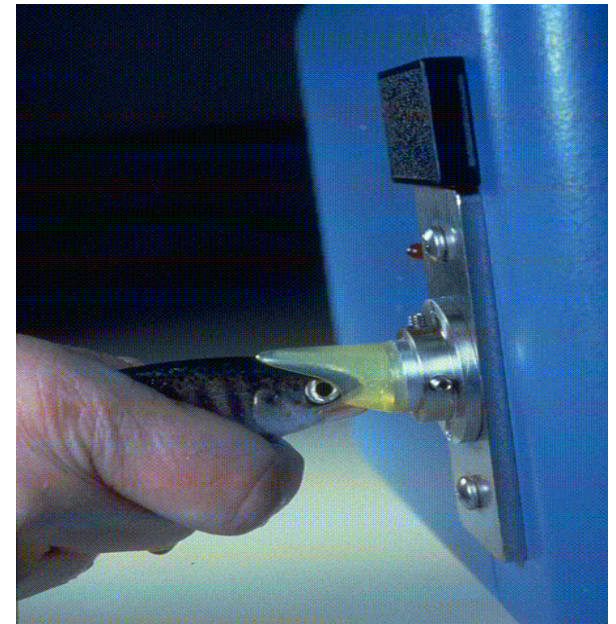
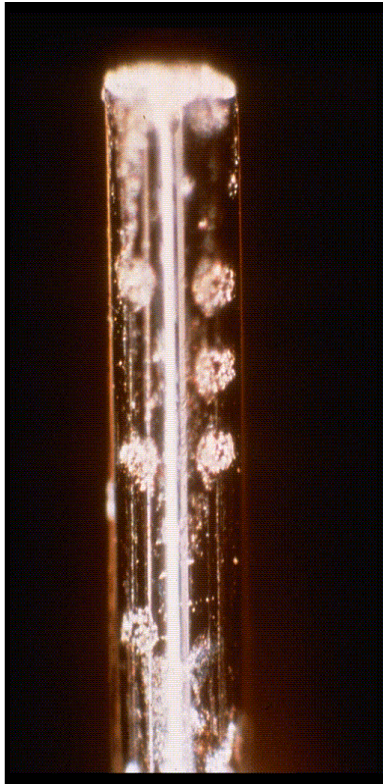


CWT Database Program Overview & ODFW Tag Recovery Lab

1982-013-01

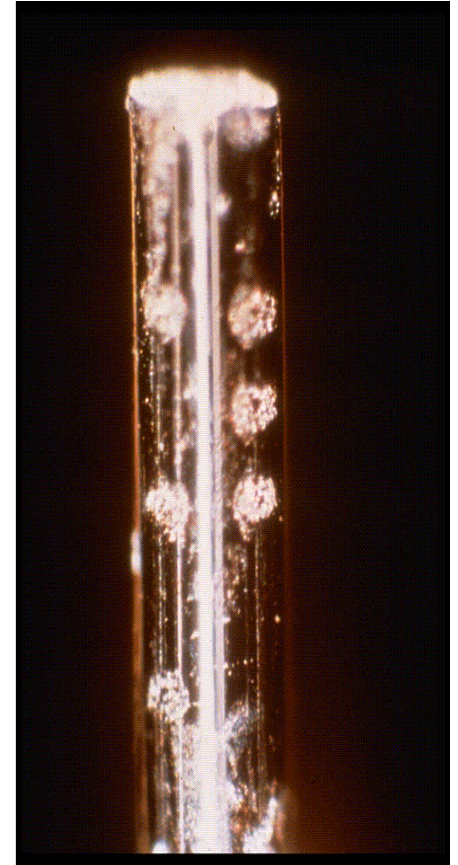
George Nandor – PSMFC

Trevor Clark - ODFW



Coded Wire Tags: Tiny Tool for Stock Identification

- Stainless steel micro-tag
- Introduced in late 1960s
- Replaced fin clips for stock ID
- Placed in nasal cartilage
- Originally binary coding scheme
- Adipose clip used ~ 3 decades as external flag for tagged fish
- Present: Use of electronic detection:
Ad clip now flag for hatchery fish



