Columbia River Basin Lamprey Technical Workgroup

Columbia Basin Fish and Wildlife Authority
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fws.gov/columbiariver/lamprey.htm

May 3, 2011
Meeting Notes

Workgroup members present or on the phone: Chris Peery (FWS), Dave Statler (Nez Perce), Jody Brostrom (USFWS), Molly Hallock (WDFW), Brian McIlraith (CRITFC), Bao Le (Longview Associates), Christina Luzier (USFWS), Matt Mesa (USGS), Mary Moser (NOAA-Fisheries), Josh Murauskas (Chelan County PUD), Dave Roberts (BPA), Debbie Docherty (BPA), Sue Camp (BOR-ID), Dave Ward (CBFWA), Jen Graham (CTWS), David Clugston (USACE), Mike Clement (Grant PUD), Kathryn Kostow (ODFW), Bianca Streif (USFWS), Beau Patterson (Douglas County PUD), Lawrence Schwabe (Grand Ronde), Nancy Leonard (NPCC), Lynn Palensky (NPCC), Mark Fritsch (NPCC).

1. Passage Metrics

Phase 1 was laundry list of possible passage metrics. Phase 2 was an analysis of what metrics were possible to measure. Phase 3 is starting to put together how to measure the metrics delineated in Phase 2. Josh Murauskas and subgroup has put together a table with engineering details about each project. Another table contains a list of the tributaries in each project's area. USFWS can help by filling in presence of PCL in these tributaries. Counts and trends were put together from DART from the Corps. Matt asked if FPC data was the same. A large amount of supporting information has been put together for each of the Mid-Columbia projects and the federal hydro project background will be done next. Dave Clugston said that the Corps background information is complete through 2008 and can be added. Bianca brought up tributary passage issues and wondered if those should be added to this. Consensus is that it should be. Dave Statler brought up that specific passage info/results for each project should be included in a tabular format. Mary suggested a table including "this has been done at this project and it was done this way and this was done differently at this project or not at all". It would clarify what has been done each year and what the info is year to year to be compared. Next steps are to get the rest of the information pieces plugged in and then go line by line and figure out what is needed to figure out each metric. Matt Mesa asked if the Willamette/Falls should be included. Subgroup will fill in last bits of information including Corps data and then in the next couple months will send it to the larger workgroup for review and

filling in holes. Then the current subgroup will then start to make recommendations on passage metrics or ways to collect the required information to get at the metrics. Tributary and harvest and straying is factored in a conversion factor. Maybe we should check into the salmon approach in the biological opinions and their derivation.

2. BPA inclusion of Lamprey BMP Guidelines – Appendix 1

Inclusion of BMPs will be required in fish and wildlife contracts starting October 1, 2011. BPA transmission will be doing what they can to implement BMPs in culvert replacements. Debbie gave a synopsis of what has been done since the last meeting. A small subgroup met and went over how to include the BMPs in Pisces (BPA's contract reporting program). Debbie gave a handout on what the process is. **See appendix 1**. Ground disturbing or in-stream work being done in a contract will trigger a new milestone asking them to answer whether or not they are affecting lamprey populations. First question is whether lampreys are present. Because of the lack of lamprey distribution data the guidelines they used were streams where anadromous fish are present. Researchers are to report to the FWS when lampreys are observed. Bianca will send the reporting form that she has used and we will post it on . Dave Statler asked if info on electrofishing impact was included in the BMPs. There is a little bit of information in the BMP. Dave will send some comments and recommendations on improving that section to Jody or Christina. Information on how salmon shockers affect ammocoetes needs to be collected.

3. Translocation Paper – next steps

Translocation paper subgroup has finished the paper. Workgroup approved it and Anadromous Fish Committee and Members Advisory Group reviewed it and also approved it. There was a little bit of concern by the MAG so Dave gave them a little more time to review it and he incorporated their comments. It is now ready to be distributed to anyone. Dave will be putting it into manuscript form for submission to a journal in the near future. Fisheries magazine will be a good outlet for it. Maybe by the end of the summer he will have it in a manuscript format and by the next workgroup meeting it will be ready to be shipped off. It will go through a review process between now and then by the translocation subgroup and then the whole group. It will be difficult to trim down to not replicate what is already out there in the literature.

