FISH INVENTORY SYSTEM

TRAPPING HOLDING SPAWNING INCUBATION REARING RELEASE

FINS Database Program

PSMFC FINS Team and Cooperators

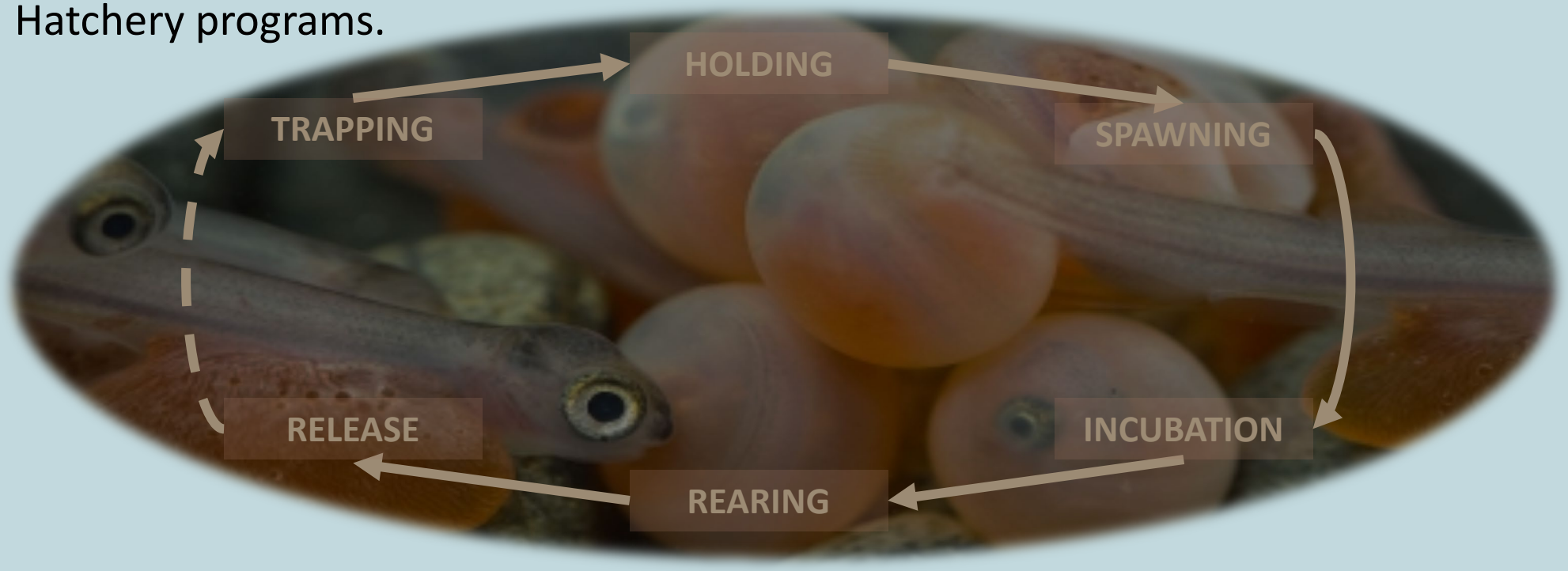
Tara Garrison, PSMFC FINS Project Manager
Nancy Leonard, PSMFC Program Manager
Stan Allen, PSMFC Senior Program Manager

ISRP LSRCP Chinook Review November 13-15, 2022

What is the Fish Inventory System (FINS)

A collaborative hatchery database that

- Tracks production from adult collection to egg and juvenile releases.
- Supports information needs
  - Lower Snake River Compensation Plan.
  - Hells Canyon Settlement Agreement.
  - Hatchery programs.



Learn more about real-life uses by viewing the presentation on the bottom of the webpage:
https://public.finsnet.org/modules/

Evolution of FINS

An iterative development approach to continuously improve and better support its cooperators

- <2011, IDFG's Hatchery Data Management System (HDMS).
- 2011, FINS established for real-time access to standardized data.
- 2012, FINS desktop application in-development.
- 2013, official start of migration from HDMS.
- 2014, FINSNet.org web portal for data entry and queries.
- 2014-present, modules and functionalities added with focus on FINS Online.

