

# In Stream Ecology Update



# In Stream Ecology Update – Mission / Goals



Draft Mission of Working Group:

**Understand impacts of current and future land use patterns, climate, withdrawals, and conservation & restoration efforts to develop general stream-specific biological needs for key waterways**

Draft ISWG Objective for Step 3:

**Identify areas (watersheds, streams) where water development can occur without causing significant harm to biological values**

# In Stream Ecology Update – Challenges



- ❑ Where were we starting 2019?
  - ❑ Had not met in person since August '18
  - ❑ October Partnership Meeting was Dr. Wayne Hoffman's "Farewell Address"
  - ❑ Need to carry Dr. Hoffman's ideas forward and reassess details
  - ❑ *Consistent* Coordinating Committee & Working Group Spokesperson
  - ❑ Compared to other W.G.s, catch up needed ...
  - ❑ Currently Beginning Step 3: "Define Current and Future Water Needs"
- NEED TO DEFINE WG's SCOPE OF WORK, LEARNING & ACTION PLAN

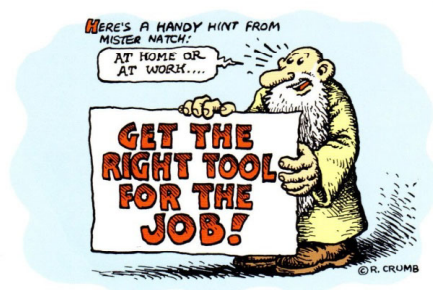
# In Stream Ecology Update – Starting Step 3

- **INSTREAM ECOLOGY HAS BIG ISSUES WITH COMPLICATED SOLUTIONS**
- Some course corrections needed:
  - ▣ Address Past Regionalisms
  - ▣ Every Stream?
  - ▣ Every Anthropogenic Challenge?
  - ▣ Define & Refine Scope of Work – What is in this Working Group's Charge?  
What can we achieve in this timeframe? What can we achieve with existing data? What agencies have what?
  - ▣ Build Learning and Action Plan from Defined Scope of Work
  - ▣ Super Easy Stuff!

# In Stream Ecology Update – Starting Step 3



- How to develop a “unified” framework addressing multi-variate issues?
- Use the ToolBox to approach Step Three: Define Current and Future Water Needs
  - ▣ “Rely on best available information and... do due diligence to find and use existing studies and plans”
  - ▣ “Actively engage partners to ensure that their interests and needs are met in the planning process”

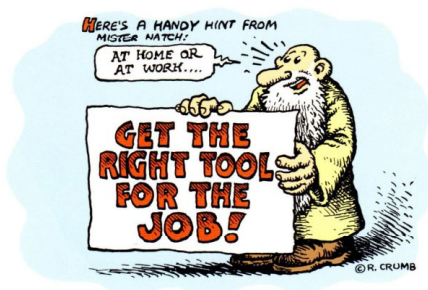




# In Stream Ecology Update – Starting Step 3



- “Seek balance in understanding in-stream and out-of-stream water needs”
- “Acknowledge upfront that they may not have the information they need to conduct all desired analyses to the desired level of detail or accuracy”
- “Acknowledge that they will not be able to collect new data through this planning process, but will identify information gaps and strategies to fill priority gaps”



# In Stream Ecology Update – Tool Box



## □ Project Management Questions

- ▣ **Goals** – What are our goals during this step? What do we hope to accomplish?
- ▣ **Scope** – What is the scope of our work? How can we be strategic in our scope?
- ▣ **Work Products** – What work products will be developed?
- ▣ **Schedule** – What is the timeline or schedule for accomplishing this work? What are some important milestones?

# In Stream Ecology Update – Scoping Questions

- 1. **Objectives** – What are your objectives during this step? *Identify areas (watersheds, streams) where water development can occur without causing significant harm to biological values*
- 2. **Questions** – What questions are we interested in answering? *Where are the region's most important biological values in aquatic habitats?*
- 3. **Key drivers** – What are the key drivers affecting water use in our planning area? How will this affect our analysis? Where should we focus more of our time and energy?
- 4. **Geographic scale** – What geographic scale will we use to examine and describe water needs? *Multiple MidCoast Watersheds – Salmon Drift Creek, Siletz R., Yaquina, Alsea, Yachats*
- 5. **Timescale** – What time periods are we interested in understanding (e.g., period of assessment)? *Seasonally as well as multi decade projections depending on climate calculations available*