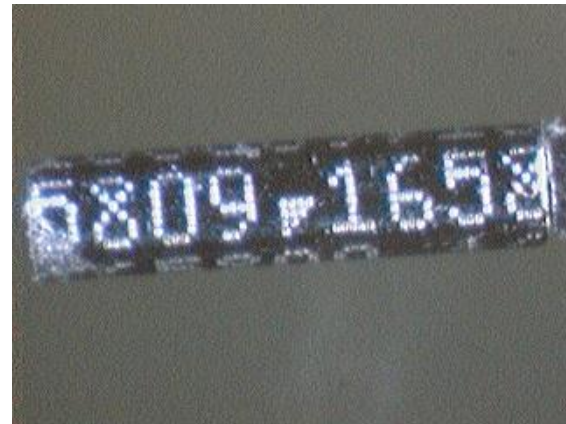
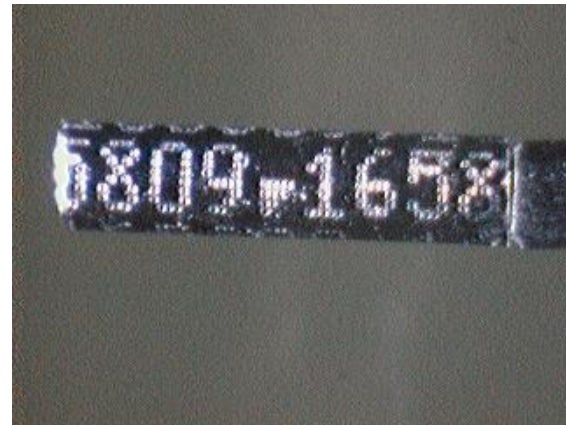
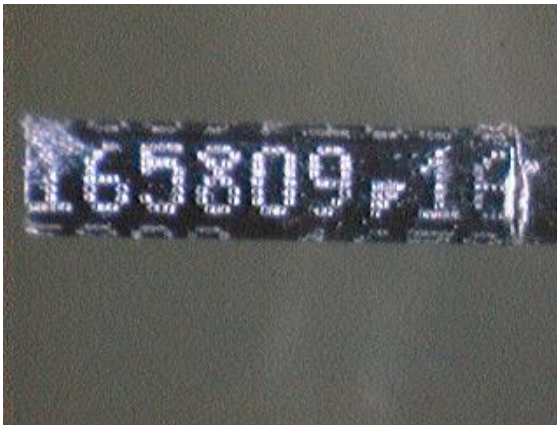
Major Advantages of CWTs

- Small size (0.25 x 1.1 mm)
- Ease of application
- Very low tag loss
- Vast number of codes
- Low cost (20 cents/tag applied)
- Biological compatibility
- Very minimal impact on survival
- 45+ years of data available



CWT Quality Today

- Tag 16/58/09



Types of CWT Marking Studies

1) Management Objectives

- Stock contribution (fisheries viewpoint);
Harvest allocation; Survival trends;
Escapement

2) Hatchery and Wild stock Evaluation

- Stock contribution to the various fisheries;
Straying; Age composition, etc.

3) Experimental Comparisons

- Diets, release sites, time of release, density,
etc

4) Habitat Evaluation

Relevance of CWT Information to the NPCC's Fish & Wildlife Program

- The CWT is the stock ID tool used coastwide for evaluating survival rates and status of salmonid stocks.
- It serves a wide variety of F&W Program purposes, including:
 - Hatchery monitoring and evaluation
 - Adult and juvenile migration patterns
 - Evaluating and monitoring harvest
- Coastwide harvest management closely intertwined with the mission of the F&W Program; and is critical to protecting Columbia River stocks in trouble.
- Federal ESA depends on CWT marked hatchery fish as indicators for listed stocks.

Coded Wire Tagging



Tagging Trailer in Action at Hatchery



Tagging Crew at work removing adipose fin and inserting CWT into the snouts of smolts



NMT's 'AutoFish System' Marking Trailer



Volitional Entry of Juvenile Fish into the Auto Clipping and Marking System



AutoFish System Close-Up View of Tagging Machine



Scale of Coastwide CWT Tagging Program

- 63 million tagged smolts released coastwide each year at a cost of ~\$10 million
- Over 1,100 new codes annually
- Chinook tagging levels are highest at 55 million; Coho levels at 7-9 million
- 45+ federal, state and tribal fisheries agencies and other private entities tag fish
- Almost every hatchery release group has a representative group of CWT fish

Principal Tagging Facilities

- Tagging programs are carried out at over 260 federal, state, tribal, and private hatcheries and rearing facilities on the west coast, including Canada
- Some wild stocks also captured and tagged

Scale of CWT Tagging Program in the Columbia Basin

- 28 million (45%) of the 63 million Chinook and coho tagged annually come from the Columbia Basin
- They comprise about 330 different tagged release groups
- About 20% of the juveniles released from hatcheries have a CWT

Program scale cont.

