



**Grant County**  
**PUBLIC UTILITY DISTRICT**  
*Excellence in Service and Leadership*

**Priest Rapids Fish Forum**  
**Meeting**

**Wednesday, 4 February 2015**  
**9:00 a.m. – 12:00 p.m.**

**Grant PUD, 11 Spokane St., Suite 205B, Wenatchee, WA**  
**Call-In Number: 1-800-977-8002, Bridge: 7422882**

**AGENDA**

- I. Welcome and Introductions (9:00 to 9:05)
- II. Agenda Review (9:05 to 9:10)
  - A. Additional Agenda Items (All)
- III. Approve January Meeting Notes (9:10 to 9:20)
  - A. Review Action Items from January meeting (All)
- IV. Update on Wanapum Dam (9:20-9:30)
- V. Update on WSMP (9:30-10:15)
  - A. Update on Juvenile Rearing (Rose and Miller)
  - B. Phase 2 Sturgeon Conservation Program (Ecopath/Ecosim) (Mott)
  - C. Decision: Release Strategy for 2015 (Jackson)
  - D. Other White Sturgeon Items (All)
- VI. Update on PLMP (10:15-11:50)
  - A. Lamprey Passage and Monitoring Presentation (Blue Leaf)
  - B. NNI Update from Lamprey Small Group (Hillman)
  - C. Overview of the PLMP Annual Comprehensive Report (Le, HDR)
  - D. Other Lamprey Items (All)
- VII. Benthic Community Survey Report (11:50-11:55)
  - A. Schedule Presentation (All)
- VIII. Fish Ladder Tour in Feb (11:55-12:00)
- IX. Next Meeting: 4 March 2015 – Grant PUD Natural Resources Wenatchee Office



# Grant County **PUBLIC UTILITY DISTRICT**

## Priest Rapids Fish Forum

Wednesday, 4 February 2015  
Grant PUD Wenatchee Office

### PRFF Representatives

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Stephen Lewis, USFWS  
Bob Rose, YN  
Doris Squeochs, Wanapum  
Jason McLellan, CCT  
Mike Clement, GCPUD  
Debbie Williams, GCPUD

Patrick Verhey, Chad Jackson, WDFW  
Pat McGuire, WDOE  
Aaron Jackson, Carl Merkle, CTUIR  
Keith Hatch, BIA  
Chris Mott, GCPUD  
Tracy Hillman, Facilitator

### Attendees:

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Pat McGuire, WDOE  
RD Nelle, USFWS  
Aaron Jackson, CTUIR (Via phone)  
Jason McClellan, CCT (Via phone)  
Bao Le (HDR Engineering)  
Jim Powell, BCAHS (Via phone)  
Debbie Williams, GCPUD

Mike Clement, GCPUD  
Bob Rose, YN  
Chad Jackson, WDFW (Via phone)  
Steve Lewis, USFWS (Via phone)  
Rod O'Connor (Blue Leaf Environmental)  
Chris Mott, GCPUD  
Tracy Hillman, Facilitator

### Distributed Items:

1. 2014 Pacific Lamprey Management Plan Comprehensive Report for the Priest Rapids Hydroelectric Project.
2. Warren, D.R., C.J. Harvey, M.M. McClure, and B.L. Sanderson. 2014. Use of an ecosystem-based model to evaluate alternative conservation strategies for juvenile Chinook salmon in a headwater stream. *North American Journal of Fisheries Science* 34:839-852.
3. Adult Pacific Lamprey Passage Assessment using HD PIT tags: 2010-2014 Five-Year Summary Power Point Presentation

### Action Items:

1. Chris Mott will work with Chelan PUD to set up a conference call with Blue Leaf Environmental to discuss the use of the Ecopath with Ecosim model to estimate project area carrying capacities.
2. Chad Jackson will send the revised white sturgeon release strategy SOA to Tracy Hillman for distribution to the PRFF. The PRFF will review the revised SOA and let Tracy know by Friday, 20 February if they approve the SOA.

3. The PRFF can send follow-up questions to Rob O'Connor on his presentation on adult lamprey passage at Priest Rapids and Wanapum dams.
4. Comments on the draft 2014 Pacific Lamprey Management Plan Comprehensive Annual Report are due to Mike Clement on Monday, 2 March.
5. Tracy Hillman will send a Doodle Poll to the Pacific Lamprey Subgroup in order to identify addition meeting dates. Up to three meeting dates will be selected for the Subgroup.
6. Grant PUD has scheduled a tour of the fish ladders at Wanapum and Priest Rapids dams on Friday, 20 February. Participants are to let Mike Clement know by 17 February if they intend to join the tour.

