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Regulating Thermal Discharges in Waters That Do Not Meet Temperature Criteria

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PROBLEMS

ASSUMPTIONS AND GENERALIZATIONS

- Many streams have temperatures that
  - Are harmful to fish and other aquatic life
  - Do not meet numeric temperature criteria
- Many such temperatures are natural or irreversible in the foreseeable future
- Many facilities discharge at temperatures higher than the instream temperature criterion, but
  - May have only insubstantial effects on stream temperatures, both individually and cumulatively, and
  - Cannot feasibly or reasonably reduce their discharge temperatures to the instream criterion
- Measures other than discharge temperature reductions would produce greater stream temperature reductions or make aquatic life more resilient to warmer water

NPDES Permit Requirements

- Must include conditions sufficient to ensure that the discharge does not cause or contribute to a violation of water quality standards
- Must be consistent with the "assumptions and requirements of any available wasteload allocation" in a total maximum daily load (TMDL) determination

OREGON TEMPERATURE CRITERIA

- "Biologically based" criteria (BBC) ranging from 12.0 to 20.0°C to protect specific fish uses and life stages
- Natural temperature criterion (NTC)
  - if warmer, superseded BBC
  - EPA disapproved it in 2013 after a federal court invalidated EPA's 2004 approval
- "Human use allowance" (HUA) of 0.3 °C "above the applicable criteria"—applies to all point and nonpoint sources combined after a TMDL or "other cumulative effects analysis"
- "Narrative" criteria based on use protection; antidegradation provisions; numerous other provisions

CURRENT OREGON TEMPERATURE TMDLS

- **TMDL = Σ WLAs + Σ LAs + MOS + reserve**
  - **TMDL**: Maximum thermal load consistent with achieving the applicable temperature criterion
    - Applicable criterion:
      - BBC or NTC, if higher +
      - 0.3 °C (HUA)
  - **WLA**: wasteload (thermal load) ***allocated*** to an individual NPDES source (generally its share of the HUA)
  - **LA**: load allocation ***attributed*** to a category of nonpoint sources or to a natural source
  - **MOS**: margin of safety

TMDLs <u>With</u> the Natural Temperature Criterion

- **TMDL = Σ WLAs + Σ LAs + MOS + reserve**
  - HUA + NTC = Σ WLAs + Σ LAs (nonpoint) + nature + MOS + reserve
  - HUA + ~~NTC~~ = Σ WLAs + Σ LAs (nonpoint) + ~~nature~~ + reserve + MOS
  - 0.3 °C = Σ WLAs + Σ LAs (nonpoint) + MOS + reserve
- **Σ WLAs = 0.3 °C – Σ LAs (nonpoint) – MOS – reserve**

TMDLs <u>Without</u> the Natural Temperature Criterion

- **TMDL = Σ WLAs + Σ LAs + MOS + reserve**
  - BBC + HUA = Σ WLAs + Σ LAs (nonpoint) + nature + MOS + reserve
- But, if nature > BBC + HUA, then:
  - Σ WLAs + Σ LAs (nonpoint) + MOS + reserve < 0
  - Σ WLAs + Σ LAs (nonpoint) < 0
- No thermal allocation is available to point sources, which must discharge at or below the BBC + HUA
- Moreover, because human sources are responsible only for their own heat loads, the temperature criterion is not achievable

Invalidation of Oregon Temperature TMDLs

- All Oregon temperature TMDLs approved since 2004 have been based at least in part on the NTC
- A federal court recently invalidated EPA's approvals of all such TMDLs established since September 2006, including the Willamette Basin Temperature TMDL
- The court has not yet specified a remedy, but DEQ or EPA will need to reestablish the TMDLs without the NTC, and they may be required to do so relatively quickly

POTENTIAL SOLUTIONS

Revised Natural Temperature Criterion

- Court held that the NTC was impermissible because
  - It bypassed the water quality standards revision process of the Clean Water Act (CWA) and
  - It assumed, rather than demonstrated, that natural temperatures were not harmful to aquatic life
- Site-specific temperature criteria based on natural temperatures would take decades to develop and approve
- Successfully developing an approvable "binding methodology" for establishing site-specific protective criteria outside the water quality standards approval process seems unlikely

REVISED HUMAN USE ALLOWANCE

- Oregon could revise the 0.3°C HUA to decouple it from the “applicable criteria” (as in Washington)
- This could allow NPDES permits to be issued based on the discharger’s share of the HUA
- But it would not solve the TMDL problem if natural or long-term irreversible temperatures exceed the applicable criterion

Water Quality Trading and Compliance Schedules

- Water quality trading
  - Could be used by some sources to offset their heat load if baseline, location, attenuation, timing, and other issues can be overcome
  - Likely cannot resolve the TMDL problem if natural or long-term irreversible temperatures exceed the criterion
- Compliance schedule
  - Useful only when a feasible solution is known and time is needed to implement it; a compliance schedule is not itself a solution

WATER QUALITY STANDARDS VARIANCE

- Not a permanent solution but may allow NPDES permits to be issued more or less indefinitely with feasible requirements while working toward a permanent solution
- Requires substantial efforts by permittees, DEQ, and EPA, but multi-discharger or basin-wide variances, as well as temperature-specific overlay NPDES permits, may create administrative efficiencies
- EPA's variance rule prohibits basing a TMDL on a variance

CWA § 316(a) Limits

- CWA § 316(a) allows less stringent NPDES temperature discharge limits than would otherwise be required to meet temperature standards
- Permittee must establish that the less stringent limit will nonetheless "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife" (BIP)
- BIP limits must be renewed at each NPDES permit renewal but can continue indefinitely
- Does not resolve the TMDL problem

THERMAL TMDLS

- CWA arguably ***requires*** TMDLs for temperature to be based on an "estimate" of the maximum thermal load required to assure a BIP—not the applicable temperature criterion
- Essentially allows temperature criteria to be adjusted through the TMDL without undertaking a separate water quality standards revision
- Could better accommodate the use of conservation measures
- Would likely require more effort than a traditional TMDL
- No thermal TMDL has ever been established

USE ATTAINABILITY ANALYSIS

- A declaration of defeat
- Would allow higher temperature criteria by downgrading or removing aquatic life use designations to eliminate the uses most sensitive to high temperatures
- Removing or downgrading a use must be based on a determination that the use is not “attainable” for one of six specified reasons (including natural and irremediable human-caused conditions)
- Uses that have been attained since November 28, 1975 cannot be removed or downgraded

THANK YOU

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