- On a coastwide basis, BPA funds an estimated 11% of the 63 million tags released annually and ~ 25% of the Columbia River tags
- 60,000 to 157,000 CWTs are recovered from Columbia R. Basin origin fish annually, depending on run size

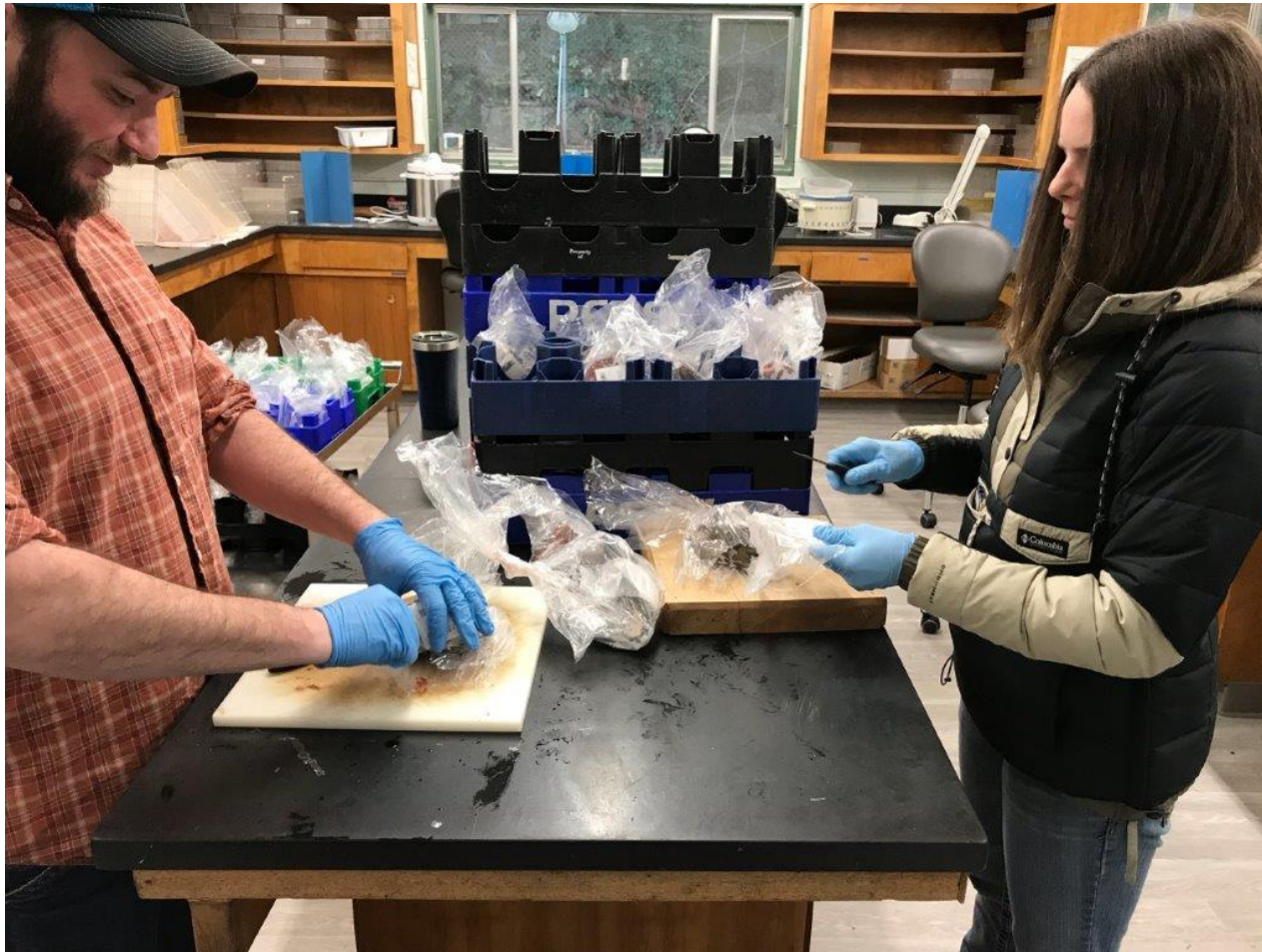


ODFW Tag Recovery Lab

Clackamas, Oregon