## Final Meeting Minutes

### I. Welcome and Introductions

### II. Agenda Review

A. **Additional agenda items** – No additions were made to the agenda.

B. **Meeting Minute approval** – 07 January 2014 – Approved.

C. **Action Items from last meeting:**

1. Tracy Hillman will send a Doodle to PRFF members to select a date for the Fishway Tour in February. **Complete.**
2. Tracy Hillman will ask Donella Miller, YN, to provide an update to the PRFF at next month's meeting regarding juvenile sturgeon growth rates for fish on station as well as comparing their growth to past years. **Complete.**
3. Tracy Hillman will find someone with experience using the Ecopath with Ecosim model to give a presentation to the PRFF. The model was previously used to model juvenile spring/summer Chinook in the Salmon River basin; Hillman will distribute the paper from that study. **Complete.**
4. Mike Clement will resend the "Lamprey in Priest Rapids Project – Adult Lamprey Passage Assessment using HD PIT, 2010-2013" presentation to the PRFF to help formulate questions/comments. **Complete.**
5. Comments to the Bull Trout M&E Annual Report are due to Joe LeMoine, Grant PUD, by Monday, 12 January 2015. **Complete.**

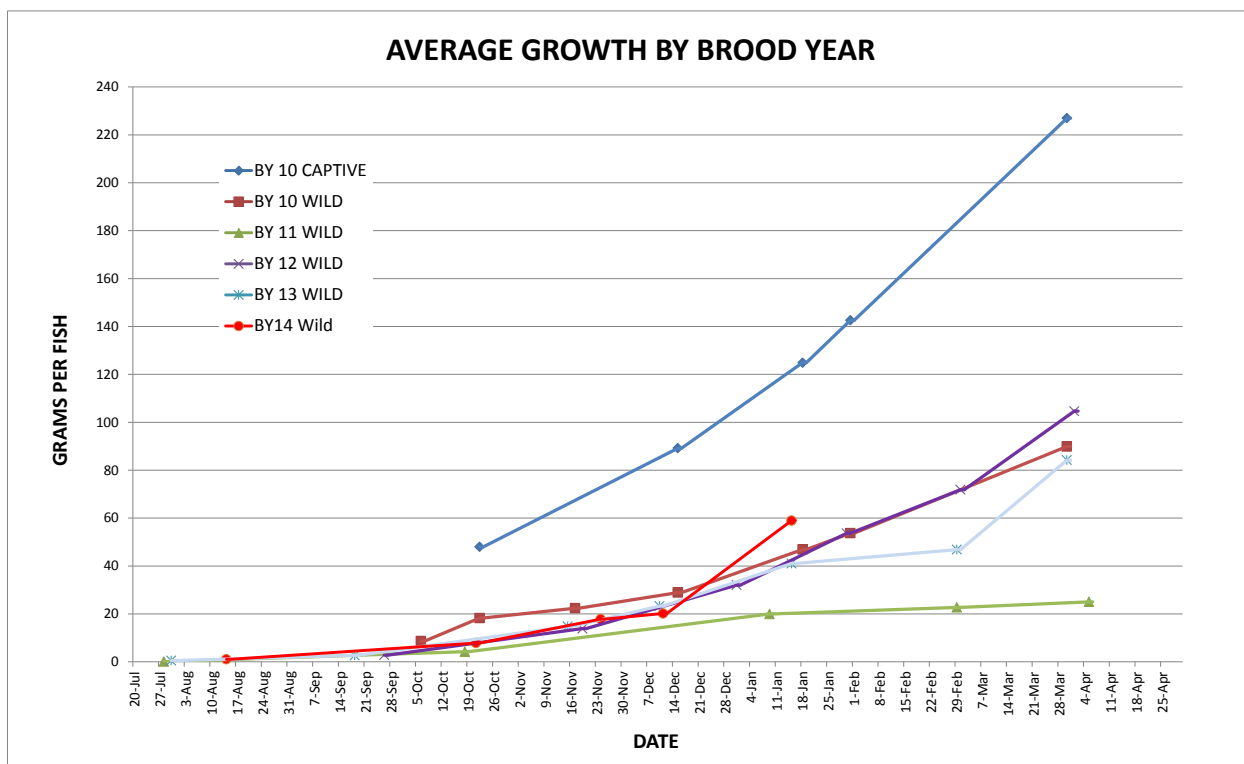
### III. **Update on Wanapum Dam and Fish Passage** – Mike Clement gave an update on the status of Wanapum Dam. As repairs to the dam continue, Grant PUD is operating Wanapum Reservoir within a four-foot range between 558 and 562 feet elevations. Mike believes they will be able to achieve a normal operation level of 571.5 feet by April 2015.

Mike indicated that 21 of the 35 tendons have been installed. Progress has slowed a bit because of the need to spill at Wanapum Dam as Columbia River flows have increased. Mike also commented that Grant PUD reopened specific shoreline locations on 7 January. Several shoreline areas remain closed.

Mike stated that the left-bank ladder at Wanapum Dam is fully operational and providing fish passage. The right-bank ladder is dewatered for annual maintenance.