FINSNet.org Web Portal

Large query capabilities.

Authenticated users access data and location specific menus for custom functionality.

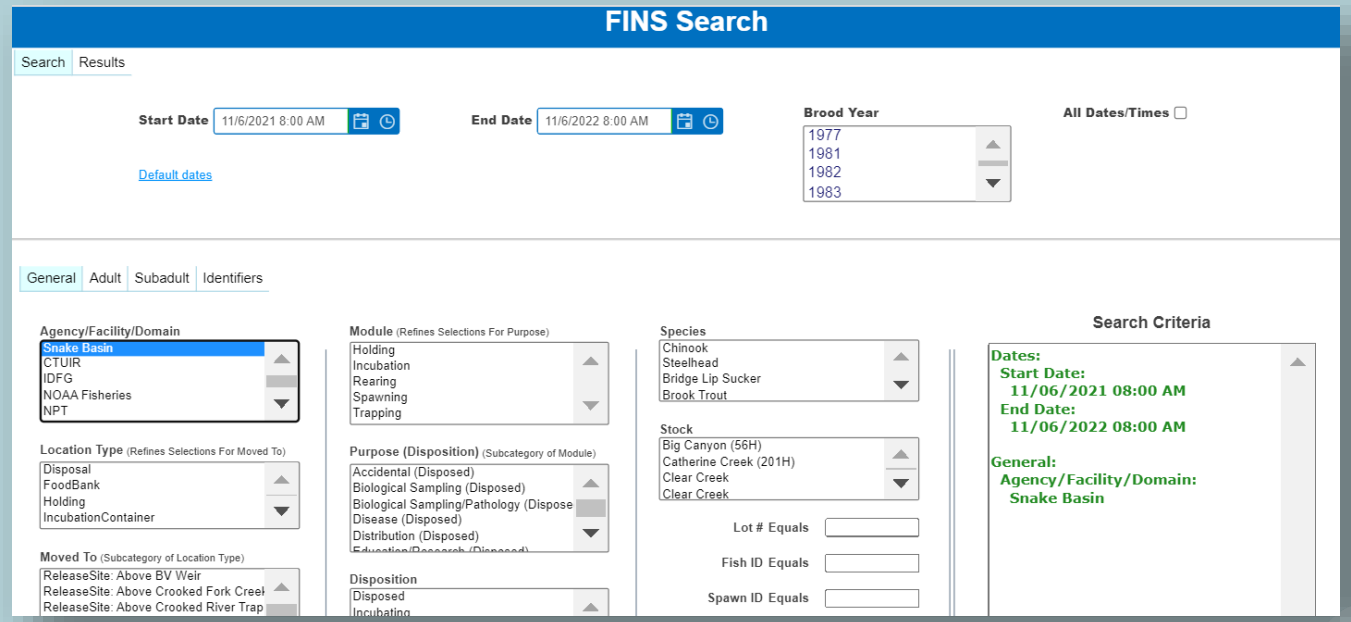
Administration tools for setting up each Facility submitting data.

FINS and 2011-2014 LSRCP ISRP Review Recommendations

FINS has developed in a manner that aligns with the 2014 ISRP recommendations

- Centralized database accessible to all cooperators
- Standardized data for assessing in-hatchery performance, mitigation, and informing management.

ISRP 2011-2014 recommendation:
In-hatchery performance metrics for LSRCP hatcheries should be imported into a centralized database that is accessible to the cooperators.



