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## **BAKER RIVER PROJECT RELICENSE**

### **Wildlife and Terrestrial Resources Working Group Meeting**

December 5, 2000

8:45 a.m. - 1:45 p.m.  
(Bring Sack Lunch)

U.S. Forest Service Office  
21905 64th Avenue West  
Mountlake Terrace, WA 98043  
425-775-9702

### **AGENDA**

Review notes/revise agenda
Status report: Action items
Issues/Interests: from Stakeholder Caucus. Finish draft list of interests to go to the Baker Solution Team
Debrief Training
Clarify inundation issues: Carl Corey to give presentation on inundation from USFS perspective
Time Lines/Schedule: Field Season 2001, 2002, etc.
PSE proposed studies and budget (2001) discussion
Other issues?
Set agenda for next meeting
Evaluate meeting

Baker Project Relicensing Project Fact Sheet 10/3/2000

Area of Watershed	298 mi <sup>2</sup>
Range of Elevations	155 – 10,781 ft msld
Mean Basin Elevations	
Upper Baker Basin	3900 ft msld
Entire Watershed	3510 ft msld
Area Covered by Glaciers	13.1 mi <sup>2</sup>
Average Annual Precipitation	
@ Concrete	66 in/yr
@ Upper Baker	101 in/yr
Basin	134 in/yr (USGS estimate)
Average Annual Snowfall	
Upper Baker Basin	390 in/yr
Entire watershed	320 in/yr
Average Annual Runoff @ Concrete	2,657 cfs (121.49 in/yr, 1,925,000 ac-ft/yr)

	Upper Baker Reservoir	Lower Baker Reservoir
Reservoir		
Active Storage Volume, sfd	111,237 sfd (220,627 af)	71,777 sfd (142,362 af)
Total Storage Volume, sfd	285,000 ac-ft	217,640 ac-ft
Normal Full Pool, ft msld	724 ft	438.6 ft
Normal Minimum Pool, ft msld	674 ft	370 ft
Extreme Minimum Pool, ft msld	655 ft	355 ft
Surface Area at full pool, acres	4985 acres	2218 acres
Hydraulic Residence Time	53 days	27 days
Average Depth	57 ft	98 ft
Flood Control Pool	16,000 ac-ft 10/31, 720.7 ft 74,000 ac-ft 11/15-3/1 707.8 ft	None. Flood control is incidental.
Powerhouse		
Number of units	2	1*
Installed Capacity, MW	114	70
Hydraulic Capacity, maximum	5300 cfs (2 units)	4300 cfs
Hydraulic Capacity, efficient	4100 cfs (2 units)	3100 cfs
Hydraulic Capacity, minimum	1350 cfs (2 units)	1200 cfs.
Hydrology		
Spillway Capacity (full pool)	60,000 cfs	40,000 cfs
Basin Drainage Area	215 mi <sup>2</sup>	297 mi <sup>2</sup>
Annual Runoff	2100 cfs	2700 cfs
100-yr Flood	40,000 cfs	50,000 cfs
Maximum observed flow	36,000 cfs	45,000 cfs

## Hydrology 101 Outline

### I. Introduction

- a. Why is hydrology important?
- b. Physical Description of the Watershed(s)
- c. Why we do what we do
  - 1. Availability of water
  - 2. Market Conditions
    - a. Historic
    - b. Current
  - 3. Maintenance and Operational Constraints
    - a. Unit Outages
    - b. Flood Control

### II. Natural Hydrology

- a. Precipitation
  - 1. Forms
  - 2. Amounts
  - 3. Seasonal Patterns
- b. Storage in Glaciers and Snowpack
  - 1. Forms
  - 2. Amounts
  - 3. Seasonal Patterns
- c. Runoff
  - 1. Amounts
  - 2. Seasonal Patterns

### III. Effect of Reservoirs

- a. Physical Characteristics of the Reservoirs
- b. Historical and Current Operational Histories
  - 1. Upper Baker
  - 2. Lower Baker
  - 3. Comparison with Unregulated flows
- c. Operational Consequences
  - 1. Boating Access to Reservoirs
  - 2. Fluctuating Water Levels
  - 3. Alteration of Downstream Flows
  - 4. Other

### IV. Conclusions

# **CONTINUING IMPACTS ANALYSIS**

## **IN**

### **HYDROPOWER RELICENSING**

#### **FOR**

##### **INUNDATED AREAS**

V10.16.2000 Region 6

### **Purpose**

This paper describes the policy and procedures of the USDA Forest Service, Region 6 (FS) for evaluating continuing impacts to National Forest System Lands (NFSL) and resources due to inundation by hydroelectric project reservoirs.