#### IV. Update on White Sturgeon Management Plan (WSMP)

A. **Juvenile Rearing Update** – Tracy Hillman indicated that he received growth information on juvenile sturgeon rearing at Marion Drain from Donella Miller. Tracy said that he shared the spreadsheets from Donella with the Forum. Following examination of the spreadsheets, Jim Powell reported that juvenile growth looks normal and is similar to previous years, and that median weight is on schedule. He also noted that he will work with Donella on normalizing the data by spawning date. The following figure shows growth of juvenile sturgeon at Marion Drain for different brood years (BY).



B. **White Sturgeon Management Plan Annual Report Update** – Mike Clement reported that the WSMP annual report should be available for review soon; a 30-day review period will be provided. The annual report will then be sent to the Washington Department of Ecology (WDOE), and subsequently to the Federal Energy Regulatory Commission, for approval. Paul Grutter, Golder Assoc., will give a presentation on 2014 activities during the March PRFF meeting. Mike asked Jason McClellan to also present the results from his work during the March meeting. Jason agreed to present his work.

C. **Phase 2 Sturgeon Conservation Program (Ecopath/Ecosim)** – Chris Mott noted that Grant PUD has been coordinating with Chelan PUD on the use of the Ecopath with Ecosim model as a way to estimate sturgeon carrying capacity within the project area. He said that Chelan PUD has asked Blue Leaf Environmental to help them address what information is currently available to populate the model. Blue Leaf may also be able to give a presentation to the Forums on the use of the Ecopath with Ecosim model. **Mike Clement recommended that Chris conference with Chelan PUD and Blue Leaf to discuss the use of the model in the**

**project areas.** As a final note, Tracy Hillman shared with the Forum a paper published by Warren et al. that describes the use of the Ecopath with Ecosim model to evaluate alternative conservation strategies for juvenile Chinook salmon in the Salmon River basin.

- D. **SOA on Juvenile White Sturgeon Release Strategy for 2016** – On 12 January, Tracy Hillman sent the draft juvenile white sturgeon release strategy SOA to the PRFF for their review. Chad Jackson reported that he received comments from Jason McClellan and agreed with all of Jason's suggested changes. They mostly involved changing "half-siblings" to "unique crosses." **Chad said that he will send the revised SOA to Tracy for distribution to the PRFF. The PRFF will review the revised SOA and let Tracy know by Friday, 20 February if they approve the SOA.**
- E. **Other White Sturgeon Items** – Mike Clement asked Chad Jackson if he had any update on the potential harvest on white sturgeon planted by CRITFC in the Project Area. Chad indicated that he is still working on the possibility of a harvest on the fish.

## V. Update on PLMP

- A. **Pacific Lamprey Passage and Monitoring Presentation** – Rod O'Connor with Blue Leaf Environmental gave a presentation on Adult Lamprey Passage Assessment using HD PIT Tags: 2010-2014 Five-Year Summary (see Attachment 1). Rod began by explaining the objective of the study, which was to assess the behavior and passage efficiency of Pacific lamprey at Priest Rapids and Wanapum dams. He indicated that they used HD PIT tags to evaluate fishway efficiency (including fall back), travel times, overwinter behavior, and effects of the modified weir structure at Wanapum Dam on lamprey behavior. He described the locations, configuration, and operations of the PIT arrays and briefly described data processing. In addition, he provided some background information on tagging and analyses conducted in 2010-2013.

Rod explained some of the results from adult lamprey trapping efforts in the adult fishways at Priest Rapids and Wanapum dams in 2014, and described the adult migration profile and its relationship with water temperatures. For the combined years 2010-2014, he showed the number of tagged adult lamprey detected at the projects, how many entered and exited the projects and each ladder, and the total number of adults that were last detected in the upstream pool. He reported that the total fish passage efficiency at Priest Rapids Dam was 70% for the combined period 2010-2013, and 80% during 2014. At Wanapum Dam, the total fish passage efficiency was 73% for the combined period 2010-2013, and 54% during 2014. He reminded the group that passage at Wanapum Dam during 2014 was influenced by the way the ladders were operated because of the fracture in the dam. He also showed passage efficiency results for each ladder.

Rod then showed estimated passage times for adult lamprey at the dams. The median passage time for the combined period 2010-2013 at Priest Rapids Dam was 22.8 hours. In 2014, the median passage time through the left ladder at Priest Rapids Dam was 16.8 hours, while passage time through the right ladder was 5.0 hours. At Wanapum Dam, the median passage time for the combined period 2010-2013 was 23.5 hours. In 2014, the median passage time through the left ladder at Wanapum Dam was 54.5 hours, while it was 6.2 hours through the right ladder.

Rod then described the passage times through different sections of each ladder. In general, lamprey passage through the section below the count station in the Priest Rapids left ladder

was considerably faster than through the section above the count station. Passage through the Priest Rapids right ladder was slightly slower in the section below the count station than through the section above the count station. At Wanapum left ladder, passage through the sections below and above the count station were similar, except in 2014. In that year, adult lamprey spent considerably more time traveling through the lower section than through the upper section. Passage through Wanapum right ladder was generally slower through the section upstream from the count station than through the lower section. The exception was in 2012 when adult lamprey moved through the lower section very slowly. Rod and the Forum discussed some of the possible reasons for the various migration timings through different sections of the ladders. Possible reasons included changes in flows within ladders at Wanapum Dam in 2014 compared to other years, operation of the OLAFT at Priest Rapids Dam, presence of adult sturgeon in different sections of the ladders, the effect of “campers” (i.e., adult lamprey electing to hold or camp within certain sections of the ladder) on migration timing, length of ladders above and below the counting stations, and detection efficiencies.

