
 - Narrative biocriteria water quality standard
- Multiple lines of evidence approach
 - biological indicator = pteropod shell dissolution
 - chemical indicator = carbonate chemistry
- Natural background condition
 - pre-industrial estimations of carbonate chemistry



David Liittschwager and National Geographic Images.

Hypoxia Methodology

- Identify impacts to Fish and Aquatic Life
 - Narrative marine dissolved oxygen water quality standard
- Multiple lines of evidence for impairment
 - Measurable reduction (changes over decades) &
 - Amount of time below the hypoxia benchmark