The intent of the FS is to mitigate for the continued impacts caused by a project and its operations over the term of a new license. The rigorous analysis necessary for the development of mitigation measures needs to relate continuing project effects to NFSL resources in relation to land management direction. It is not the intent of the FS to mitigate for past project impacts.

### **Introduction**

Forest Service objectives in hydropower licensing are to ensure that planning, operations and modifications of hydroelectric projects are consistent with management direction in applicable Forest Plans and to assure that the licensee assumes responsibility for project-induced effects.

Under Section 4(e) of the Federal Power Act (FPA), licenses issued by the Federal Energy Regulatory Commission (Commission) for hydropower projects on NFS lands shall be subject to and contain such conditions, as the Secretary of Agriculture shall deem necessary for the adequate protection and utilization of such reservations.

To determine whether a project is meeting Forest Plan direction, the FS must: 1) evaluate the condition of a particular resource in terms of Forest Plan direction, 2) determine if the project is having a negative, neutral or positive effect in relation to that direction; and, 3) if the project is preventing attainment of direction, identify measures necessary to mitigate the adverse effect. This analysis requires adequate evidence to support a FPA §4(e) term and condition. A vital part of the analysis, therefore, is to solidly establish the linkage between the resources affected, continued project operations, and the relationship with Forest Plan direction. To accomplish the above evaluation of continuing project effects on NFS resources and programs in relation to Forest Plan direction, the establishment of the trend of specific resources is often needed.

Thus, the FS needs to gain an understanding of the resource values that would emerge without the project in place (such as if the project were to be removed) and the relationship of these resources to present day resource condition and trend (within the limits of the site potential) to evaluate the full extent that the continuing impacts of inundation will have over the term of the new license. Pre-project conditions, or reference conditions, is often helpful to identify the site potential for some resources, but do not necessarily constitute the impacts that would be expected to continue out into the future.

## Relevant Court Case

The Ninth Circuit U.S. Court of Appeals decision on August 11, 1999, in *American Rivers et al. v. FERC* (#98-70079, 187F3d. 1007, 9<sup>th</sup> Cir. 1999), affirmed the Commission's interpretation of its responsibilities under the FPA and NEPA as reasonable, and that an attempt to recreate pre-project conditions was unnecessary under applicable law (NEPA and FPA). However, the Court also stated "Moreover, we agree with the Commission that the adoption of an existing project baseline" [for the Commission's environmental analysis] "does not preclude consideration and inclusion of conditions in a license that enhance fish and wildlife resources to reduce negative impacts attributable to a project since its construction. See Order on Reh'g, 81 Fed. Energy Reg. Comm'n Rep. (CCH) at 62,327. Past environmental impacts are relevant in determining what measures are appropriate to protect, mitigate and enhance natural resources..."

This decision supports the collection of pre-project, historical or reference condition data to develop a resource trend and assess that trend in relation to current management direction. When assessing hydropower project impacts on NFSL resources and requesting information regarding conditions that either existed prior to the project or that might develop without the project, it is important to articulate that the information is needed to assess continuing impacts to NFSL resources not to establish mitigation for past impacts.

## Resources Affected by Inundation

The first step in analyzing continuing impacts due to inundation is to identify which specific NFSL resources are being affected. National Forest System resources that have been inundated by hydropower project reservoirs include but are not limited to wetlands and associated riparian habitats, riverine habitat, upland and unique habitats (forest seral stages, big game winter range, sensitive or listed species habitat, etc), heritage/cultural sites, and recreation opportunities (e.g. white-water boating). Describe in as much detail as possible how the particular resource *would be impacted by continued inundation*.