For FINS technical details access this document from the FINS/Documents webpage: FINS Technical Summary
Summary Review of the Lower Snake River Compensation Plan 2011-2014 (ISRP 2014-6)

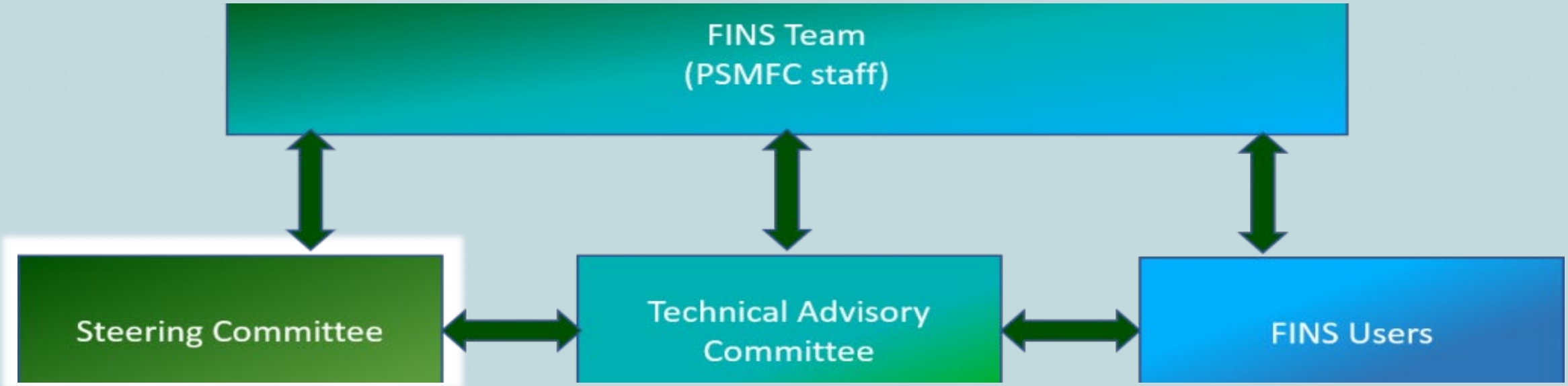
FINS Development and Enhancements are Driven by Users

User Satisfaction Assessed	User Requests Received and Assessed
• Quarterly meetings • Support request events (calls/emails)	• Email, training, TAC meetings, beta testing • Requests are discussed with Steering Committee

Event Log	Audits
By Date/Time ▪ Login ▪ Logout ▪ Errors ▪ Query Run Time	Usage by User by Date ▪ Data Entry - Create, Update, Delete ▪ Queries ▪ Videos

