

Methodology Development

**Selecting The Tools to Assess
Environmental Flow Needs**



"Hey, bucko ... I'm through begging."

**Begin With the End in Mind –
Identify Outcomes First**

What do you need to know?



What Do You Need To Know?

- **Hydrology**
- **Biology**
- **Geomorphology**
- **Water Quality**
- **Connectivity**

Document your reasoning for each component

Identify Goals

- **What's important ?**
 - **Priority waters (stream network, segment, reach)**
 - **Priority habitats**
 - **Priority species**
- **Is the focus on protection or restoration?**
- **What level of protection is needed?**

Define “Environmental Flow”

- Just a base flow?
- A periodic high flow?
- A seasonally adjusted flow regime?
- A regulatory mechanism or document (but no guaranteed water)?
- A regulatory mechanism with adequate control to provide identified flows?

Inputs / Resources

What about legal authorities?

- **Are flow-supportive laws, policies, or doctrines in place?**
- **Is “need” driven by federal law or policy vs. state or local**
 - **Are these authorities supportive of each other?**
- **Will you develop recommendations vs. regulations vs. water rights/permits?**

What about institutional support?

- **Is water management for aquatic organisms recognized in strategic planning documents?**
- **Is water availability a basis for prioritizing where you work?**

What institutional resources do you have to work with?

- **Do you have adequate staff?**
- **Do you have adequate budget (short or long-term)?**
- **Are staff adequately trained (to lead field studies vs. supervise consultants)?**
- **How much existing data is available?**
 - **Hydrology, biology, geomorphology, water quality, connectivity**
 - **GIS information**

What role does the public play?

- **Is the public . . .**
 - **Knowledgeable?**
 - **Supportive?**
 - **Involved?**
- **What do you need to know about the public?**
- **What does the public need to know ?**
- **What is the best way to communicate (each way)?**

Activities

Landscape level approaches can:

- **Provide broad coverage for all waters**
- **Be simple (Tennant) or more complex (ELOHA)**
 - **May be data-limited (not enough on all waters)**
 - **This level of study may just be a starting point, not an ending point**

Beware of reconnaissance level recommendations!

Site-Specific Studies

- **Develop a tool box**
 - **Select appropriate range of tools to provide answers to specific questions.**
 - **Respect the differences as well as commonalities of all streams.**
- **Develop partnerships / interdisciplinary teams**

Outputs

Identify opportunities – where will the water come from?

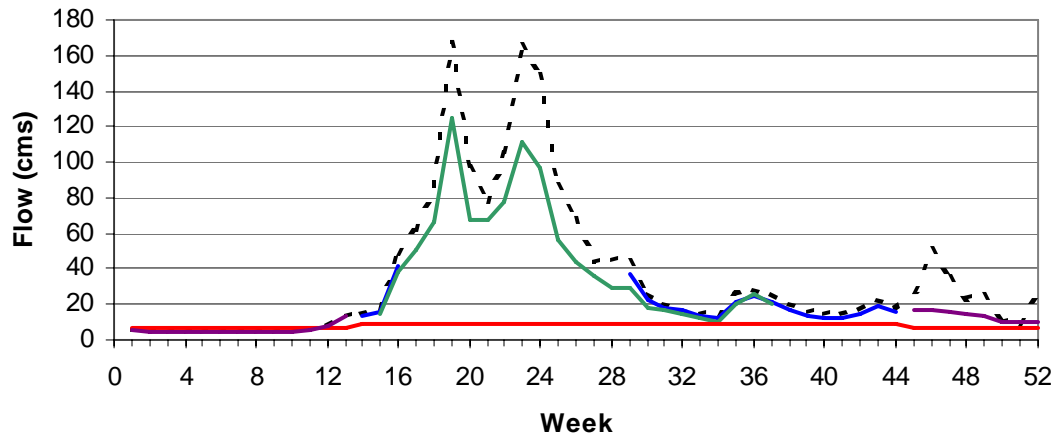
- **Protect existing natural flows**
- **Conservation**
- **Watershed management**
- **Cooperative agreements with existing users**
- **Dams**