Other ideas for "techniques" papers. The idea was that translocation review paper would be one of a few papers in a volume. Is there something that we want to tackle now? Bianca suggested passage criteria to give to engineers. Mary referenced her and Matt's paper and other sources that could be put together. Mary said she gets calls all the time as does Chris Peery regarding this

issue. Mary suggested having a guidance document to answer the questions that are being posed to them. The goal is that people could use this guidance document for all sorts of purposes. This would only be for adult lamprey. Dave asked about juveniles. The group thought that juveniles should be a separate paper. The screening information will be out in about a year.

Dave brought up artificial propagation as another possible topic for another paper. Chelan PUD is coming out with a document that deals with some techniques, facilities needs, etc. Brian McIlraith said that there will be proceedings from the international lamprey symposium which dealt with artificial propagation.

The group thought that the passage criteria would be a good next paper. The artificial propagation paper is probably a couple years off. Mary suggests that this should be very black and white. Josh asked how this relates to the passage performance metrics phase 3. Mary suggested that eventually they would be linked. Subgroup of people to work on this include Sean Tackley, Mary Moser, Chris Peery, Bianca Streif, Matt Mesa. Bianca will set up conference call and they will have a plan outline for the next meeting in the fall. The paper should Include windows of lamprey activity for engineering purposes.

4. NPCC Programmatic Review for Lamprey – Appendices 2 & 3

Lynn Palensky and Mark Fritsch visited from the NPCC to discuss the lamprey programmatic review. They are going through a review on lamprey RM&E projects. They are doing very species specific reviews which has not been done before. Lynn referenced the table in the handout listing the projects funded by Bonneville (see Appendix 3). ISRP completed a review at the end of December. Staff recommendations have been being put together since then using the ISRP comments and questions/answers from the sponsors. The council would like help from the workgroup on writing a synthesis report. Dave Ward, Christina and Brian will be doing the heavy lifting on putting together the report and will ask the workgroup to review and fill in any holes and the most current data. The timeline for this synthesis is the end of 2011. These are Accord projects that will be funded through 2017. Mark reinforced that this will be a good way to direct future project funding and efficiencies. Good opportunity to engage the council and ISAB and ISRP. Dave asked if we could meet with the ISAB and ISRP to inform them about the level of coordination of lamprey work so they are aware of what we do and where they can find information. The group decided that we should invite ISRP to the fall meeting so they are aware.

5. Numerical limits for study fish

Beau Patterson talked about putting in half duplex tags and detection arrays at Wells Dam and he is worried about having enough fish for study purposes. Are

the current limits (2% for research and 1% per tribe for translocation) over conservative? They are less than what are used for listed fish. Matt asked if there were already full duplex system in place. Dave Clugston said they were asked not to use full duplex tags because of the worry that lamprey will sit on the readers. Mary said that they have data that lamprey will sit on a reader for minutes versus seconds for salmon. There is technology that can read both types of tags.

Is there a need for a mid-season change to the limit? Dave Clugston says that tribes have worked hard to come up with the numbers but we don't know if there is a potential problem with it, there is a lot we don't know. Can the workgroup help come up with a better number? Matt Mesa - tagging effects should be taken into consideration when deciding this. Mary Moser – currently behavioral studies are considered to have the same effect and shouldn't. There needs to be differences incorporated into the fish limit. The guideline does not take into consideration where the fish are collected from. 2% from Bonneville is a lot different from 2% from McNary. There is a fair bit of data that handling is really not that damaging. The permitting process helps with monitoring this. Molly said she could put together a report on what is happening to handled fish – outright killing, tagging, mortalities, etc. Appendix 4 is a spreadsheet with WDFW approved take of Pacific lamprey in the Columbia River Basin for 2011. How important are the questions that are being asked and how much homework has been done so that too many animals aren't being used. Brian says that the tribes are working together to get enough fish and complete their objectives. Estimates are revisited throughout the season for modification to the limits. How often are the estimates revisited? Adding the run estimator to the report would be a good idea. All of the take information should be included. 2% is just the number that has been used in the past. There really isn't a mechanism for revising this number. It is up to the permitters to use that number.

Should the workgroup put together research on take, mortality, etc. as pass them as a recommendation to the permitters? Matt Mesa – don't forget to include lab work where fish have been held for a while. Mary Moser– there are some temperature restrictions that if they are reached handling cannot take place. The research on temperature should be included and perhaps revised because the high temps may be all that the upriver people see. Chris Caudill would be a good person to put together this information per Mary. Brian McIlraith, Sean Tackley, Derek Fryer, and Beau Patterson will work on this.