# In Stream Ecology Update – Many Iterations

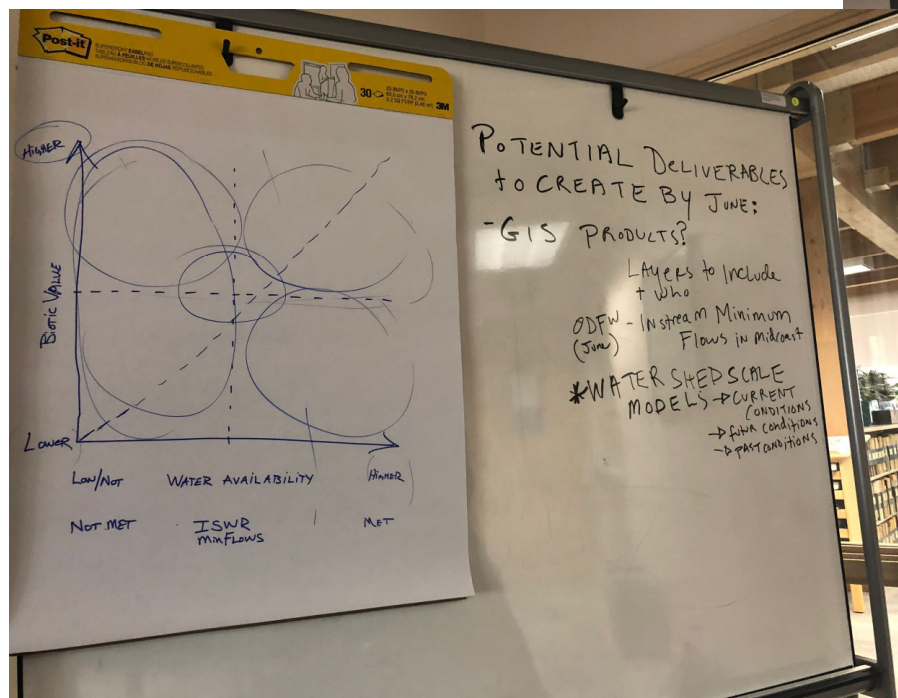
## Instream and Biotic Priorities

Wayne Hoffman,  
for the  
Instream Subgroup

Types of Water Withdrawals and Potential Instream Impacts in Lincoln County

Withdrawal	Description	Problems	Solutions
Municipal, Public Water Systems	Systems that serve three or more people connections	Peak demand vs. low summer flows Lack of conservation plans Leaks Rates based upon less cost for more usage Population growth (permanent, transitory)	Storage Provide plans Replace/repair Revise structure Less advertising
Industrial Direct Water System	GP Toledo Mill	Lack of conservation in water usage	Conservation plan
Water Rights	Existing (in use); valid but dormant	Lack of reporting system for actual usage Potential activation of dormant rights Treated and untreated water cannot be mixed	Require reporting Learn locations
Forest Management	Industrial forestry in particular	Short rotations result in young average ages Acreage already clear cut Use of herbicides and pesticides	Longer rotations Land acquisition Less use; riparian buffers Erosion control
Climate Change	Increased evapo-transpiration (less water)	Warmer stream temperatures Increased water needed for landscaping	Habitat restoration Drought-resistant
Agriculture	Either self-supplied or from a system	Need for efficient irrigation systems Herbicide/pesticide use Biosolids application results in additional pollutants	New systems Less use; riparian buffers Less use; riparian buffers
Hospitality Industry	Water required for lodging, restaurants	Fresh linens supplied daily Water automatically offered with meals	New organization to encourage conservation
Fish Processing	On docks and in plants	Hoses run constantly Lack of conservation plans	Use shut-offs Provide plans

# In Stream Ecology Update – Many Iterations



## CRITERIA FOR CLASSIFICATION (Prioritization)

"Where can you develop H<sub>2</sub>O w/o harming Biological values?"

- ODFW → fish bearing streams  
→ climate (precipitation) → stream temperature projections
- potential carbon sequestration
- Habitat → ESA animals  
→ Existing plants  
→ Beaver  
→ INTRINSIC POTENTIAL  
→ AGE OF FORESTS
- LANDUSE → COVER  
→ COMMERCIAL  
→ URBAN - ZONING  
→ FORESTRY → INDUSTRIAL  
→ AG → PUBLIC LAND  
→ RURAL  
→ FUTURE
- WATER QUALITY STATUS  
→ Expected Effect  
→ Added Flow  
→ Shade
- WATER RIGHTS → PRIORITY  
→ USE TYPE
- PAST RESTORATION PROJECTS → ODFW - CTSI  
→ SWCDs - BLM  
→ WATERSHED COUNCILS - NRCS  
→ USFW

SPECIFIC WATER DISTRICT DEVICES

- BASIN Health → LAKE Health
- FIRE Potential or History

Topic	Subtop	Exist

## ACTION ITEMS →

- Excel - EBD
- Send NOTES - E.H.
- Add in ADDITIONAL LINES - ALL
- \*PRESENTING - EBD
- \*POWER POINT - EBD + Joyce
- \*VISUAL OF - JOYCE
- \*GRAPHING + MAPPING