Rod described fall back events, reservoir passage and overwintering, and other miscellaneous observations. For the combined period 2010-2014 at Priest Rapids Dam, seven of the 380 tagged lamprey fell back; however, six of the seven reascended the project. For the same period at Wanapum Dam, seven of 260 tagged lamprey fell back. As at Priest Rapids, six adults reascended Wanapum Dam. Thus, the net fall back at both dams was one tagged lamprey. With regard to reservoir passage, Rod said that the median passage time through Priest Rapids reservoir was 4.4 days during the combined period 2010-2013 and 5.9 days in 2014. About 2-6% of the detected tags were from the previous year.

Finally, Rod offered the following conclusions: (1) Grant PUD’s monitoring program contributes substantially to the passage database, both locally and regionally; (2) 2014 was an anomalous year with emergency measures taken due to Wanapum spillway fracture; (3) modified weir structure at Wanapum Dam was effective for passing lamprey (27/28 tagged fish detected within 48 hours); (4) minimum fish passage efficiency and median fishway travel times of tagged lamprey were improved at Priest Rapids in 2014 compared to previous years, but diminished at Wanapum left ladder likely because of altered fishway operations; (5) additional PIT interrogation stations at the OLAFT in the left ladder at Priest Rapids Dam should help identify potential passage bottlenecks there; (6) lamprey trap-and-transport was effective (n = 2,269 lamprey transported; 22.8% of run); (7) fallback lamprey usually re-ascend the fishways (less than 1% of all fish detected); (8) lamprey passage efficiency will be recalculated through redetection of fish at large; and (9) study plan objectives are being achieved.

Members of the Forum requested the opportunity to send Rod questions for further clarification. Rod said that would be OK. Mike Clement said that the Forum needs to think about what to do in 2015 given that the Army Corps of Engineers will not be tagging adult lamprey in 2015. Members discussed the possibility of collecting and tagging about 75 adult lamprey at Priest Rapids Dam. Finally, Steve Lewis asked the Forum to consider what would be a reasonable target for fish passage efficiency. He noted that the draft NNI Concept Paper proposed 80% at each project. These issues will be discussed in the future.

- B. Update on the Pacific Lamprey Comprehensive Report** – Bao Le with HDR Engineering provided a brief overview on the information contained within the draft 2014 Pacific Lamprey Management Plan Comprehensive Annual Report. The draft report was sent to the PRFF on

29 January for their review. **Comments on the draft annual report are due to Mike Clement on Monday, 2 March.**

Bao said that the report summarizes the on-going activities undertaken at the Priest Rapids Project in 2014, as identified in the PLMP, for the purpose of identifying and addressing project effects on Pacific lamprey. He noted that any variations from the implementation schedule provided in the PLMP were identified in the annual report. He said the report also describes recent Pacific lamprey passage, behavioral, and survival investigations and measures undertaken in the Columbia River basin, as well as an evaluation to determine if these investigations and measures are: (1) consistent with similar measures taken at other projects; (2) appropriate to implement at the Priest Rapids Project; and (3) cost-effective to implement at the Priest Rapids Project.

Bao said that the structure of the report is consistent with previous annual reports. Under the introduction, it includes a general description of the project, history of lamprey-related activities within the project area, and the purpose of the report. The report then describes lamprey activities throughout the Columbia River basin. Here, the report provides information on the biology and ecology of lamprey, migration in rivers, population status, and adult and juvenile passage at hydroelectric facilities. It also includes updated information. Next, the report describes the status of Pacific lamprey activities at the Priest Rapids Project, and compares those to activities throughout the Columbia River basin. The report concludes with a summary section. Bao said that the updated information and activities at the project area and throughout the Columbia River basin are presented in table format. This is consistent with past reports.

- C. **NNI Update from Pacific Lamprey Subgroup** – Tracy Hillman reported that the Pacific Lamprey Subgroup met on 29 January to discuss how the PRFF should address NNI for Pacific lamprey. The Subgroup discussed a seven-step process for establishing an NNI Agreement. As part of the seven-step process, they began discussing possible draft recommendations for an NNI Agreement. Those included possibly setting up a Pacific Lamprey NNI Fund. The draft proposal envisions that annual contributions by Grant PUD would provide funds for use by the PRFF to implement Pacific Lamprey NNI measures in order to satisfy Section 4.1 (*Objective 1: No Net Impact (NNI). Identify, address, and fully mitigate Project effects to the extent reasonable and feasible*) and Section 4.2 (*Objective 2: Provide safe, effective, and timely volitional passage for adult upstream and downstream migration*) of the PLMP. The NNI Account would be an adaptive compromise measure to achieve NNI where the PRFF is unable to determine Project effects on the downstream passage of juvenile lamprey and upstream passage of adults. This Fund would be an interest-bearing account that would be under the control of the PRFF, similar to the PRCC Habitat Account, if approved. Money from this fund could be used to address translocation and monitoring of translocation activities, tracking adults to spawning areas in tributaries, reducing juvenile entrainment into irrigation facilities, and propagation of juvenile lamprey into tributaries. Other activities identified in the PLMP and License would continue as planned.