6. USFWS Conservation Initiative and CRITFC Tribal Restoration Plan Update

USFWS is working on incorporating the many comments that they received on the draft assessment document. They are also working with the steering committee to develop a conservation agreement. After completion of the assessment and in conjunction with the conservation agreement they will start

working on the regional implementation plans. Regional meeting participants and other interested parties, such as states, will get together to develop these.

CRITFC is working on finalizing the Tribal Restoration plan. The plan may go through the commission in the middle of May. Bob Heinith can't retire until the plan is done ☺

7. Critical Uncertainties Revision

Dave Ward and Matt Mesa put together a narrative to go with the tables that have been worked on at our last meeting and in between last fall and now. Matt has suggested that we send the narrative and table out for review to the group. Comments will be sent to Dave and Matt for incorporation. The formatting of the table needs to be refined. The group revisited including the activity type and decided that was an important thing to keep. Comments should include formatting, consistency of how to phrase sub-problems, rewording sub-problems (those people who have expertise should step up and take over those areas).

What about the title? Should it be changed to really reflect what the purpose of the document is? Dave Statler had the following suggestions: Follow-up on addressing Critical Uncertainties and Path Forward on Conservation; Restoration, Research and Monitoring Framework for Pacific Lamprey based on Current Knowledge of Critical Uncertainaties.

At the fall meeting we decided to write a progress report on the original critical uncertainties. It was suggested at this meeting that maybe we should write the progress report first before we decide what the path forward is on the new "critical uncertainties". Dave Ward suggested that maybe the monitoring document and other compilation tasks we have been discussing can be used to make the progress report easier to complete. The progress report should include what has been done and what have we learned (i.e., a paragraph each per dam for the passage section). Then we should work on the new critical uncertainties document renamed above. Dave and Christina will work on putting together progress report. The deadline will be the end of 2011. We will still send out the revised critical uncertainties anyway for review. OWEB query might work to find out actions that have been completed (ask Bianca).

8. Research Updates and New Business

1. Symposium every other year? Should we use the Seattle AFS meeting as the symposium? The lamprey session is on Wednesday all day. Should we schedule a lunch time to have an informal session to share information? Wondering if there is too much activity. Maybe we invite

ISRP to our fall meeting and have talks from the workgroup and other people with Corps and/or Bonneville funded projects. Also invite some of the talks that didn't get into the AFS. AFEP is the last week of November so perhaps we can coordinate our meeting with it. Ask Sean Tackley about date. Meeting will be in Walla Walla.

2. Mary Moser– distribution of lamprey in Puget Sound to get presence absence. 15 tributaries sampled and found. 5 more sites to be looked at. Southern Puget Sound tributaries have Pacific lamprey. Lots of River lamprey have been found.
3. Dave Clugston - White Salmon – huge information potential with Condit Dam going out. Pheromone and recolonization study potential great.
4. Dredging subgroup report – Kathryn went on a dredging trip near Astoria. She said conditions were horrifying for lamprey. Huge buckets of sediment grabbed and dumped on a barge and other instances where the spoils were dumped in the ocean. Suction dredging impacts near marinas - very little permitting. Bianca suggested summarizing what had been found. Matt Mesa - Should there be a subsampling protocol developed?
5. Smolt monitoring program – lamprey are being included in the SMP starting this year. The USFWS conducted an identification workshop with them. Also condition monitoring will be done at John Day as a pilot this year.
6. Willamette habitat is being mapped with Forest Service.
7. Seattle AFS – Mary and Bianca.
8. Next meeting – last week of November in Walla Walla coordinated with AFEP review.
9. Sue Camp – working with Yakama and Umatillas to start surveying canals after shutdown for irrigation – they did the first one above and below the screens in the canal and all area between headworks and screens and all the way down to the reservoir. Only found one ammocoete above the screen. Will be doing similar effort in fall.
10. Jen Graham sent the following research update from the Warm Springs.

    Just wanted to give people a general idea of what Warm Springs has planned for 2011. We have projects in the Deschutes, Fifteenmile Creek, Hood River, and Willamette.

    Deschutes:
    We will continue on-going work such as escapement estimates and water temperatures monitoring (mainstem Deschutes and tributaries). New work includes installation of half duplex antennas in the Warm Springs River and Shitike Creek to monitor tributary entrance timing. Ultimately we'd like to be able to use the arrays to determine tributary escapement. Entrance timing will be used to determine temporal distribution as well as assist staff in determining when to look for lamprey redds. In 2010, we attempted to cap lamprey redds but had difficulty identifying them (possibly because they are spawning in steelhead redds?). So in 2011, we are going to

attempt again in hopes of being able to correlate emergence timing with multiple variables (e.g., DO, temp) and estimate the number of emergents.