FISH INVENTORY SYSTEM
FINS

FINS Decision Process and Implementation

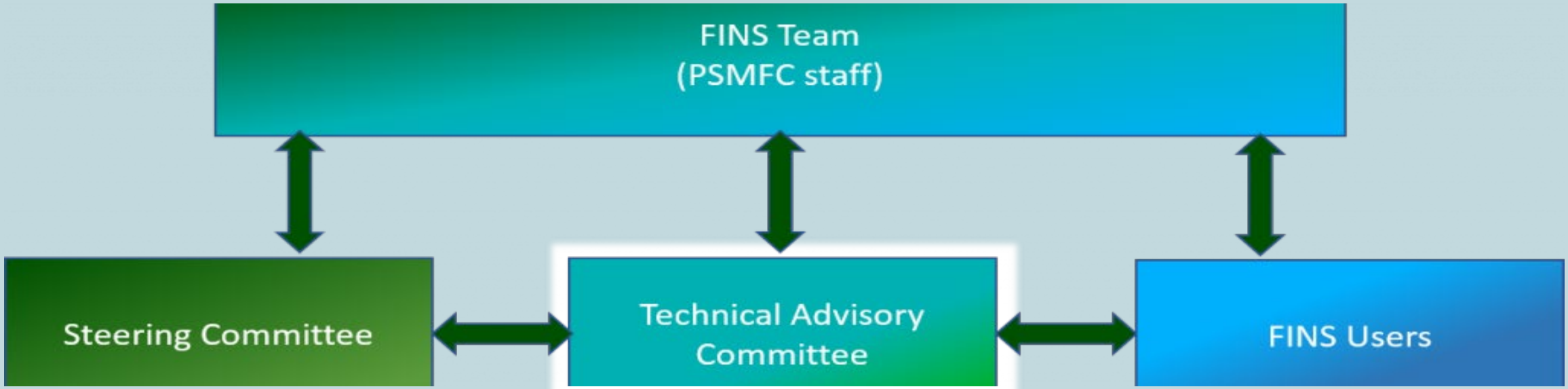


Representatives from agencies and tribes

- Review PSMFC's FINS annual statement of work.
- Prioritize development of enhancements.
- Coordinate with other funding agencies regarding FINS administration.
- Represent the funding interests and needs of each entity.

For more details see FINS Charter accessible from the FINS Document webpage:
https://public.finsnet.org/about-us/documents/

FINS Decision Process and Implementation



Representatives from FINS users including hatchery managers, hatchery monitoring and evaluation biologists, hatchery technical experts, and other data coordinators

- Serve as FINS Experts.
- Provide technical input on overall functionality, and on beta and final products.
- Vet enhancement requests and use cases.
- Report priority requests and issues to Steering Committee.
- Represent multiple agencies/tribes and type of FINS users.

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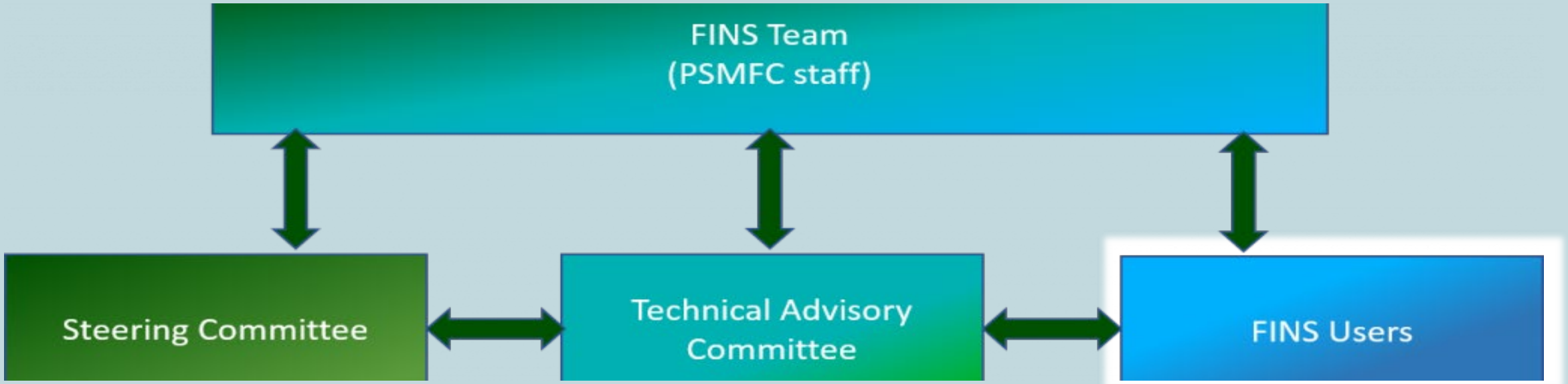
FINS Decision Process and Implementation



Agency and Tribal staff

- Over 100 active users.
- Users are considered active if they have accessed FINS within 6-months.
- Inactive users deleted quarterly.