## Relationship to Management Direction

Resources impacted by inundation then need to be linked to FS management direction to establish the significance of the impacts. The fact that a particular resource will continue to be impacted by inundation does not in and of itself result in the need to mitigate for the impacts unless it reduces our ability to meet our management direction. Through the use of the Existing Information Analysis (EIA), each specific resource that has been affected by project reservoir inundation should be evaluated to determine the relationship of those impacts to our management direction. Considering the resource impact in the context of our management direction is the key step in understanding the significance of the impacts to any particular resource. While the continued loss of habitat for a species listed under the Endangered Species Act may be an obvious link to our management direction, the tie for many other resources may not be so clear. There needs to be clear linkage between the resource, how the project will continue to affect that resource and a determination of whether continued project operations are in conflict with management direction.

## Evaluate How the Resources would be Affected over the period of the New License

Continuing with the analysis embedded in the EIA process, the next step is to evaluate in detail how the continued project operation and inundation affects a specific resource and whether the project would be in compliance with our management direction over the life of the new license. To conduct this evaluation, there is often the need to obtain information about what conditions were present prior to project construction with respect to that particular resource. Pre-project conditions, or reference conditions, should be used to both identify the significance of the impacts to the resource and to help evaluate the original site

potential of the area with regards to that resource. This information can also be used in determining the trend for that resource from inception of the project to the present. Given the time period when most of hydroelectric projects on NFSL were constructed, information for pre-project conditions on the inundated areas may be difficult to obtain. However, useful information may often be obtained by use of aerial photos, land surveys, historic stream/fish surveys, etc. to provide vegetative structure, diversity and composition, and species presence and relative abundance. Each project site and the associated geographic area are unique in available historic information.

The next step in the evaluation process is to assess the potential for that resource that could be restored if the reservoir were removed. This development of a “without project” condition should be used to: 1) determine what NFS resources emerge without continued inundation 2) assess the values of these resources in relation to applicable management direction, 3) evaluate the significance of the continued inundation of these resources over the period of the new license, and 4) if necessary, provide §4(e) conditions to mitigate the adverse impact. The use of “without project” information related to the particular resource establishes the primary distinction between expecting mitigation for past impacts and expecting mitigation for the continued impacts of the inundation. This analysis technique is intended to recognize the limitations that may be present for restoring the resource by taking into account the potential of the site. Using “without project” information to develop the site potential sets the context for a specific resource trend, and thus establishes the significance and evidence to display the project effects on NFS resources.

In summary, the overall analysis needs to provide evidence and rationale to show what effect the inundation is having on a resource; if the inundation interferes with the attainment of applicable management direction; and if so, what is the appropriate mitigation to come into compliance with that direction. “Without project” information provides, in most cases, the critical link in developing site potential and its relationship to resource condition and trend and appropriate mitigation for continued inundation of NFS resources.

## **Developing Mitigation**

The final step in this evaluation process is to develop appropriate mitigation for the continuing resource impacts that is commensurate with inundation impacts to the resource. Define the potential benefits to the specific resource that could be achieved between the period of hypothetical project removal (“without project”) and the expected term of the new license. The improvement in current conditions needs to be tempered within the limitations of site potential to define the resource potential and appropriate mitigation. The mitigation is the equivalent of what could be achieved for a resource over the term of the new license in the absence of the inundation caused by the project.

As an example, we could not expect to obtain late-successional conifer forest within a 50-year license. However, we could expect the re-establishment of a functioning riparian zone along rivers and streams. Most projects have a high likelihood of being issued a new license. Therefore, the FS needs to understand that the resource conditions that could be expected to be achieved with reservoir removal is useful in understanding what mitigation is appropriate as opposed to identifying the desired condition for the reservoir. For each specific resource that we have determined to be negatively affected by continued project reservoir inundation, and which reduces our ability to meet current management direction, we should be able to define a measurable §4(e) term and condition.

## **Examples of Resource Impacts Caused by Inundation and Possible Mitigation Measures**

Example 1 - A project reservoir has inundated wetland habitats that are needed for one or more sensitive terrestrial and aquatic species. Evaluation shows that this loss (and the estimated continued loss) of these habitats, when looked at in the landscape/population context, may contribute towards the potential listing of the species. As the wetlands could be expected to be restorable within a 50-year license term, the licensee would be required to acquire and manage wetland habitat suitable for that species. If the acquired habitat is not of similar quality or has less value to the resource that is being mitigated, restoration actions or

additional acreage (e.g. 3 for 1 ratio) to what was inundated should be considered. Another possible mitigation is to require the reduction of the reservoir level to expose the inundated wetland habitat.

