

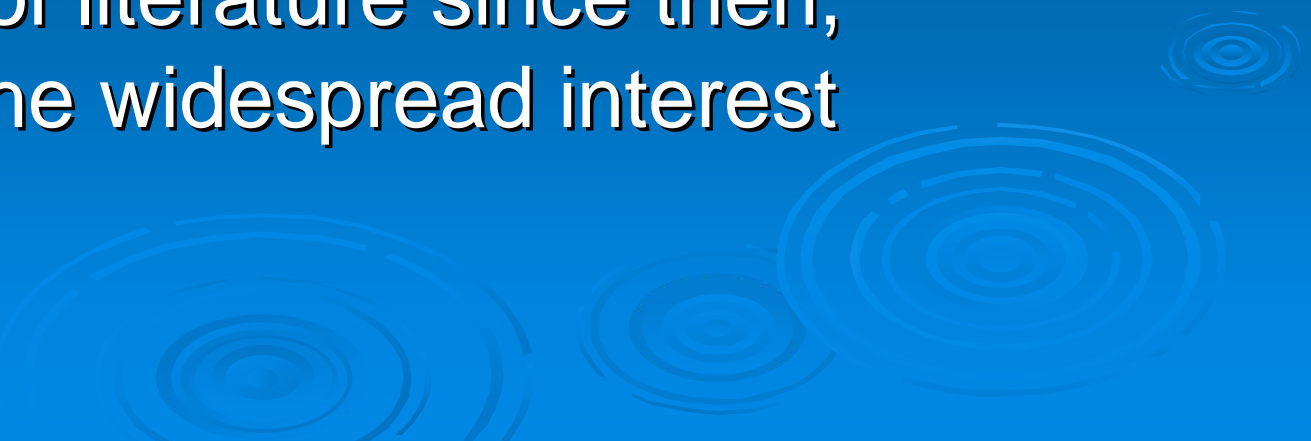
# Next Evolutionary Steps in State Instream Flow Programs

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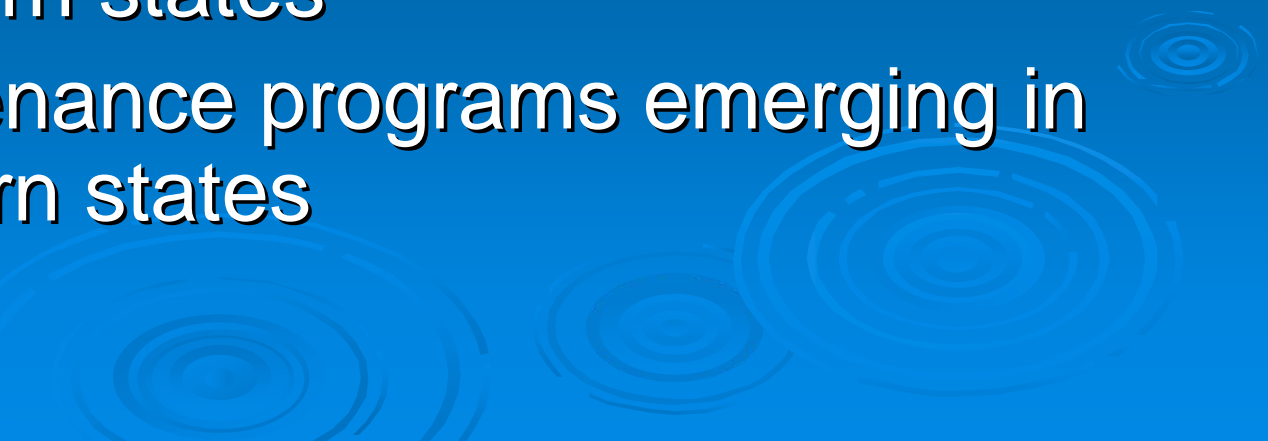
# Looking Back

- 20 years ago the NRLC published “Instream Flow Protection in the West”
  - Revised edition in 1994
  - Explosion of literature since then, reflecting the widespread interest
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# What had happened?