Fifteenmile:
This is the second year of the project and will focus on: escapement estimates (developing techniques), monitoring entrance timing and numbers of HDX tagged fish from ACOE funded projects entering Fifteenmile, larval distribution surveys, redd surveys, and working with Oregon Water Resources and Fifteenmile Watershed Council to identify potential habitat-based bottlenecks to the population. In the future we hope to use the established HDX array to determine if fish falling back from The Dalles Dam are using Fifteenmile for spawning or potentially as refuge prior to attempting to ascend the dam again. In cooperation with OWR and Fifteenmile Watershed Council, we are working with landowners to install flow meters on all major irrigation diversion to determine if irrigators are staying within their allocations. We also will be installing a gaging station. There is also a fairly extensive water temperature monitoring program in Fifteenmile so we are working with variety of agencies to collect this data. All information collected through flow meters, the gaging station and water temperature monitoring will be correlated with lamprey life history and relative abundance to potentially identify habitat improvements and opportunities to restore cfs to the stream. We will also be investing in dual HDX-FDX monitoring sites with ODFW. After working out the bugs in the HDX-FDX arrays, we will start establishing arrays in tributaries to Fifteenmile to estimate tributary escapement.

Hood River:
This project is very much in its infancy but our ultimate goal would be determine if lamprey are naturally recolonizing The Hood Basin. We have installed thermographs and will be working with other agencies to identify potential locations (based on water temperatures) for natural recolonization and/or assessing if active restoration is appropriate. Prior to the removal of Powerdale Dam we did larval distribution surveys to establish a baseline. No lamprey were found upstream of Powerdale; however, they were collected up to the base of the dam. This fall we will redo the surveys conducted in fall 2009 and determine if lamprey distribution has changed.

Willamette Falls:
We are working to establish protocols to determine lamprey escapement upstream of Willamette Falls. This project uses a combination of HDX mark-recapture and video cameras within the fish ladder and two lamprey ramps along the falls. This will be the second year of the project. The first year was a challenge with all the new technology. We will also monitor lamprey harvest at two locations downstream of Willamette Falls. We

anticipate having protocols finalized this year for the MRC and camera portion of the project. We will also be developing protocols to assess what proportion of fish return to the falls after being moved downstream after tagging. Previous RT work suggests a fair amount did not return after being tagged (tagging effects?).

We are also actively involved in determining if lamprey can be re-established upstream of the Pelton-Round Butte Complex (rkm 161) in the Deschutes River since fish passage has been re-established.

If we can find the time, we will also be summarizing the results of the all work done in the Deschutes to date including: species ID, habitat models (larval and adult), immigrant and emigrant timing, escapement estimates at Sherars Falls, electrofisher efficiency model, theoretical larval abundance carrying capacity model, spawning and over-wintering locations, water temperature monitoring, and more.

If anyone has questions or is interested in getting some field time on one of these projects, let me know!

Appendix 1 – BPA and Best Management Practices

Inclusion of USFWS Best Management Practices to Minimize Adverse Effects To Pacific Lamprey (Entosphenus tridentatus), April 2010 in BPA's Fish and Wildlife Contracts

- Beginning in FY2012 (October 1, 2011), BPA Fish and Wildlife Contracts will include a requirement for contractors to follow the USFWS lamprey BMPs.

- BPA's Fish and Wildlife contracts include statements of work (SOW) that are developed in our Pisces system. Within Pisces, any BPA F&W SOW that includes Work Elements (WEs) for ground or stream disturbing work – triggers the automatic inclusion of Work Element 165, Produce Environmental Compliance Documentation.

- Under WE 165, we now have a new required milestone: **Determine if contract work could adversely affect Pacific lamprey.**

- BPA's F&W contractors will have to review their project activities and determine if any work will take place in an area where lamprey may exist, and if the work could adversely impact lamprey. If both of these conditions exist, the contractor needs to implement the USFWS BMPs.

- Due to the challenge of providing detailed guidance to contractors (maps, presence/absence lists, etc) about where lamprey might exist, the milestone guidance simply states that any tributary or subbasin where anadromous fish exist is also accessible Pacific lamprey habitat.