Example 2 - A project has inundated areas that provided late-successional conifer habitat for associated species. While late-successional habitat is in relatively short supply in the watershed (due to a variety of factors), the surrounding land allocation is matrix/general forest, indicating that restoration of late-successional habitat in the area is not required for the conservation of late-successional species. Appropriate mitigation may include that the licensee would be required to replace conifer habitat similar (in species composition, type) to that which is inundated - but late-successional habitat would not be expected to develop within 50 years, so there would not be a requirement to replace the habitat at this successional stage. This also includes the assumption that if the project was not built that we would have completed some management activities in the area as well, resulting in the stands not being late-successional now.

Example 3 - A project has inundated low-gradient stream habitat that provided excellent spawning and rearing areas for a listed fish species. Evaluation shows that this habitat is in short supply within the basin and may be essential for the recovery of the species. Appropriate mitigation could be to require acquisition and management of similar low-gradient habitat to provide for the listed species. Other alternatives may be to restore the habitat in-place, such as by requiring return to historic flow regimes by modifying the project operations.

Example 4 - Significant acreage of big game winter range was inundated by project reservoirs. In general, big game populations are meeting population objectives (developed in coordination with the State agency) identified in the management plan. Since the habitat is not needed to meet management objectives, it would be difficult to require mitigation for this habitat as winter range. However, this area may also be a limiting factor for other species of concern, such as those associated with shrub-steppe, and a good case might be made that mitigation for that habitat (which could be restored within the next license term) is required through acquisition and management.

Example 5 - A project inundated half of the river miles within a scenic canyon. Of the six unique and significant rapids on the river, three were inundated. The demand for whitewater recreation continues to increase and the free-flowing stretch of the river is very crowded. Appropriate mitigation may be to require the licensee to contribute an appropriate share (e.g. 50% if the rapids were equal in value) for the management of the remaining white-water resource.

Example 6 - The reservoir inundated several heritage sites, including one unique site that may have been eligible for the National Register. Reservoir fluctuations due to project operations result in the site becoming accessible during the winter months and pothunters are collecting artifacts. Appropriate mitigation would be to require the licensee to protect the site (e.g. law enforcement, fencing, or data recovery), and potentially an information and education or interpretive program for the area.

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## BAKER RIVER PROJECT RELICENSE

### Wildlife and Terrestrial Resources Working Group

December 5, 2000

8:45 am – 1:45 pm

US Forest Service Office  
Mountlake Terrace, WA

### MEETING NOTES

**Mission:** *“To develop alternative solutions and recommendations, addressing terrestrial and wildlife resource interests for the Baker River Project and its operations, leading to a settlement agreement that:*

- 1. accurately defines and describes the existing environment in relationship to the previous environment;*
- 2. identifies project effects (existing and proposed) leading to development of protection, mitigation, and enhancement options.”*

**Team Leader:** Tony Fuchs (Phone) 425-462-3553 (E-mail) tfuchs@puget.com

### ATTENDEES

Tony Fuchs (Puget Sound Energy), Bob Kuntz (National Park Service), Patrick Goldsworthy (North Cascades Conservation Council), Stan Walsh (Skagit Systems Cooperative), Lauri Vigue (WA Dept. of Fish & Wildlife), Carl Corey (Forest Service), Don Gay (U.S. Forest Service), Bob Nelson (Rocky Mountain Elk Foundation), Marty Vaughn (Biota Pacific), Lloyd Pernela, (PSE), Cary Feldmann (PSE), Lyn Wiltse, facilitator (PDSA Consulting)

The meeting started at 8:45 a.m. and ended at 1:45 p.m.