- Modest changes in western state water laws (broadened view of beneficial use; waiver of physical diversion requirement)
- But a major change in the traditional mindset of prior appropriation (from undiverted water is wasted water to maintaining water in place to support environmental, recreational, and water quality values)

# What has happened since 1989?

- “instream” flows now called “environmental” flows
  - Scientists have determined the flow “regime” with its natural variability is the key determinant of stream health
  - Flow restoration becoming the focus in many western states
  - Flow maintenance programs emerging in many eastern states
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# Burgeoning science

- From “fish need water” to ELOHA (ecological limits of hydrologic alteration)
- Poff et al., “The Natural Flow Regime”
- How much “natural” is enough? Or how much alteration is acceptable?
- Develop flow alteration/ecological response curves to facilitate choices
- Suggests the need to revisit the designations of single-level minimum flows

# Noteworthy Developments Western States

- New statutory authority in California, New Mexico, and Texas
- New appropriations of environmental flows continuing but at slower rate
- Increasing transactions involving existing diversion rights to restore flows
- Changes in state law to facilitate such transactions

# Northern CA coastal rivers

- AB2121 (Water Code 1259.4) directs the State Water Resources Control Board to establish principles and guidelines for maintaining instream flows in coastal streams from the Mattole River to San Francisco and in coastal streams entering northern San Pablo Bay

# Draft Principles

1. *Water diversions* shall be *seasonally limited* to periods in which instream flows are naturally high to prevent adverse effects to fish and fish habitat;
2. *Water* shall be *diverted* only *when* stream flows are *higher* than the *minimum* instream flows *needed* for fish spawning and passage;
3. The *maximum rate* at which water is diverted in a watershed shall *not* adversely affect the *natural flow variability* needed for maintaining adequate channel structure and habitat for fish;
4. Construction or permitting of *new* onstream *dams* shall be *restricted*. When allowed, onstream dams shall be constructed and permitted in a manner that does not adversely affect fish and their habitat; and
5. The *cumulative effects* of water diversions on instream flows needed for the protection of fish and their habitat shall be *considered* and minimized.

# New Mexico Strategic Water Reserve

- Enacted in 2005
- Provides authority to the Interstate Stream Commission to purchase or lease water rights that can be used to improve stream flows in stream reaches with species listed for protection under the ESA/interstate deliveries
- Used in Pecos/under development in Rio Grande

# Texas instream flow program (2007)

- State-level environmental flows advisory group
- “strong public policy imperative that exists in this state recognizing that environmental flows are important to the biological health of our public and private lands, streams and rivers, and bays and estuary systems and are high priorities in the water management process” (VTCA Water Code § 11.0236(i)).

# Texas – cont'd

- priority basins
- basin-level stakeholders groups
- establish an expert science team
- Team recommendations are to be based on the best available science
- stakeholders' group is to make its own flow recommendations to the commission, taking into account other uses of water

# Texas – cont'd

- Texas Natural Resources Conservation Commission adopt “appropriate” environmental flow standards for each river basin and bay system “adequate to support a sound ecological environment, to the maximum extent reasonable, considering other public interests and other relevant factors” and set aside unappropriated water to satisfy the standards “to the maximum extent reasonable when considering human water needs; ...”

# Columbia Basin Water Transactions Program

- This program, initiated in 2002, provides **funding** to qualified “partners” in the four basin states of Washington, Oregon, Idaho, and Montana to work cooperatively with owners of **water rights** to find ways to **improve stream flows** in streams critical to anadromous fishes listed for protection under the Endangered Species Act.

# Columbia Basin program – cont'd

- Funding has enabled partners to enter into **agreements** ranging from **acquisition** of water rights, to **leases**, to non-divert agreements, to **efficiency** improvements, to **shifting sources** of water (e.g., from surface to ground water), to **improving stream habitat**.

# Montana leasing for environmental flows

- **State** leasing program while also allowing **private** parties to **lease** water for instream purposes or to convert their diversionary rights. Existing water rights may be changed temporarily or, in limited instances, permanently.
- DFWP leases are limited to ten year terms (renewable)
- leases for water that comes from a water conservation program may be for up to 30 years

# Oregon leasing

- As of July 20, 2007 Oregon had put in place over 1,000 instream leases, transfers, and allocations of conserved water, providing an additional 900 cubic feet per second of stream flows.



# Nez Perce Settlement

- in 2004, Idaho established more than 300 flow rights on streams in and adjacent to the reservation to protect their fisheries
- Settlement of Indian reserved water rights claims

# Federal/state - Montana

- Reserved water rights compact with the Forest Service in 2007
- creates state water rights for instream flows on 77 stream segments located within national forests and an in-place right for one fen
- provision is made for the Forest Service to use the State's reservation process to seek additional instream flow protection

# Noteworthy developments eastern states

Several permit states, including Florida (Fla. Stat. Ann. § 373.042(1)), Hawaii (Haw. Rev. Stat. § 174C-31(j)), Indiana (Indiana Code § 14-25-7-14), Maine (38 M.R.S.A. § 470-H), Michigan (M.C.L.A. § 324.32703(a)), New Hampshire (N.H. Rev. State § 483:9-c), and West Virginia (W. Va. Code § 22-13-7), explicitly subject permit applications for new water uses to **review of streamflow effects.**