- Extract and decode CWTs from fish heads recovered in the sampled fisheries, etc.
- 30,000 to 40,000 tags recovered annually
- Verify and report CWT data to ODFW's data system and to PSMFC's Regional Mark Information System (RMIS)

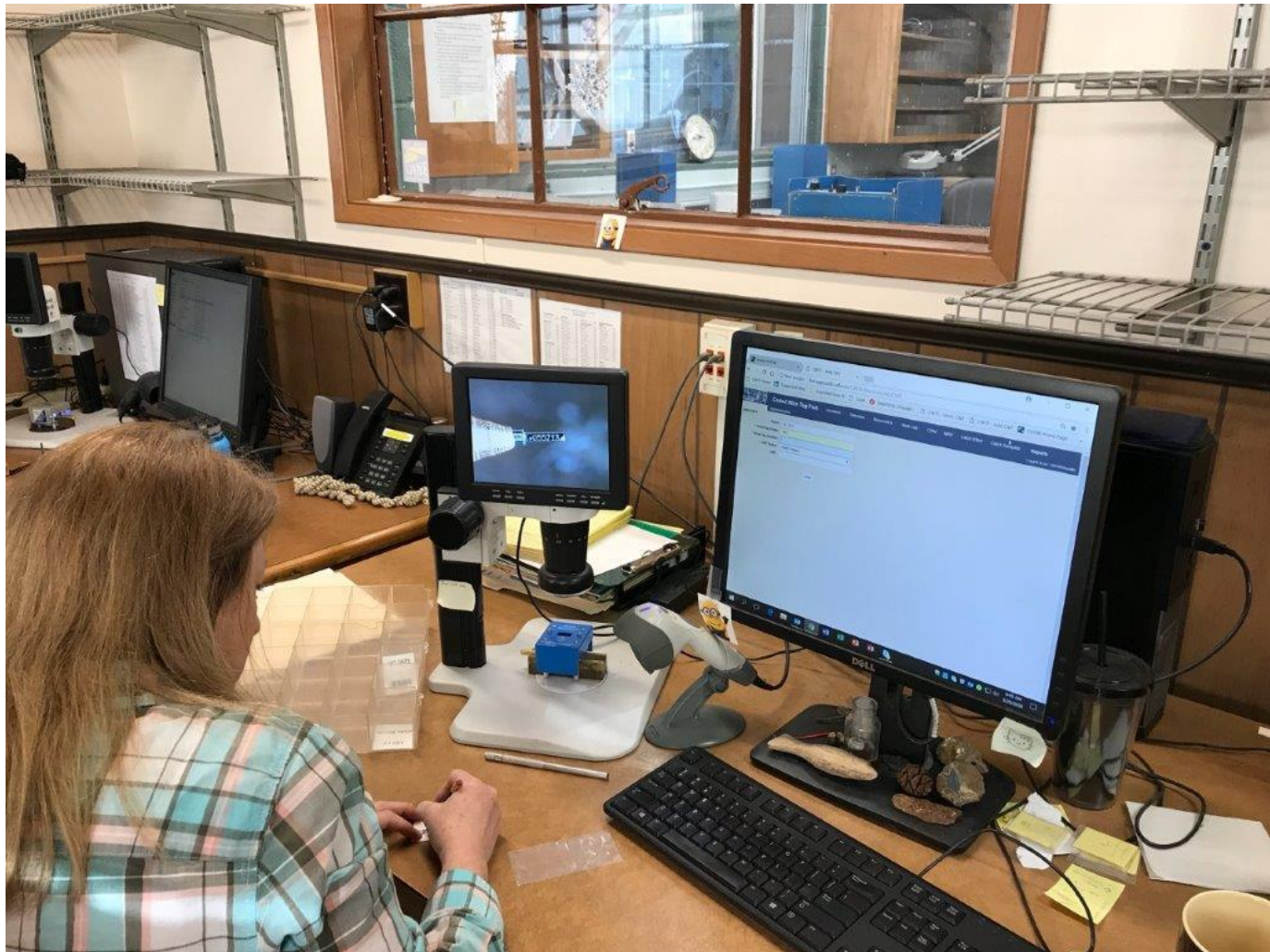
Sampled Heads Brought into the Lab Frozen