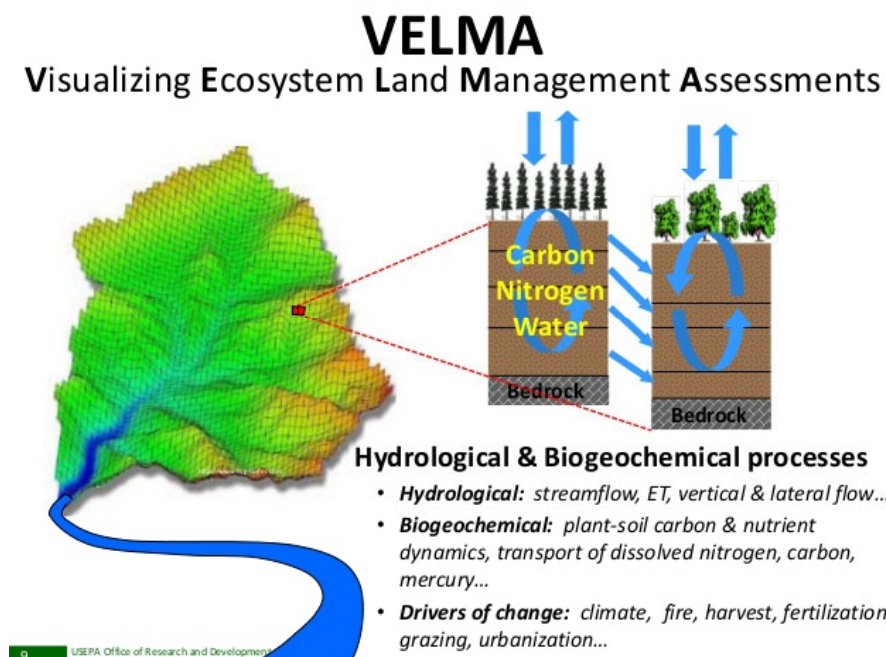
# Criteria for Classification to Define “Biological Priority” (Just a small list)

	A	B	C	D	E	F
	Instream Ecology Workgroup - Task 3 "Defining Current Water Needs"					
	Criteria for Classification/Prioritization:Where can water resources be developed without harming biological values?					
	Topic for Arc Layer	Subtopic 1	Subtopic 2	Related Agency	Date Source / Link	Notes - Comments (please initial)
	Habitat	Fish Bearing Stream		ODFW		
	Climate	Regional Climate Projections		ODFW?		Multi agency and local knowledge(Bill)
	Water Quality Status	Stream Temperature		ODFW		Possible volunteers (Bill)
	Habitat	ESA Listed Species Locations		ODFW / USFW / BLM		
	Habitat	Existing Beaver Populations		ODFW		
	Habitat	Intrinsic Potential				
	Habitat	Forest Age		USFS / ODF / State Parks		
	Land Use	Vegetated cover		ODA	LSWCD SVA for recent Focus Areas (Big Elk Creek & Siletz Watershed)	siuslaw national forest (Bill)
	Land Use	Commercial				
	Land Use	Urban / UGB		Municipalities		
	Land Use	Forestry	Publicly Owned			
	Land Use	Forestry	Industrial			
	Land Use	Forestry	Small Woodland			
	Land Use	Agriculture	Cattle / Livestock	USDA		
	Land Use	Agriculture	Other - Hay, etc.	USDA		
	Land Use	Roads				
	Water Quality Status	303(d) Listed Waters		DEQ		
	Water Quality Status					
	Habitat	Fish Passage Barrier	Natural			
	Habitat	Fish Passage Barrier	Dam			
	Habitat	Fish Passage Barrier	Tide Gate			
	Habitat	Fish Passage Barrier	Culvert			
	Habitat	National Wetland Inventory		USFW		
	Water Rights	Priority				
	Water Rights	Use Type				
	Water Rights	Municipalities				
	Water Rights	Water Districts				
	Past Restoration Projects	Instream	Large Woody Debris Placement	Watershed Councils, ODFW, LSWCD, CTSI, USFW, NRCS		
	Past Restoration Projects	Instream	Floodplain Reconnection	Watershed Councils, ODFW, CTSI, USFW, Nature Conservancy		
	Past Restoration Projects	Instream	Culvert/Dam Removal	Watershed Councils, ODFW, LSWCD, CTSI, USFW, Nature Conservancy, ODOT		
	Past Restoration Projects	Riparian	Revegetation	Watershed Councils, ODFW, LSWCD, CTSI, USFW, Nature Conservancy, BLM		
	Past Restoration Projects	Riparian	Livestock Exclusion	NRCS, LSWCD		
	Past Restoration Projects	Riparian	Off Stream Stock Water	NRCS, LSWCD		
	Past Restoration Projects	Erosion Control	Bank Stabilization	Watershed Councils, ODFW, LSWCD, CTSI, USFW, Nature Conservancy, ODOT		
	Past Restoration Projects	Erosion Control	Runoff Control	NRCS, LSWCD		
	Past Restoration Projects	Nutrient Management	Manure Storage	NRCS, LSWCD		
	Water Quality Status	Eutrophic Event		Water Districts		