The PRFF recommended that the Subgroup continue to meet to flesh out draft recommendations. **To that end, they directed Tracy Hillman to send a Doodle Poll to the Subgroup to identify addition meeting dates.** The purpose of the additional Subgroup meetings is to attempt to reach agreement on a proposed NNI Agreement and its duration, identify specific elements of the proposed NNI Agreement, identify roles and responsibilities, identify outcomes or end products, and identify annual contributions.

- VI. **Benthic Community Survey Report** – Mike Clement reported that he received comments on the Draft Wanapum Drawdown Benthic Community Survey Report, which includes characterization of benthic communities and habitat that was exposed as a result of the Wanapum reservoir drawdown. He noted that the consultants are revising the report based on comments received. Environmental Assessment Services will provide a presentation on findings during the March PRFF meeting.
- VII. **Fish Ladder Tour** – Tracy Hillman reported that Grant PUD has scheduled a tour of the fish ladders at Wanapum and Priest Rapids dams on Friday, 20 February. The plan is to meet at the Hydro Office Building (HOB) at 10:00 am. The HOB is located at Wanapum Dam (it's the new building on the left as you turn off the highway to Wanapum Dam). Participants are to let Mike Clement know by 17 February if they intend to join the tour. In order to secure visitor badges, Mike will need your driver's license information.
- VIII. **Next Meeting** – 4 March 2015 at Grant PUD in Wenatchee, WA.



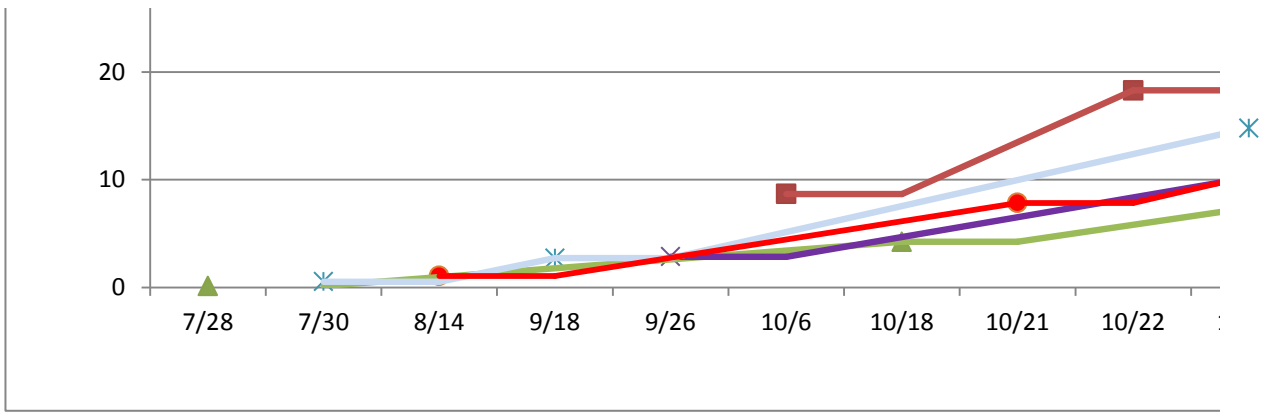
Tank	BY 10 Captive Brood Average		BY 10 Wild Average		BY 11 Wild Average		BY 12 Wild Average	
Date	fish/ lb	G/ fish	Fish/ Lb	G/ fish	Fish/ Lb	G/ fish	Fish/ Lb	G/ fish
7/28					3,575.33	0.13		
7/30								
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9/26							159.50	2.85
10/6			52.27	8.69				
10/18					107.41	4.23		
10/21								
10/22	<b>9.46</b>	<b>48.00</b>	24.80	18.31				
11/15								
11/17			20.26	22.41				
11/19							32.72	13.88
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12/11								
12/15	<b>5.09</b>	<b>89.21</b>	15.70	28.92				
12/31							14.16	32.06
1/9					22.7	20.00		
1/15								
1/18	<b>3.64</b>	<b>124.89</b>	9.68	46.93				
1/30							8.46	53.69
1/31	<b>3.18</b>	<b>142.62</b>	8.45	53.73				
2/29/14					19.96	22.75		
3/1							6.32	71.87
3/30	<b>2.00</b>	<b>227.00</b>	5.05	89.90				
4/1							4.34	104.65
4/5					18.13	25.04		