- In addition to asking contractors to implement the BMP's if applicable, BPA is also asking for contractors to report lamprey observations to USFWS. This will be an annual reporting requirement, to be completed by Feb 15 of each year, for the previous calendar year.

- Here's the milestone as it will appear in Pisces:

NEW REQUIRED MILESTONE: Determine if contract work could adversely affect Pacific lamprey.

Contractor will review work proposed under this contract and determine the following:

1) Will field work take place in any area where lamprey may be present? (Any tributary or subbasin where anadromous fish exist is also accessible Pacific lamprey habitat.)

2) Are there any stream disturbing activities or instream activities that could adversely impact Pacific lamprey? Examples of activities posing a threat to lamprey may include (this list is not intended to be all-inclusive): aquatic habitat improvements, fish passage

improvements, culvert replacements, water diversions, altered management of water flows, dewatering of any portions of streams, or alteration of irrigation practices.

If you answer no to EITHER 1 or 2 above, the following does not apply.

If the answer is yes to BOTH 1 and 2, the contractor must implement USFWS Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus) http://www.fws.gov/pacific/Fisheries/sp_habcon/lamprey/pdf/Best%20Management%20Practices%20for%20Pacific%20Lamprey%20April%202010%20Version.pdf (BMPs).

By Feb 15 each year, the contractor should report any lamprey observations during the previous calendar year to US Fish and Wildlife Service contacts listed at http://www.fws.gov/pacific/Fisheries/sp_habcon/lamprey/. This data should include date, location (river mile or GPS), number of individuals, and life stage. Report the life stage as ammocoete (larval stage with undeveloped eyes, found burrowed in substrate), macropthalmia (free-swimming juvenile stage with developed eyes) or adult. See page 10 of the BMP document for pictures. This milestone end date should match the last day of any field work that could adversely impact Pacific lamprey, under this contract, or the Feb 15 reporting date, whichever comes later.

Appendix 2 – NPCC draft decision document on the RM&E/AP review

8. Lamprey

[NOTE: Edited to put into context of a staff recommendation and with a revision at end per LP]

Issue: The RME/AP review included a set of six projects targeted at lamprey that total nearly $2 million per year. The Corps of Engineers is also funding and implementing five lamprey dam passage-related projects at up to $5 million annually as a commitment uncertain the Columbia Fish Accords (not reviewed here). The goals and objectives associated with this group of projects focus on determining the status of lamprey populations in different locations and on identifying and addressing the factors that are limiting lamprey survival and productivity.

The ISRP recognized the progress being made through these projects at learning more about the little-known Pacific lamprey, a key anadromous species from a tribal cultural point of view and also possibly an important species for bringing marine-derived nutrients to tributary ecosystems. However, the ISRP is also concerned about the lack of an overall synthesis of results from all the lamprey restoration projects in the basin. Given that some of assessment work began more than a decade ago, the ISRP believe that a summary of results should be available and is required to guide future lamprey restoration efforts. On the other hand the sponsors of these projects are largely focused on particular subbasins, and a Columbia or Pacific coast-wide synthesis is not within the scope of their work.

Thus, the key programmatic issue regarding lamprey is whether these efforts are or can be sufficiently coordinated in a way to allow for the information generated by the individual projects to be gathered, analyzed and synthesized in a more comprehensive basinwide approach. The goal would be to have comprehensive implementation and monitoring program that reports and analyzes results, addresses the critical data gaps for lamprey, and makes sure that information and results and analyses are being shared among sponsors to support coordinated adaptive management of the lamprey restoration effort.

Staff recommendation: Staff recommends that the Council call for the development of a synthesis report on the lamprey efforts under the program, as described above. Staff concurs with the ISRP suggestion that the inter-agency Columbia River Basin Lamprey Technical Working Group is the likely gathering of experts to produce a basinwide synthesis. The synthesis should summarize results and develop conclusions on the data gathered so far on the status and trends of lamprey populations, limiting factors, and the critical uncertainties, and prioritize actions based on these conclusions. Critical questions to analyze include the value of tributary habitat projects in helping to improve lamprey returns, whether mainstem dam passage is the key limiting factor, and the relative role of other factors such as ocean conditions and toxic contaminants.

Staff understands that the Lamprey Technical Working Group believes that they have much of what the ISRP is looking for in a synthesis report. The Working Group is exploring with their members when and how to complete the report, potentially aiming for completion before the end of 2011. None of the projects thus far need to be modified to complete this report, and all members seem committed to developing the synthesis. The Working Group

includes most of the lamprey experts in the region, even beyond those involved in projects funded through the program.