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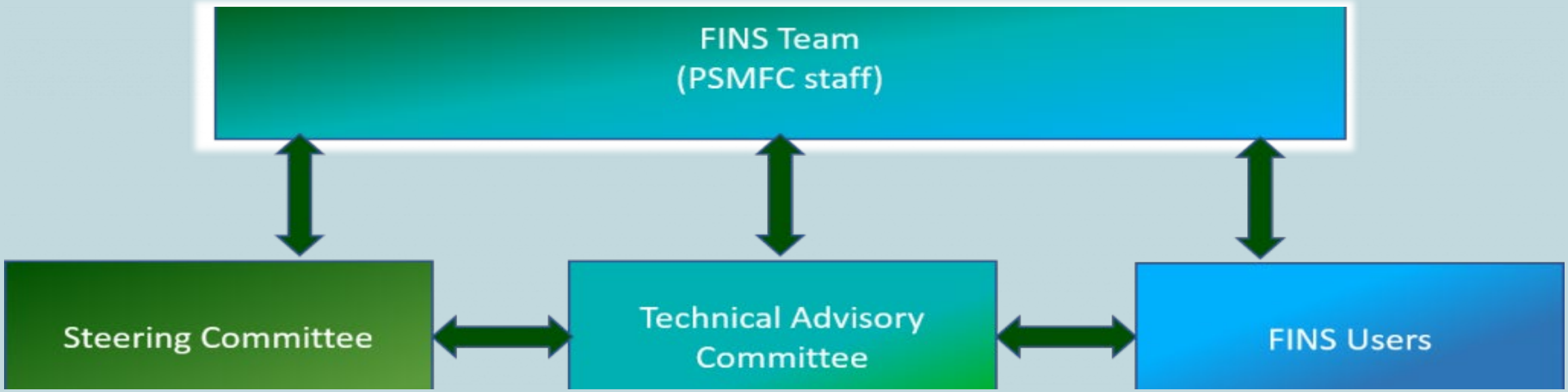
FINS Decision Process and Implementation



FINS team manages, develops, and implements database and user applications.

Project Manager
Tara Garrison
(PSMFC Project Manager)

Web Architect
Marc Stromberg
(PSMFC IT Supervisor Database Management Specialist)

Support Specialist
Joe Hayes
(PSMFC IT Applications Software Specialist)

Training Specialist
Jorge Gonzales
(PSMFC IT Applications Software Specialist)

Developer
Vacant
(PSMFC IT Applications Software Specialist)

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FINS Data Modules

span entire hatchery production cycle

Trapping Module (1st release 2013)

Holding Module (2015)

Spawning Module (2015)

Incubation Module (2016)

Rearing Module (added 2017)

Release Module (added ~2017)

Overall Scope of Snake River Basin Domain Hatchery Data in FINS*

- 14 fish species.
- 50 different hatchery stocks.
- 3 state agencies
- 3 tribal agencies
- 2 federal agencies
- 36 programs (facilities/weir)
- 200+ subadult (egg/juvenile) release sites