### AGENDA

December 5, 2000, 8:45 a.m. -1:45 p.m. at Mountlake Terrace Forest Service Office

Bring sack lunch, as we will work through lunch

1. Review notes/agenda



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2. Status report: Action items
  3. Debrief training “Make-up” training January 12th
  4. Carl’s presentation
  5. Interests and Issues from caucus
  6. Other Issues:
    - Clarify inundation issue/conceptual mitigation approach
    - Other?
  7. Time Lines/Schedule: Field season 2001, 2002, etc.
  8. PSE proposed studies and budget discussion
  9. Set agenda for next meeting, January 16<sup>th</sup>.
  10. Evaluate meeting

### **NEW ACTION ITEMS**

- ALL: Send list of interests specific to your agency or organization to Tony by December 8<sup>th</sup> (or to your Solution Team representative and Tony prior to the Solution Team Meeting on December 13<sup>th</sup>).
- Tony: Follow up with other members not in attendance to get their agency/organization list of interests by December 8<sup>th</sup>. (Lauri Vigue to contact Fred Seavey)
- Don: Get a phone number for conference call capabilities
- Don: Reserve meeting room at FSHQ in Mountlake Terrace for January and March
- Lauri: Locate meeting location in Olympia for February 20th meeting. (Team Leader Note: Lauri contacted Fred and he reserved a room at the USFWS in Lacey, Room 261, we believe).
- Tony: Follow up with Ed re: WUTC
- ALL: Review Carl’s handout on continuing impacts analysis in hydropower relicensing for inundated areas and be prepared to comment at Jan. 16 meeting.
- ALL: By Jan. 10, send to Tony your organization’s list of species, habitats, and processes you feel need to be studied.
- ALL: Review draft list of “Terrestrial Data for the Baker Project,” which is existing information available for the Basin. The list should include Project Documents, studies, “management direction/plans/standards” from agencies that need to be met, and other agency or organization documents and pertinent information. Send additions and/or edits to the list to Tony by January 10.
- Stan and Marty: Exchange models of study criteria in preparation for our next meeting.

### **OLD ACTION ITEMS**

- Ed Schild to invite WUTC to give “process” presentation to working groups and possibly join Economics Working Group.

### **REPORT ON OLD ACTION ITEMS**

- PSE received permission to make copies of the article “Collaborative Process”, and passed out copies to each member of this working group.

### **HYDRO AND FLOOD CONTROL PRESENTATIONS**

Tony distributed an outline of Bob Barnes’ “Hydro 101” presentation. Terrestrial Working Group Team members are invited to attend the next two meetings of the Recreation Working Group. Bob Barnes will

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give his Hydro 101 presentation to the Recreation Working Group at the PSE Mt. Vernon office on December 18<sup>th</sup> at 10:00 a.m.

Wayne Wagner will be presenting the Army Corp of Engineer's perspective at the January 22<sup>nd</sup> Recreation Group meeting at the PSE Office in Mt. Vernon.

## **DEBRIEF OF RESOLVE TRAINING**

### **Well Done**

- Gave us some understanding of how various people think
- Glad it was only one session
- Well run
- Good pace
- Kept our interest
- Showed true benefits of collaboration

### **Need to Improve**

- Interests and issues section could have been better
- Thought we'd come out with a better understanding of interests
- Felt rushed---lots of stuff was skipped
- Large group impeded the process

All participants (especially Solution Team members), who have yet to take the Resolve training are encouraged to attend the make-up session on Friday, January 12<sup>th</sup> from 9:00 a.m. to 3:00 p.m., at the Forest Service Headquarters in Mountlake Terrace. They should sign up with Tony to attend.

## **USFS PERSPECTIVE ON INUNDATION ISSUES (BY CARL COREY)**

Carl Corey presented an overview of the process the Forest Service uses to understand project effects and (later) determine enhancement/mitigation requirements:

1. Determine the resources impacted.
2. Fully evaluate effects on the resource by the project (plus and minus). This may require studies of reference conditions and existing conditions.
3. Then look at management direction (ESA, NW Forest Plan, Clean Water Act, etc.) Then look at the significance of effects by performing analysis. This analysis takes into consideration both landscape and population levels. What impacts are preventing us from meeting our management direction?
4. Develop mitigation (last step)

When the Forest Service asks for pre-project conditions, they want to stay away from using that to determine actual mitigation, but to help in assessing the impacts. They are looking to compare the potential habitat available "without the Project" (what habitats would develop over the next 30-50 years, over the next license term) with what the present day existing conditions and operations are. They are not necessarily looking to re-create pre-project conditions. They will be looking at continuing impacts (if the dam/project were removed, what could you get in 30-50 years?).

