Scientific Approach to Waters of the United States

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Scientific Approach to Establishing a Significant Nexus Between Various Aquatic Resources and Navigable Waters

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Key Questions:

- What is a significant nexus under the rule and what will a water with a significant nexus look like?
- What is the significance of the definition for tributary and neighboring (which includes floodplains and riparian areas)?

First, the Bottom Line:

A Key Conclusion of EPA's Office of Research and Development's review of peer-reviewed published scientific literature, *Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence.* (Draft under Review)

". . . the fundamental way in which streams and wetlands affect river structure and function is by altering fluxes of materials to the river."

Why is this sentence important?

- "streams and wetlands" = object of jurisdictional claims
- "rivers" = Traditional Navigable Waters (undeniably jurisdictional)
- "affect" = nexus
- "structure and function" justifies "significant"
- That leaves "altering fluxes of materials" . . . .

How do we interpret the phrase "altering fluxes of materials?"

- Materials includes all matter – physical, chemical and biological
- Flux is the rate of flow (first directive)
  - Altering would include hydrographic changes (timing of flows)
  - Altering would include rate of material transport
- Either augmenting or restricting material flows (or a change in timing) would affect rivers

From the *Connectivity* Report:

- The control of material fluxes depends on two factors:
  - Functions within streams and wetlands that affect material fluxes, and
  - Connectivity (or isolation) between streams and wetlands and rivers that allows (or prevents) transport of materials between the systems

Are any aquatic resources not "waters of the United States?"

- Streams, individually and cumulatively, exert a strong influence on the character and functioning of downstream waters
  - Includes ALL TRIBUTARIES – perennial, intermittent, and ephemeral
  - Cumulatively, headwater streams are the most abundant stream-type in most river networks, and supply most of the water in rivers
- Indeed, the Proposed Rule declares all tributaries are *de facto* waters of the United States

Wetlands and Open Waters?

With Bidirectional Hydrologic Exchanges (tidal, floodplain)

- Chemically, physically and biologically connected to downstream waters
- Traditionally jurisdictional – termed "adjacent waters."
- No significant regulatory change

Without Bidirectional Hydrologic Exchanges (fill and spill)

- Wetlands may still have a nexus to downstream waters by virtue of their isolation (sediment removal, water storage)
- Evaluation of individual wetlands *or groups of wetlands* in a unidirectional landscape setting made case-by-case
- Validated (scientifically) considering the aggregate effect of "similarly situated wetlands."

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Q: What is a significant nexus and what will a water with a significant nexus look like?

A: All tributaries – wet or dry – have significant nexus, as will most wetlands.

Wetlands without a surface or shallow subsurface connection (truly isolated) may be aggregated as "similarly situated" for determining if there is a nexus to the nearest downstream waters of the U.S.

Q: What is the significance of the definition for tributary and neighboring (which includes floodplains and riparian areas)?

A: Tributaries include all headwaters streams, including intermittent or seasonal flow ways.

Neighboring waters are an extension of adjacent waters meant to include waters located within a riparian area or floodplain or waters with a shallow subsurface connection or confined surface connection.

Questions

After Mike Dennis' Presentation