The ISRP should review the synthesis once it is complete. The staff has drafted project-specific recommendations that would call for implementation of the lamprey projects beyond FY 2012 to be subject to the conclusions that arise out of a review of the synthesis report by the ISRP and the Council and any proposed reshaping of the work based on that report. Staff will meet with the Working Group on May 3 to confirm this path forward.

Appendix 3

DRAFT Programmatic Issue:
Pacific Lamprey
(draft version April 25, 2011)

Issue: The Program currently supports both ongoing and new work. Currently, all the projects being supported for implementation are Columbia Basin Fish Accord projects. The goals and objectives associated with this group of projects are focused on determining status and limiting factors to assist in restoring this species. The Columbia River Inter-Tribal Fish Commission (CRITFC) project ultimate goal is to implement the objectives of the draft *Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin.* The primary ISRP issue appears to be whether these efforts are coordinated in a way that we have a comprehensive implementation and monitoring program that addresses the critical data gaps for lamprey and that data and results are being shared among sponsors in a way to adaptively manage future work.

Background and Staff comments: In the Council Program's Basin-level Biological Objectives we state that our lamprey objective is to "Restore lamprey passage and habitat in the mainstem and tributaries that historically supported spawning lamprey populations. Attain self-sustaining and harvestable populations of lamprey throughout their historical range. Mitigate for lost lamprey production in areas where restoration of habitat or passage is not feasible."

The region has been slow to react to the decline in lamprey and it seems that this species appear to be heading toward ESA-listing potential. If the species becomes listed under ESA, the potential for further operational changes to the hydrosystem looms. Several program projects attempt to address our lack of information on lamprey (e.g., passage, habitat and water quality), through as ISRP notes, one has gone on for several years and provided some valuable information. In addition, the Corps of Engineers is also funding and implementing five lamprey dam passage-related projects at up to $5 million per year under the Tribes' Fish Accords. (Not included in table, but see attachment for AFEP projects)

ISRP Comments: The ISRP reviewed two lamprey restoration projects (1994-02600) for the Umatilla River (proponents National Oceanic and Atmospheric Administration (NOAA), Umatilla Confederated Tribes (CTUIR)) and 2002-01600 for the Deschutes River (proponents Confederated Tribes of Warm Springs). There are also projects underway in Fifteenmile Creek and Hood, Willamette, Klickitat and Yakima Rivers. In addition CRITFC is working on a master plan for all tribal lamprey research in the Basin (Project #2008-524-00, *Implement Tribal Pacific Lamprey Restoration Plan*), and there are USACE projects at the mainstem Columbia River dams dealing with lamprey passage issues under the AFEP program.

The ISRP recognizes the significant progress being made by studies on the little-known Pacific lamprey, a key anadromous species from a tribal cultural point of view and also

possibly an important species for bringing marine-derived nutrients to tributary ecosystems (ISAB 2009-3). However, the ISRP is concerned that we were unable to get an overall synthesis of results from all the lamprey restoration projects in the Basin. Some of them were started over a decade ago, and a summary of results should be available and is required to guide future lamprey restoration efforts. Justifiably, the proponents in the RM&E review concluded that this was not their task as their mandate was restricted to their particular subbasin. Some of the key questions that need to be addressed in the synthesis are:

- What are the general conclusions of the studies to date? Are lamprey recovering in the Basin?
- What have emerged as primary limiting factors for lamprey basinwide? The ISRP noted that lamprey are declining coast wide, suggesting that ocean factors may be affecting survival, but no studies are being conducted in the marine environment. Lampreys are also likely very susceptible to toxic contaminant effects but very limited work is being done on this issue. Most proponents are focusing on key limiting factors in tributary habitat but the ISRP, as well as ISAB (2009-3) has pointed out this approach is too restrictive for anadromous lamprey. A comparison of lamprey stocks in various rivers might be useful, including those outside the Columbia River Basin.
- What are the major impediments to implementation of recovery plans? Will Mainstem passage problems be resolved to enable sufficient numbers of adults to migrate into tributaries to initiate recovery in synchrony with translocation and habitat improvements such as ramps on low head dams and irrigation screens?
- Is the draft lamprey master plan for *Tribal Pacific Lamprey Restoration* that will guide recovery efforts completed? (Project #2008-524-00)
- Are study designs and sampling methods coordinated among projects? Some proponents noted that key technical issues, such as sampling efficiency for juvenile lamprey during instream trapping, as well as our inability to tag juvenile life stage lamprey to obtain travel time and survival information, have yet to be resolved. Others did not, suggesting increased communication among groups is needed. The ISRP is therefore concerned that data may not be comparable between projects, or that critical information is lacking, e.g., juvenile travel time and survival.
- What are the escapement goals for lamprey, recognizing that development of these metrics is difficult because of lack of historical information?
- What is the status of lamprey in various subbasins and can a comparison of their status inform an analysis of limiting factors?
- Comparative data on the non-anadromous brook lamprey might help determine if limiting factors in the ocean are important for the Pacific lamprey.