*Summary of 2021 content which is not limited to Spring/Summer Chinook

2022 LSRCP Spring-Summer Chinook Hatchery Data in FINS

Spring/Summer Chinook

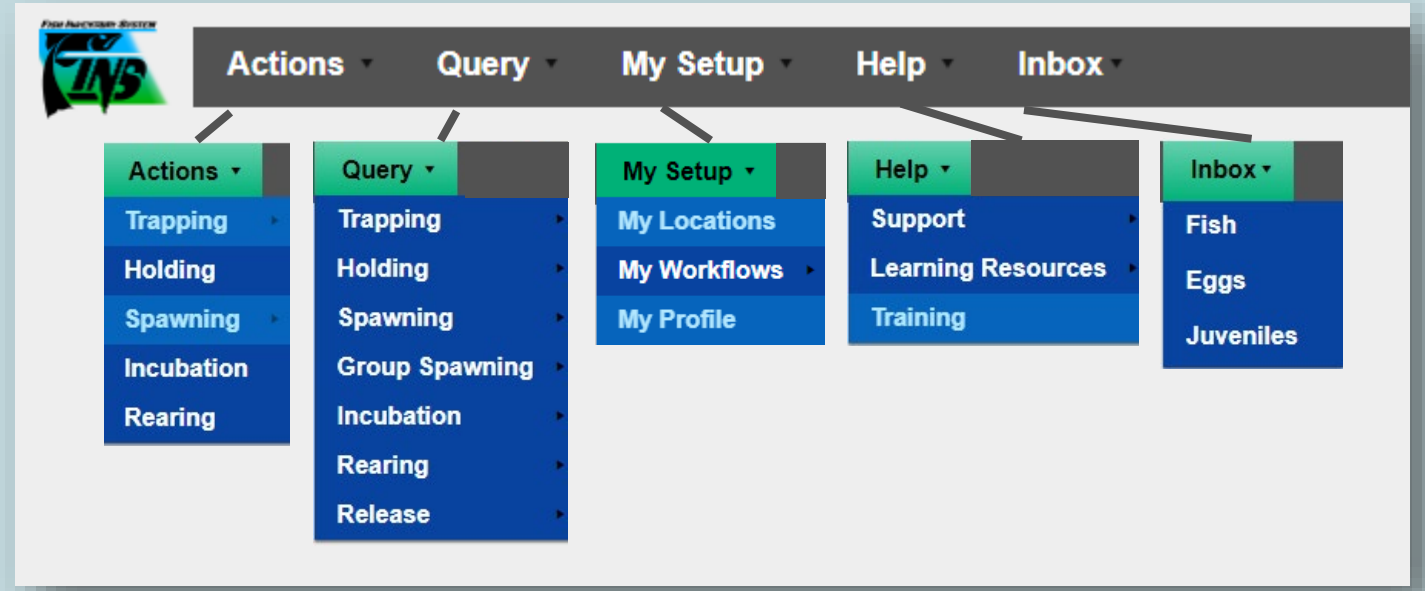
- Data spans 2014 to 2022.
- 9 brood years (brood year is designated at spawning).
- Trapped and spawned from over 10 facilities/programs, involving 5 agencies/tribes.

Dworshak National Fish Hatchery Chinook Spawning (PSMFC/Tara Garrison, Oct. 2013)

FINS Data Quality Processes

Guided data entry through web application

- Business logic enforced by validation of client input.
- Restriction of data value selections applied via dropdown menus.
- Relational database provides inherent metadata availability.
- Range checks applied to user inputs.



