

Merwin Trap Evaluation

Phase 1 and Phase 2 testing procedures

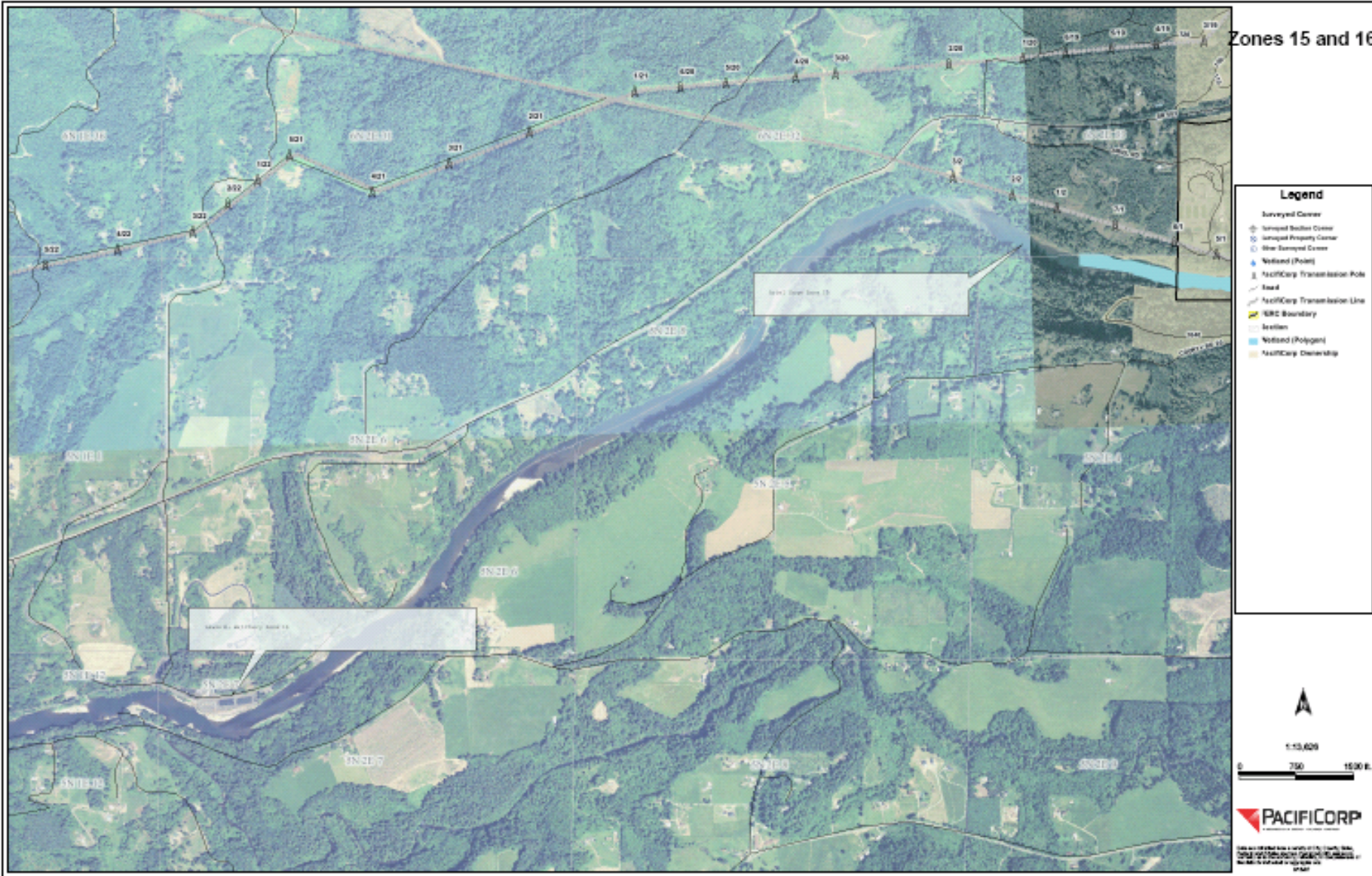
Radio Tagging Details

- 25 fixed antennas and 17 detection zones.
- 10 zones cover the perimeter of tailrace and gallery, 2 ladders and 1 in trap.
- 4 zones located downstream in the Lewis River: pool immediately below the tailrace, just downstream of release location, Lewis River Hatchery, and Woodland.
- Increased number of tags to 150 each: coho and spring Chinook salmon and winter steelhead. Anticipate losses of up to 50 percent due to: 1) non-Lewis River strays tagged (estimated out of basin stray rates up to 30 %), 2) regurgitation rate as high as 11%, mortality and behavioral abnormalities.
- Will tag fish at new trap facility and truck immediately for release at Merwin boat ramp thus reducing holding, handling and transport of fish.





Zones 15 and 16



Zone 17

Legend

- Surveyed Center
- Surveyed Section Center
- Surveyed Property Center
- Water Surveyed Center
- Noticed (Point)
- PacificCorp Transmission Pole
- Road
- PacificCorp Transmission Line
- ISRC Boundary
- Section
- Noticed (Polygon)
- PacificCorp Ownership



1:15,625



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Trap Efficiency Parameters

- **TRAP ATTRACTION** = NUMBER DETECTED IN THE ZONE 1 IN FRONT OF THE TRAP ENTRANCE (TAILRACE TRAP ZONE) DIVIDED BY THE NUMBER DETECTED MOVING UPSTREAM INTO TAILRACE, **PacifiCorp and R2 working to determine comparative values from 2005-6 study.**
- **TRAP ENTRY RATE** = NUMBER OF TRANSITIONS FROM TAILRACE TRAP ZONE (ZONE 1) TO THE LADDER (ZONES 18 AND 19) DIVIDED BY THE TOTAL TIME IN ZONE 1,
- **TRAP LADDER PASSAGE TIME** = SUMMING THE TOTAL TIME IN LADDER DETECTION ZONES AND COMPARE TO A PRE-DETERMINED LEVEL (**YET TO BE DETERMINED – PacifiCorp and R2 analyzing data for this metric.**),
- **NUMBER OF ENTRIES RESULTING IN CAPTURE** = DETERMINED BY THE PROPORTION OF FISH IN ZONE 20 AS COMPARED TO THE NUMBER OF UNIQUE DETECTIONS IN ZONE 18 AND 19, **PacifiCorp and R2 working to determine comparative values from 2005-6 study.**
- **FALLBACK LESS** = THAN 25% CONSISTENT WITH COLUMBIA RIVER RATES OF FALLBACK, AND
- **TRAP CAPTURE EFFICIENCY** = NUMBER CAUGHT IN TRAP DIVIDED BY THE NUMBER DETECTED IN THE TAILRACE TRAP ZONE. **PacifiCorp and R2 working to determine comparative values from 2005-6 study.**

Additional Tests

- Look at **fish movement patterns** in the tailrace to determine if fish show directed movement to the trap or not.
- Look at **fish holding patterns** in the tailrace to determine where fish are holding in the tailrace.
- Determine the **total time fish are present in Merwin tailrace**.