ISRP Suggestions:

The ISRP suggests that the Inter-Agency Lamprey Technical Working Group (i.e., Columbia River Basin Lamprey Technical Working Group) would be a possible group of experts that could write a basinwide synthesis including major conclusions that could be

drawn at this point with supporting evidence, status and trends, and a candid evaluation of whether tributary habitat projects are improving lamprey returns or whether mainstem dam passage is a key limiting factor. A draft outline could be developed based on comments from this RM&E review, other project reviews, and ISAB suggestions (ISAB 2009-3). The ISAB should review the synthesis.

Regional Efforts:

- Tribal Restoration Plan (not finalized) - On August 18, 2010 the Council recommended for Project #2008-524-00, *Implement Tribal Pacific Lamprey Restoration Plan*, Objective 1 (i.e., Finalize the Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin) needs to be completed. It would seem appropriate that this plan should represent a synthesis report to the needs and prioritized action for lamprey in the Columbia River Basin.
- "Critical Uncertainties" from LTWG (http://www.cbfwa.org/committee_LTW.cfm)
- U.S. Fish and Wildlife Service Pacific Lamprey Conservation Initiative (in draft status; may be accessible through the link below?) - USFWS Pacific Lamprey Draft Assessment and Template for Conservation Measures - In 2004 and 2008, the treaty tribes held Summits that included the executives from federal agencies who have authority and/or legal obligations for managing fish and aquatic habitats within the basin. At these Summits, tribal leaders communicated the urgency to begin implementing protective measures and restoration of Pacific lampreys using their authorities and funding. The executives agreed to implement the Tribal Plan and various agency actions are currently underway, including incorporation of the Tribal Plan into the USFWS Pacific Lamprey Conservation Initiative. The USFWS recognizes the need for a comprehensive plan to conserve and restore Pacific Lamprey in collaboration with Native American tribes and other Federal, State, and local agencies; and to further lamprey research and conservation actions throughout their native range. The Pacific Lamprey Conservation Initiative is the USFWS's strategy to improve the status of Pacific Lamprey throughout the United States portion of their range.
- USFWS BMPs (http://www.fws.gov/pacific/fisheries/sp_habcon/lamprey) - Best Management Practices for Pacific lamprey (April 2010) - The purpose of this document is to provide information on Best Management Practices for Pacific lamprey that can be incorporated into any stream disturbing activity (e.g., aquatic habitat restoration, prescribed fire, recreational development, grazing, gravel extraction/mining, water diversions, etc.) on lands managed by the Forest Service and Bureau of Land Management throughout the range of Pacific lamprey. In addition, this information can help other federal, state, tribal and private land managers with implementing stream disturbing activities that also afford protection for individual lamprey and lamprey populations. BPA will be requiring incorporation of the USFWS BMPs in Fish & Wildlife contracting as of the beginning of FY2012.

- ACOE 10-year Plan (http://www.nwp.usace.army.mil/environment/docs/afep/system/Lamprey_10yrPlan_FINAL.pdf

[Draft Staff recommendation:

Staff recommends that the Council call for the development of a synthesis report on the lamprey efforts under the program, as described above. Staff concurs with the ISRP suggestion that the inter-agency Columbia River Basin Lamprey Technical Working Group is the likely gathering of experts to produce a basinwide synthesis. The synthesis should summarize results and develop conclusions on the data gathered so far on the status and trends of lamprey populations, limiting factors, and the critical uncertainties, and prioritize actions based on these conclusions. Critical questions to analyze include the value of tributary habitat projects in helping to improve lamprey returns, whether mainstem dam passage is the key limiting factor, and the relative role of other factors such as ocean conditions and toxic contaminants.