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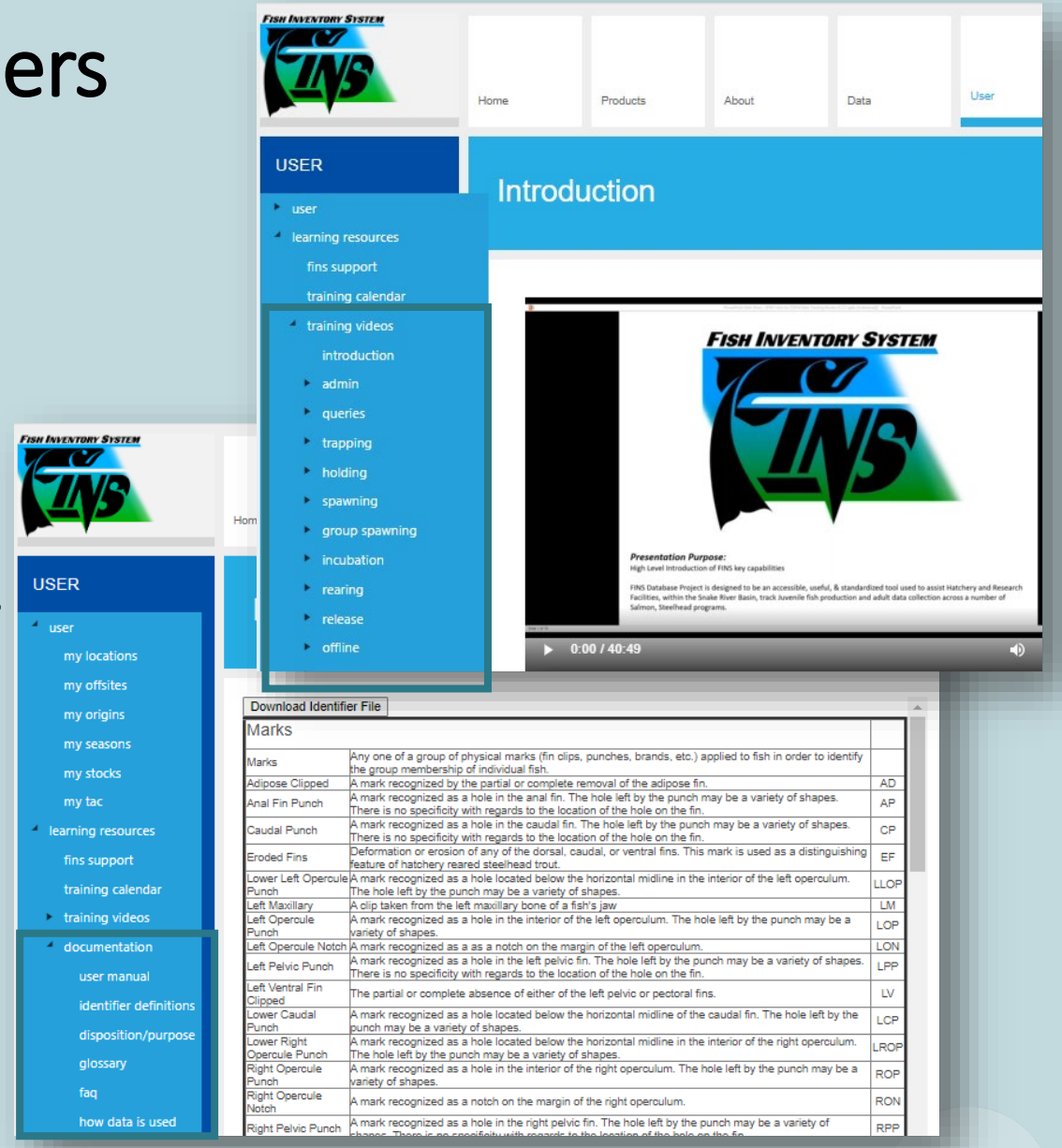
[FINS Technical Summary]

FINS Resources for Authorized Users

Support for proper use and data quality

- On demand training.
- Access to FINS Support
  - Email, phone, and dedicated support hours.
- Training videos
  - Over 100 videos covering specific components.
- Documentation
  - User manual, glossary, definitions, FAQ.
- Integrated tech support links
  - Quick bug reporting.
  - Support requests.



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FY2023 Feature Release

FINS Parentage-Based Tagging / Tracking Rate Tool

(currently in Beta Testing)