Coring a snout to recover tag



Coding on Tag Easily Read on Monitor Screen



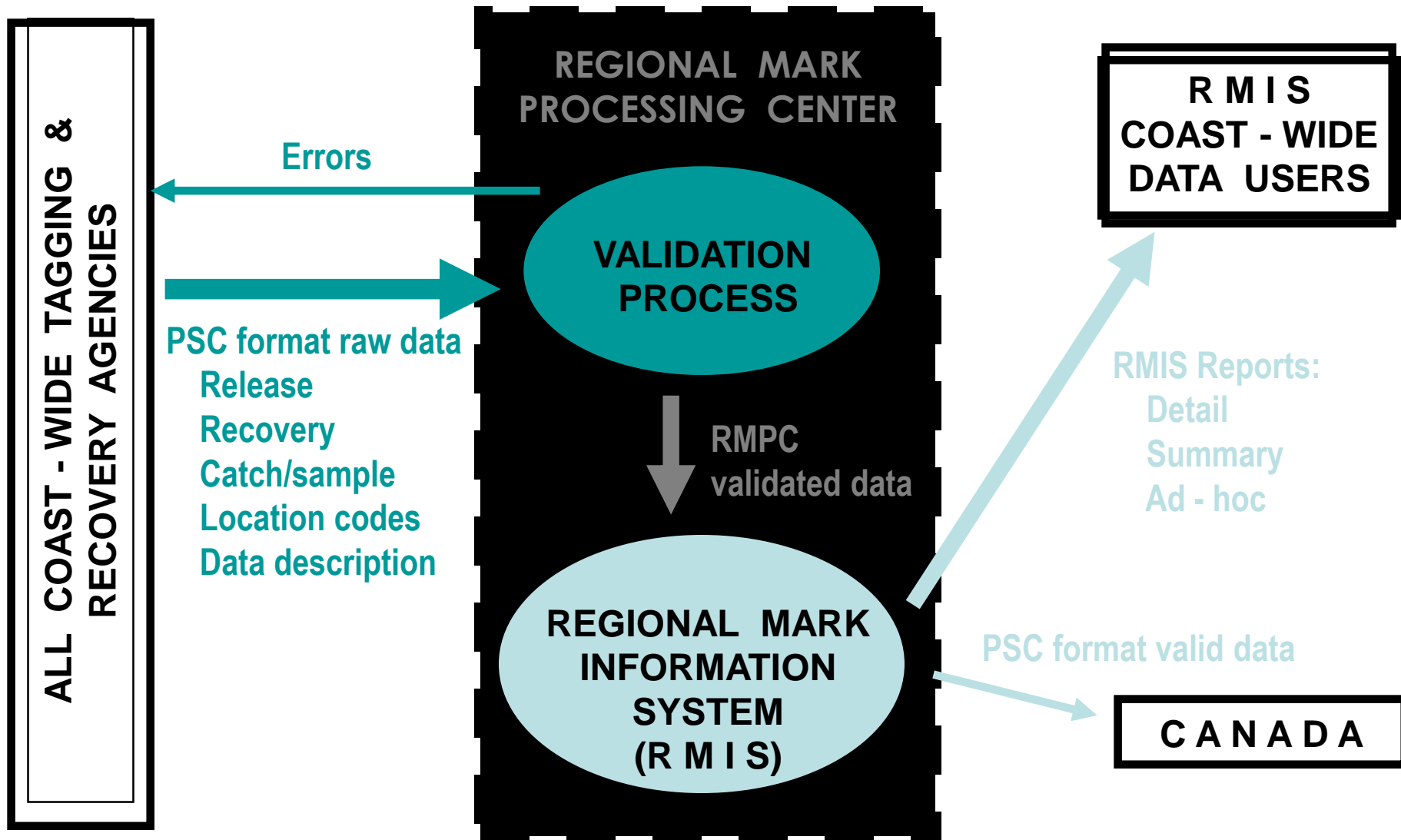
CWT Data Management



The Regional Mark Information System (RMIS)