Staff understands that the Lamprey Technical Working Group believes that they have much of what the ISRP is looking for in a synthesis report. The Working Group is exploring with their members when and how to complete the report, potentially aiming for completion before the end of 2011. None of the projects thus far need to be modified to complete this report, and all members seem committed to developing the synthesis. The Working Group includes most of the lamprey experts in the region, even beyond those involved in projects funded through the program.

The ISRP should review the synthesis once it is complete. The staff has drafted project-specific recommendations that would call for implementation of the lamprey projects beyond FY 2012 to be subject to the conclusions that arise out of a review of the synthesis report by the ISRP and the Council and any proposed reshaping of the work based on that report. Staff will meet with the Working Group on May 3 to confirm this path forward.]

Projects included in this programmatic issue:

Project #	Project Title	Sponsors	Accord	Funding Req. Annual
2008-524-00	Implement Tribal Pacific Lamprey Restoration Plan	CRITFC	X	$619,212 (FY 2012)
1994-026-00	Pacific Lamprey Research and Restoration Project	CTUIR, NOAA	*X*	*$536,000*
2002-016-00	Evaluate the Status of Pacific Lamprey in the Lower Deschutes River	Confederated Tribes Of Warm Spring	*X*	*$197,406 (FY2011)*
2007-007-00	*Determine Status and Limiting Factors of Pacific Lamprey in Fifteenmile Creek and Hood River subbasins, Oregon*	*Confederated Tribes of Warm Springs*	*X*	*$251,992(FY 2012)*
2008-	*Willamette Falls Lamprey*	*Confederated Tribes of*	*X*	*$176,344*

308-00	*Escapement Estimate*	*the Warm Springs*		
2008-470-00	*Yakama Nation Ceded Lands Lamprey Evaluation and Restoration*	*Yakama Nation*	*X*	*$256,250 (FY 2011)*
	TOTAL			

- OWEB committed a lamprey funding total of $7.3M over 2008-2010, PGE is committing a total of $32 million, and EWEB is committing an unspecified amount toward lamprey RME under its FERC relicensing process.

Following are the Corps-funded lamprey passage projects under AFEP for FY 2011:

1. Improving Adult Pacific Lamprey Passage and Survival at Lower Columbia River Dams; COE study code LMP-08-1; total study cost is $567,000; implementing agencies are NMFS and U. of Idaho.
2. Evaluation of Adult Pacific Lamprey Behavior and Fate in Columbia River Reservoirs Using Acoustic Telemetry; COE study code LMP-08-1; study cost is $224,000; implementing agency is U. of Idaho.
3. Juvenile Lamprey Run Timing and Sources of Mortality at Columbia Basin Hydropower Dams; COE study code LMP-08-02; literature review only cost is $55,000; implementing agency will be NMFS, but study is on hold for now pending final FY 2011 CRFM budget.
4. Development of Standard Protocols for Tagging Juvenile Lampreys with PIT or other tags; COE study code LMP-08-2; study cost is $110,000; implementing agency is USGS.
5. Use of Non-Invasive Methods to Evaluate Pacific Lamprey Counts and Passage Behavior in the Lower Columbia River; COE study code LMP-08-1; study cost is $223,000; implementing agency is U. of Idaho, CRITFC and UC-Davis.

Appendix 4

2011 WASHINGTON PACIFIC LAMPREY SCIENTIFIC COLLECTION OR TRANSPORT PERMIT TAKE AU

STAGE	*NUMBER*	*COLLECT LOCATION*	*PERMIT HOLDER*	*METI*
Adult	920	Bon. And C. River	University of Idaho	Trappe
Adult	20	Bon. Dam	Unversity of Idaho	trappe
Adult	90	Bon. And C. River	University of Idaho	trappe
Adult	12	Gibbons Crk, Bon. Dam	USGS	Traps
Adult	50	Bon. Dam	Yakama Nation	Transl
Adult	50	John Day Dam	Yakama Nation	Transl
Adult	50	McNary Dam	Yakama Nation	Transl
Adult	50	Priest Rapids Dam	Yakama Nation	Transl
ammo/mac	450	Bon. Dam	University of Idaho	isotop
ammo/mac	50	Ice Harbor Dam	University of Idaho	isotop
ammo/mac	50	Priest Rapids Dam	University of Idaho	isotop
ammo/mac	50	The Dalles Dam	University of Idaho	isotop
ammo/mac	500	Gibbons Crk, Clark Co.	USGS	EF, scr

This information only includes permits that are required because they are in WA waters. Oregon may be issuing permits for their waters. Please let me know if you are aware of permits I missed.