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BY 13 Wild Average		BY 14 Wild Average	
Fish/ Lb	G/ fish	Fish/ Lb	G/ fish
846.98	0.54		
		424.36	1.07
166.78	2.72		
		57.80	7.85
30.67	14.80		
		25.45	17.84
19.50	23.28		
		22.48	20.20
11.06	41.04	7.69	59.01
9.69	46.85		
5.39	84.23		

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**AVERAGE GROWTH BY BROOD YEAR**

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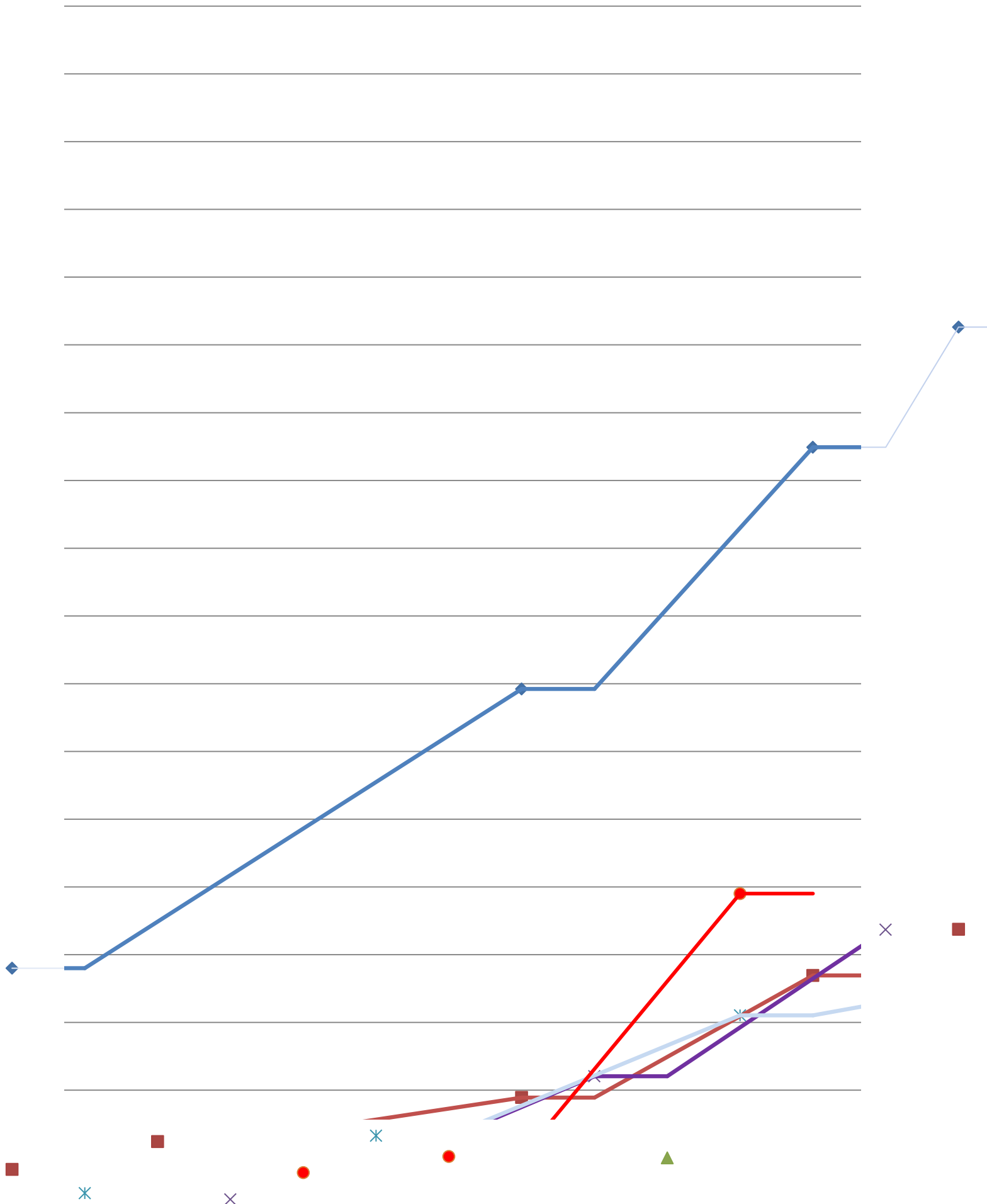
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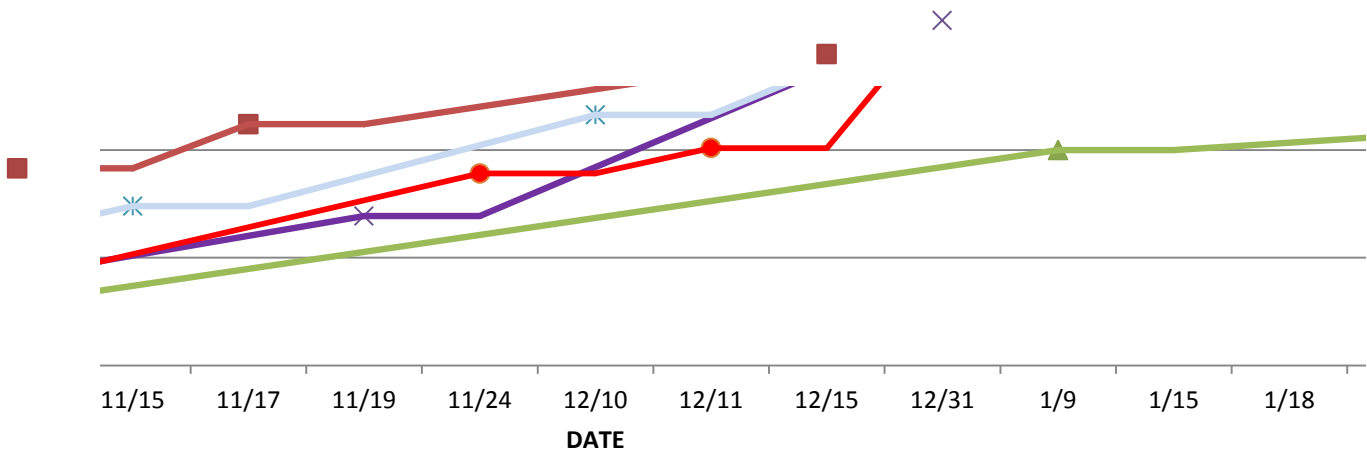