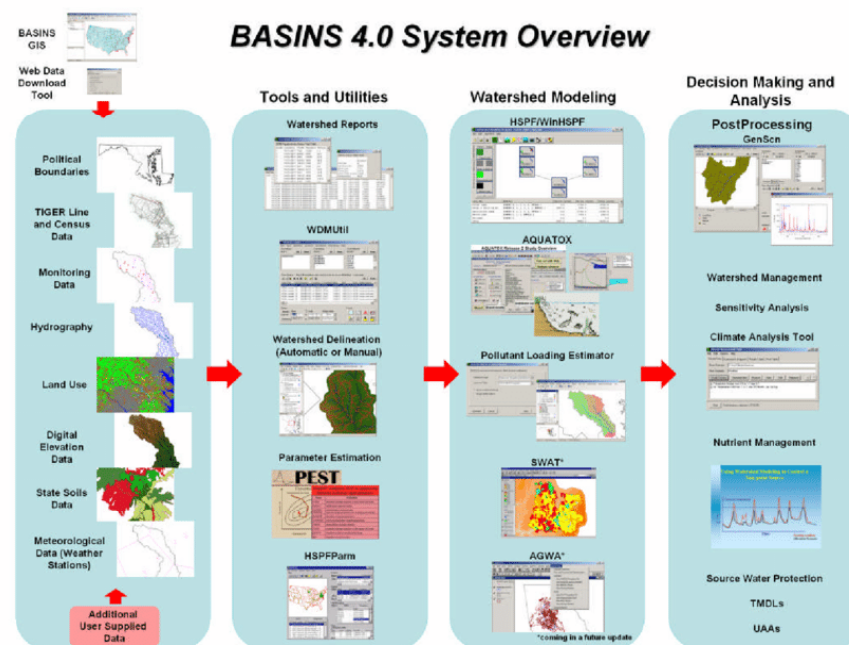
# In Stream Ecology Update – Final Products

- Final Products for Step 3 (June... September?)
  - 1. Multiple GIS products
  - 2. Watershed Scale Model- current conditions, future conditions, factors/components
    - Represent watershed(s) processes of interest (current conditions) and use to evaluate future scenarios including land use/land cover changes, water use (withdrawals), climate, species populations, etc.
    - Scenarios can even be positive ones: flow restoration, improved riparian condition, public/industrial conservation, changes in streamside vegetation, etc.
- We can identify current conditions for a number of these factors/elements and explain what is needed to produce informative product(s)
- Realistic goal to identify mapping and modeling products needed to address: ***Where can water resources be developed without harming biological values?***
- NOT realistic to conduct extensive GIS work by June, do not have modeling capabilities
- We CAN prepare descriptions of the necessary project(s)

# In Stream Ecology Update – Existing Models



EPA's VELMA model to assess combined effects of land cover/timber management (harvest rotations) and climate change impacts on hydrology, carbon storage



DEQ using HSPF watershed model coupled to a QUAL-2kw water quality (physical) model for TMDLs development in the Upper Yaquina and the Siletz watersheds



# In Stream Ecology Update – Existing Data & LAP

## □ MARCH 2019 PRESENTATIONS

- Oregon Water Resources Department: Presentation on In Stream Water Rights and Existing Allocation
  - GIS analysis capturing Seasonal Water Availability
  - OWRD Can provide maps and tables for water rights, lists of water rights in the midcoast basin, water availability information in the midcoast basin
- ODFW Kent Doughty, ODFW, Instream Flow Ecologist: Additional InStream Water Rights
  - ODFW is currently evaluating current needs and addressing climate changes to Quantify instream flow needs at a basin scale
  - ODFW can provide: *State of Instream Protection (Geographic Distribution): Are there instream protections where species need them? Evaluate the geographic overlap between current instream protection and the location of key fish species. Where is there a gap in need?*
  - ODFW can provide: *State of Instream Protection (Effectiveness): For places that have current instream protections, evaluate how effective are these protections (i.e., how often is there wet water)? For areas that ISWRs are not actualized, quantify the gap in need.*
- ODEQ can provide: Water quality – status & trends
- Need for developing watershed scale models for current hydrological processes, and integrating future changes in LULC, climate scenarios into planning and regulation - ALL, plus OSU-Extension, EPA, etc.