Strive for Balance

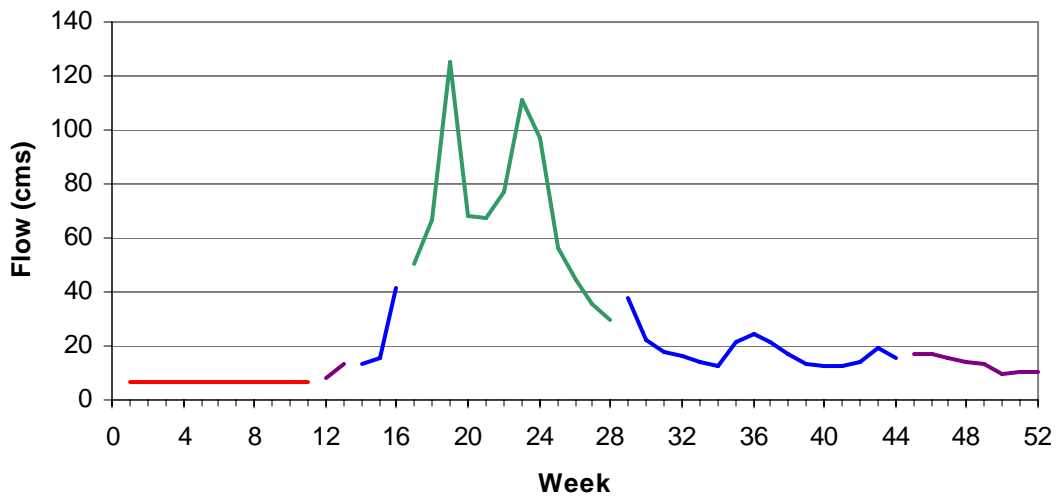


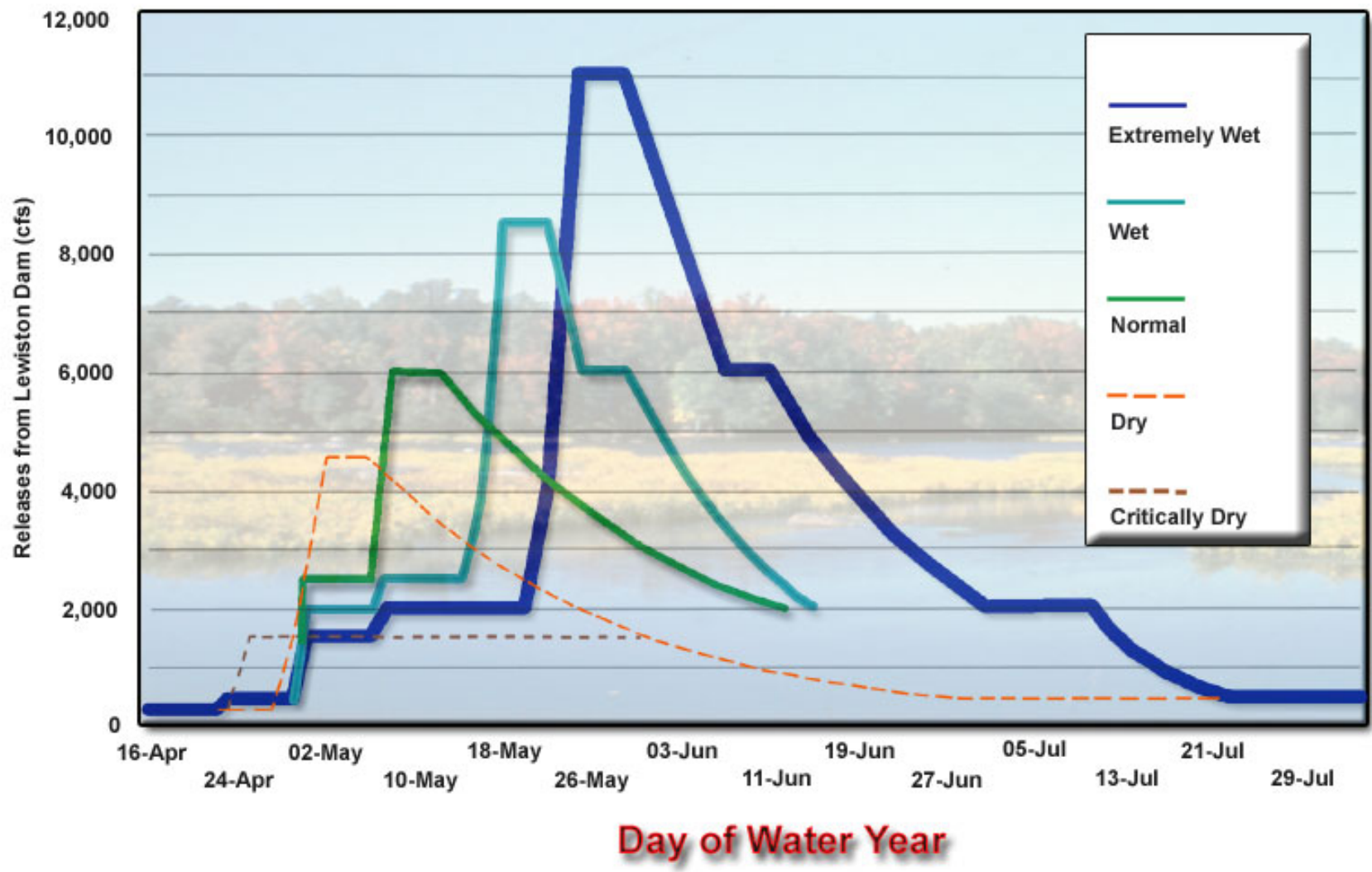
Ecosystem Component IFN Curves

- - - Natural — Fish Habitat — Riparian — Water Quality — Tessmann



Integrated Ecosystem IFN





There is no silver bullet