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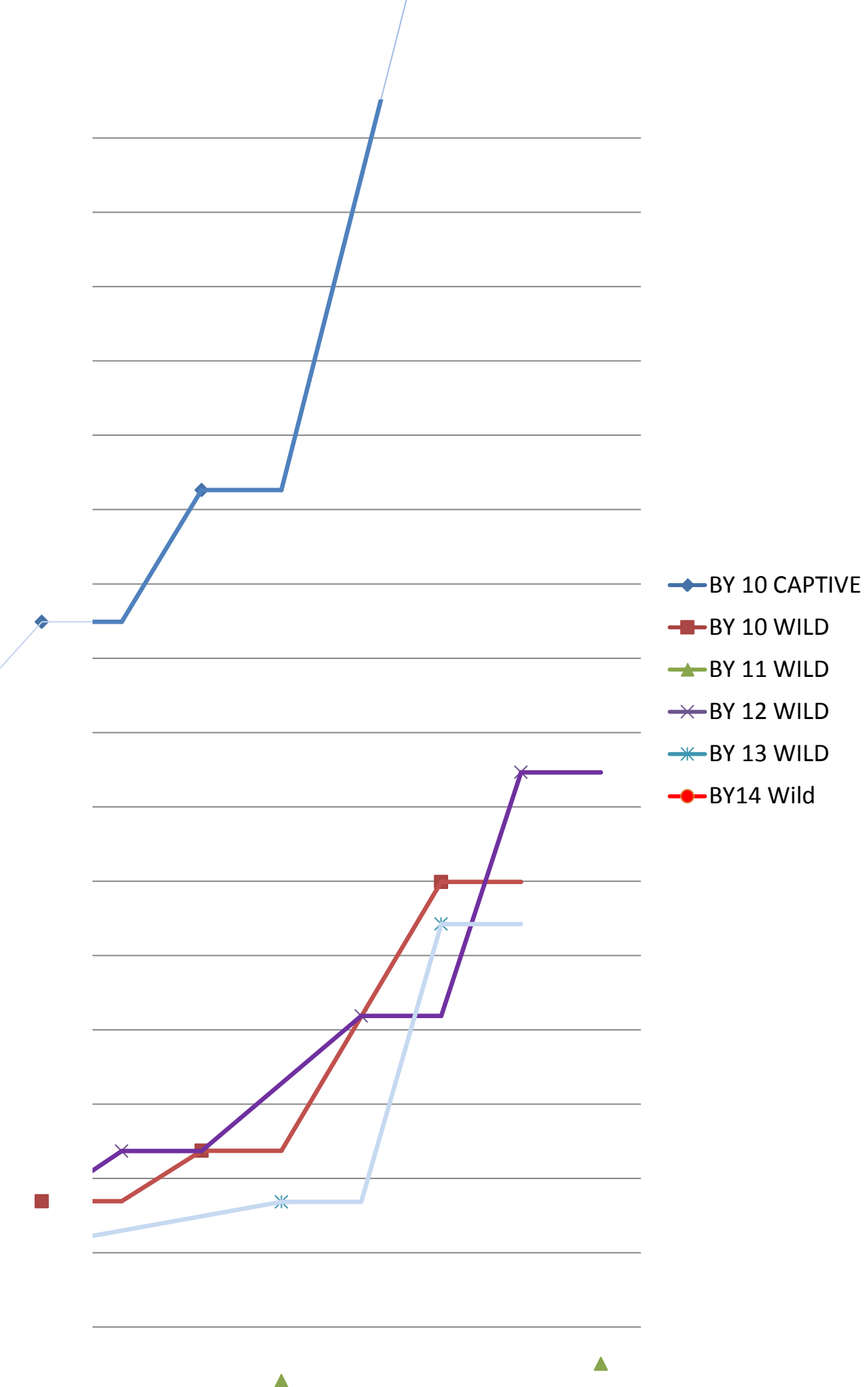