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A question was raised re: offsite mitigation. Carl responded that the FS wouldn't necessarily be looking for old growth for old growth's sake. However, they might be looking at old growth for the spotted owl's sake. Also, mitigation wouldn't necessarily be an acre for acre deal.

## **CAUCUS REPORT**

Non-PSE stakeholders met on November 21, to continue work on their interest statements. Not all stakeholders attended the meeting. Lauri Vigue passed out a handout entitled: Draft Baker Wildlife Agency Interests. Lauri will work with Fred Seavey and others to finalize this agency and NGO developed overall interest list. This caucus-developed list will become part of a Master List that the working group will consider when formulating options for solutions to submit to the Solutions Team. The list has been emailed around to non-PSE stakeholders for comment. PSE is compiling agency/NGO specific lists of interests to share with Solution Team members. Solution Team members will share the interests of their organization at the next Solution Team Meeting on December 13<sup>th</sup>. Tony asked that the representative from each organization who sits on this working group email/snail mail him the specific interests for their organization by the end of the week (December 8<sup>th</sup>).

## **OTHER ISSUES**

We need to consider **Land Management**---What external Land Management Activities may impact PSE contribution to PM&E opportunities? Include examples, such as:

Other project activities (Roads, fragmentation)

Timber harvest (State and private)

Projected population growth and land use patterns in the next 30-50 years

Land management issues are dealt with in both the Terrestrial and Recreation working groups.

## **TIMELINE/SCHEDULE**

PSE is continuing to work on defining the timeline for the relicensing process. They are reviewing the timing of the scoping meetings in order to maximize available time for studies. In 2001, PSE will put out its IIP (Initial Information Package) and NOI (Notice of intent), and the request to conduct the Alternative Licensing Procedures could be submitted to FERC soon after the IIP and NOI. The revised timeline will be presented at the next Solution Team meeting on December 13<sup>th</sup>

## **PSE STUDIES UPDATE**

PSE submitted to their budget process studies that they thought stakeholders would agree need to be done in 2001, and that would fulfill PSE's NEPA responsibilities.

Tony gave the following list of basic studies for 2001:

- GIS data base development for the project area
- Vegetation Type mapping from aerial photos
- Detailed ground truthing of the vegetation coverage
- Noxious weed and rare plant surveys
- Wildlife use of the project area
- Ongoing monthly bird surveys
- Aerial nest production survey

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## LIST OF TERRESTRIAL DATA FOR THE BAKER PROJECT

Tony read off what is on the draft list of data available on the Baker Basin and Baker Project to the team. The list needs to be updated so that all team members have knowledge of and access to as much information as possible to support the team's work (an action item for each participant to review and add to this list is presented in the **New Action Items** section above).

### PARKING LOT

- Will PSE compensate key players to attend these meetings?
- Length of period of license (30 years? 50 years?)
- Review time frame/goals of working groups/milestones
- Definitions of "project boundary", "project effects", "previous environment"
- How do we handle "latecomers" to this process?
- Land Management
- Conceptual Mitigation Approach
- Consider multiple meeting locations

### POTENTIAL STUDIES

- Baseline study re: present conditions and future trends of harvestable plant species

### MEETING PROCESS REVIEW

#### Well-Dones:

- Carl's presentation
- Got a lot done
- Welcome to Bob Nelson!

#### Need for Improvement:

- Need more coffee
- Need more heat

### TENTATIVE AGENDA FOR NEXT MEETING

January 16, 2001, 8:45 a.m. -1:45 p.m. at Mountlake Terrace Forest Service Office

Bring a sack lunch and we'll work through!

1. Review notes/agenda
2. Status report: Action items
3. Comments on Carl's handout
4. Review proposed study screen/guidelines
5. Review PSE's initial list of proposed studies for 2001
6. Run through master (combined) list of species, habitats, processes through the screen
7. Set next agenda (2/20) **Note:** This meeting will be in Olympia, 8:45 a.m. -1:45 p.m.
8. Evaluate meeting

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## **OTHER SUGGESTIONS FOR FUTURE MEETING**

- Studies Criteria
- Process/policy presentation of how to approach impacts due to inundation
- Use of Consultants
- WUTC to give “process” presentation