# Eastern states – Florida (1972)

- directing either the state or the regional water management districts to establish minimum flows for all surface waters (Fla. Stat. Ann. § 373.042 (1)(a)). Minimum flows were to be established to reflect the *“limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area.”* It authorized setting flows that reflect *“seasonal variations.”*

# Connecticut - 2005

- **Flow standards** are to
  - preserve and protect the **natural aquatic life** in state waters;
  - preserve and protect the natural and stocked **wildlife dependent on flows**;
  - promote and protect the usage of rivers for **public recreation**;
  - be based, to the maximum extent practicable, on the **natural variation of flows** and levels “while providing for the needs and requirements of public health, flood control, industry, public utilities, water supply, public safety, agriculture and other lawful uses of such water;” and
  - be based on the best available science.

# Water quality based

- Vermont: Class A water quality standards include a limitation that no more than a 5% 7Q10 (the lowest 7 day flow rate expected once in a 10-year period) change from natural flows will be permitted, in aggregate (Vt. Code R. 12 004 052, § 3.01(C)(1)(a)).

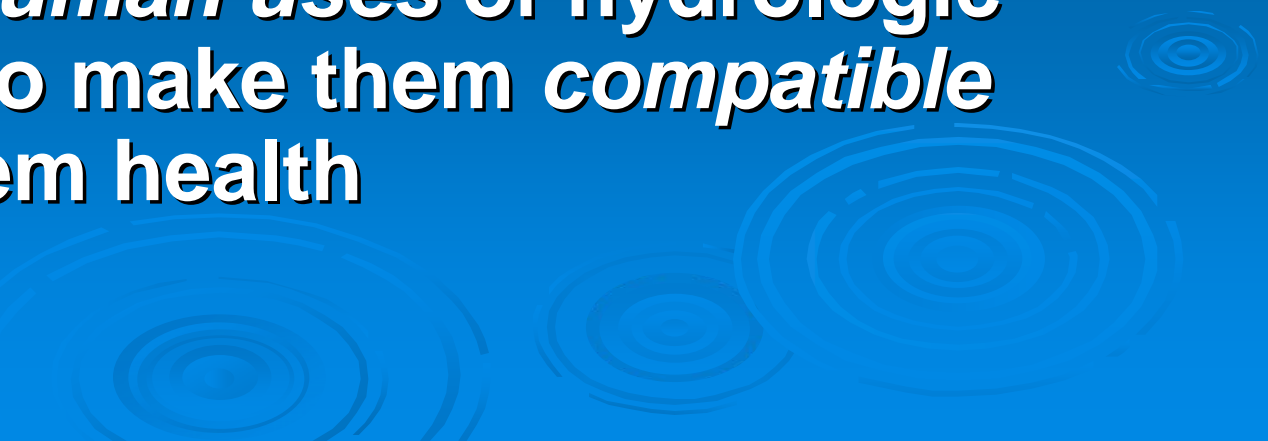
# Water quality based

- **Maine's** Department of Environmental Protection has developed flow requirements associated with different classifications of streams (Chapter 587: In-Stream Flows and Lake and Pond Water Levels). Natural flows are to be maintained for Class AA waters, while withdrawals of water from Class A, B, and C streams are conditioned on the requirement that all water quality standards be maintained.

# Great Lakes agreements

- Involving all riparian states and provinces committed to carefully regulating withdrawals of waters of the basin that are under their jurisdiction.
- After use, water must return to the source from which it came.
- For practical purposes, no water may be transported outside of the Great Lakes basin.

# “Model” Environmental Flow Policy

1. Think *hydrologic system*: Rivers, lakes, and aquifers – not just water (impacts of gw withdrawals)
  2. Manage *flow regime* with natural variability to achieve health of systems
  3. Manage *human uses* of hydrologic systems to make them *compatible* with system health
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# **“Model” Environmental Flow Policy**

- 4. *Restore important dewatered systems***
  - dam reoperations**
  - modify existing diversions**
  - funding**
  
- 5. *Monitoring and enforcement program***

# Further Reading

- MacDonnell, *Environmental Flows in the Rocky West: A Progress Report* ( U. of Wyo. Law Review)(2009 forthcoming)
- MacDonnell, *Return to the River: Environmental Flow Policy in the United States and Canada* (J. of the American Water Resources Ass'n)(2009 forthcoming)