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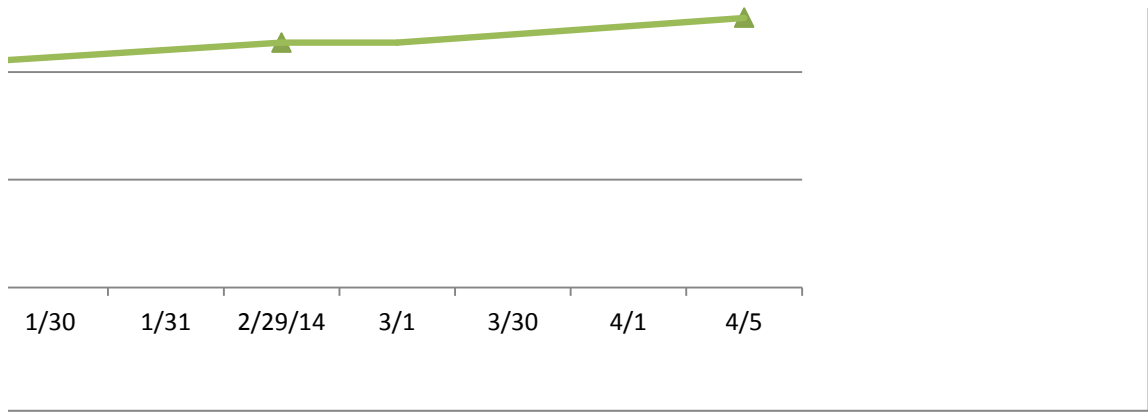












## **PRFF Pacific Lamprey Subgroup Recommendations:**

1. Rather than wait on studies to quantify NNI, the Pacific Lamprey Subgroup recommends that Grant PUD set up a Pacific Lamprey Conservation Account, with annual contributions, that will be used by the PRFF to fund Pacific Lamprey conservation measures that mitigate for lamprey losses associated with operations of Priest Rapids and Wanapum dams.
  - a. The Pacific Lamprey Conservation Account will be an interest-bearing account and will be under the control of the PRFF. That is, once the money is put into the account, the spending of those funds is entirely under the control of the PRFF (does not require approval by the Grant PUD Commissioners).
  - b. Annual contributions will include adjustments for inflation.
  - c. To receive funds for conservation projects, project sponsors will complete a project application (to be developed).
  - d. Approval of projects for funding is by consensus.
2. The Subgroup recommends evaluation of the type of agreement (e.g., Settlement Agreement or SOA or both) and the duration of the agreement. The duration could be as short as a seven-year agreement or as long as a 35-year agreement with seven-year check-ins.
3. The Subgroup recommends that the Pacific Lamprey Conservation Funds be used to address the following actions or measures:
  - a. Translocation and monitoring of translocation activities.
    - i. Translocation can occur within any tributary upstream from the Project Area.
    - ii. Monitoring can include genetics sampling.
    - iii. The level of monitoring will reflect the purpose of translocation (e.g., a different level of monitoring is needed to assess success of translocated adults into areas currently void of natural production versus translocation of adults into areas with natural production).
  - b. Tracking of adults to spawning areas in tributaries.
    - i. May include acoustic, radio telemetry, PIT tags, or other appropriate methods.
    - ii. If possible, the tracking should allow evaluation of adult passage success at hydroprojects and pre-spawn mortality.
    - iii. The tracking could include evaluation of movements of adults within reservoirs.
  - c. Reduction of juvenile entrainment into irrigation facilities.
    - i. The initial focus of this work should be on Dryden Diversion.
  - d. Propagation of juvenile lamprey into tributaries.
    - i. Includes support for artificial propagation and monitoring propagation success.
    - ii. Propagation would occur upstream from the Priest Rapids Project Area.
4. The Subgroup recommends that the following actions should be implemented to address the FERC License Requirements (these are not necessarily funded under the Pacific Lamprey Conservation Account):
  - a. Assess movement and use of the reservoirs by adult lamprey.
    - i. Use telemetry (e.g., acoustic tags) to assess the movement of adult lamprey through the reservoirs.

- b. Measure mainstem fishway passage efficiency.
  - i. Focus on passage of adults through the adult fish ladders.
  - ii. Include long-term trap-and-haul program (this provides fish for translocation, genetic sampling, and research).
- c. Evaluate juvenile occupancy and habitat use in the reservoirs.
  - i. Focus on presence/absence and relative abundance of juveniles within areas affected by ongoing project operations.
- d. Evaluate predation on juvenile lamprey in the tailraces.
  - i. This action requires survey/sampling methods that are not currently available and therefore this action is included for future discussion.