- CWT data are forwarded to the Regional Mark Processing Center (RMPC) where it is loaded and validated against an extensive set of checks
- Once validated, the data are moved into an online relational database (PostGres) that the public can access via the Internet
- Data is accessible in various formats and summary reports

Data Flowchart for the RMPC



RMPC Home Page



REGIONAL MARK PROCESSING CENTER



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Welcome

The Regional Mark Processing Center (RMPC) provides essential services to international, state, federal, and tribal fisheries organizations involved in marking anadromous salmonids throughout the Pacific region. These services include regional coordination of some tagging and fin marking programs, maintenance of databases for Coded Wire Tag Releases, Recoveries, and Locations, as well as the dissemination of reports of these data in electronic or printed form when requested. These databases are known collectively as the Regional Mark Information System (RMIS).

Click on one of the options below to query the RMIS database. For more information, or assistance with a query, please feel free to [contact us](#).

RMIS Standard Reporting



Query the CWT database and run reports of Releases, Recoveries, Catch/Sample, or Location Codes.



RMIS Analysis Reporting

Query the CWT database and run Recovery reports based on Tag Code and/or Management Fishery.



Columbia R. Fish Facilities Map

Interactive map of locations of facilities used for fisheries management within the greater Columbia River basin.

RMIS Query Form

You are here: [Home](#) ▶ RMIS Standard Reporting



Releases : Query Form Help

Enter query criteria in boxes below and click on Retrieve button; Click on field names above boxes for help

Record Code	Tag Code or Release ID	Tag Type	Species	Run	Brood Year	Last Release Date Year	Release Agency	Study Type	Release Stage	Rearing Type	Reporting Agency
T	220305										

Release Location RMIS Region	Release Location Name	Hatchery Location Name	Stock Location Name	Release Location State/Prov

Release Location RMIS Basin	Release Location Code	Hatchery Location Code	Stock Location Code	Mark Codes

Retrieve

Options: ☒ Retrieve as Tagcode/ID List (if # rows < 1000) ☐ Params

Logged in

Database Name

rrep

Email Address

george_nandor@psmfc.org

Logout

Releases

[Tagged Releases](#)

[Non-Assoc. Releases](#)

[All Releases](#)

[Adclipped Releases](#)

[Related Releases](#)

Recoveries

[By Tag Code](#)

[By Release Hatchery](#)

[By Tag List](#)

[All Recoveries](#)

Other

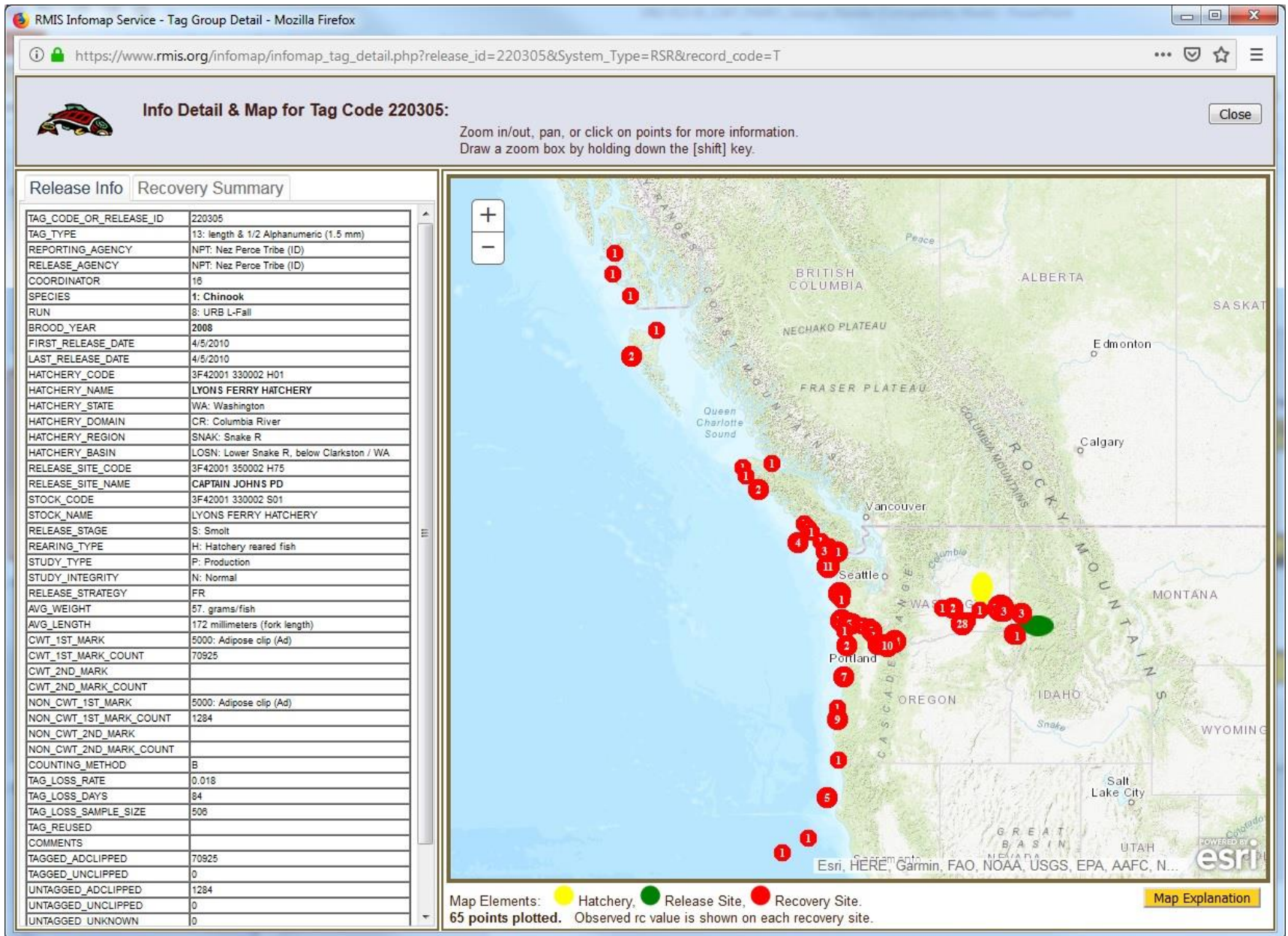
[Catch/Sample](#)

[Locations](#)

Help

[User Guide \(PDF\)](#)

Query Result (Lyon's F. H – Capt. John's Pd)



New Data Uploaded to RMIS in 2018

- Releases: 3,727 rows
-
- Recoveries: 242,049 rows
-
- Catch/Sample: 9,359 rows
-
- Locations: 1,105 rows

RMIS DB Users

- 691 different people logged-in to RMIS in 2018
- 438 users logged-in multiple times
- 152 users logged-in more than 10 times
- One power user has logged-in more than 1,096 times since registering on the RMIS site.

Questions?





INDEPENDENT SCIENTIFIC REVIEW PANEL

ISRP 2019-1 APRIL 4, 2019

Preliminary Report: Mainstem and Program Support Category Review

The ISRP reviewed 47 projects. Of those, 21 ***meet the ISRP's scientific criteria***. 11 projects ***meet scientific criteria with qualifications*** and ***response requested*** for 10 proposals. 5 projects were designated ***not applicable***.

Overall comment:

The recent advance in parentage-based tagging (PBT) has introduced an additional opportunity for analyzing SARs. PBT might soon replace the need for CWT (Beacham et al. 2018₁) and could perhaps be used to address disparities in SARs based on CWT and PIT-tags.

Recommendation:

Alternative approaches for estimating SARs should be evaluated with respect to underlying assumptions and applicability, and the resulting SAR estimates compared in a single review. This review could be undertaken by: (1) the project proponents working collaboratively, (2) an independent analyst, or (3) the ISAB.

CWT Program Comment:

Surprisingly, the proposal does not provide arguments (or cite relevant articles) to justify continuing the use of CWT instead of switching to genetic techniques for identifying individual fish (e.g., parent-based tagging) that have become increasingly powerful and cost effective and are now used widely throughout the Columbia Basin (e.g., by CRITFC).