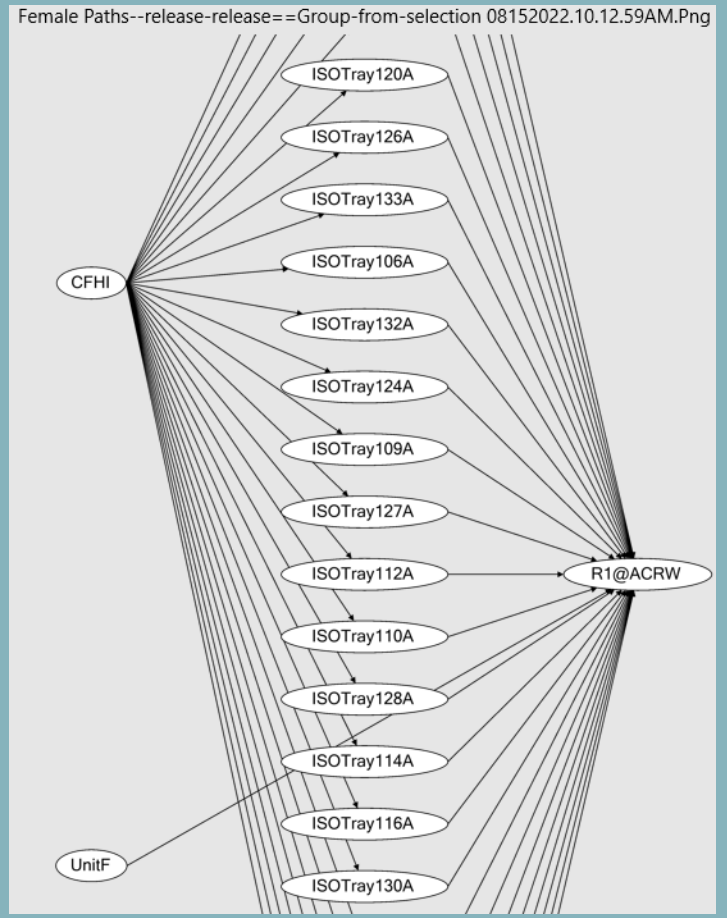
Tool provides ability to

- Upload and store Fish Health Genetic ‘Progeny’ Database genotype data into FINS.
- Validate Male/Female spawning pairs against FINS Spawn Cross data
  - FINS Spawn Sample Values formatted to match ‘Progeny’ file format
- Calculate
  - Genotype Rate: % pairs associated with a collection (release event) successfully genotyped.
  - Tracking Rate: % juveniles associated with females exclusive to a collection, to the number of juveniles associated with the females in the collection.
  - Tagging Rate: product of the Tracking Rate and Genotype Rate.

Female Visual

- View of all, or selected, Female Move Paths in a release showing what containers they traveled through

Fish Visual



Highlights of Existing FINS Features

Fish Return Summary

- Summary by Facility of holding/broodstock inventory and final disposition
- Combined view per query filter selections:
  - Total in (Trapped, Received),
  - Total Ponded (On Hand),
  - Total Out
    (Spawned, Disposed, Released, Shipped).
- Enhanced dynamic Query Tool filter menu
  - Filter options adjusted based on available data as selections are applied.
- Summary layout options
  - Can be saved (not filter selections)
  - Shared within a Facility or at an Agency level to provide standardized summary output between query users.

FISH RETURN SUMMARY

	Living Status	Purpose	Disposition	Moved To	Origin	Age	Non Recap Male	Non Recap Female	Non Recap Total	Total
Trapped (to Date)	Alive	Brood Stock	Ponded	HP 1	Hatchery-Segregated	Adult	534	512	1046	1046
						Jack/Jill	7	6	13	13
					Hatchery-Integrated	Adult	22	25	47	47
						Jack/Jill	4	1	5	5
					Natural	Adult	20	18	38	38
		Natural Spawning	Released	Above Weir	Natural	Adult	32	24	56	56
						Jack/Jill	13		13	13
					Hatchery-	Adult	8	9	17	17
		General Holding	Ponded	HP West	Hatchery-Integrated	Adult	1		1	1
						Jack/Jill	49		49	49
					Hatchery-Segregated	Adult	78	63	141	141
						Jack/Jill	360		360	360
						Total Trapped	1128	658	1786	1786
						Total In	1128	658	1786	1786

Sample Data

Sample Data

Ponded (On Hand Inventory as of 7/20/2022)	Holding Location	Origin	Visual Age	Unknown	Male	Female	Total
	HP 1	Hatchery-Segregated	Adult		587	560	1147
	SFH: HP West	Hatchery-Segregated	Adult		328	63	391
			Total Ponded	0	915	623	1538

	Living Status	Purpose	Moved From	Moved To	Origin	Age	Male	Female	Total
Released	Alive	Natural Spawning	Above Weir	Above Sawtooth Weir	Natural	Adult	32	24	56
						Jack/Jill	13		13
					Hatchery-Integrated	Adult	8	9	17
		Fisheries	HP West	Mainstem	Hatchery-Segregated	Jack/Jill	159		159
					Total Released		212	33	245

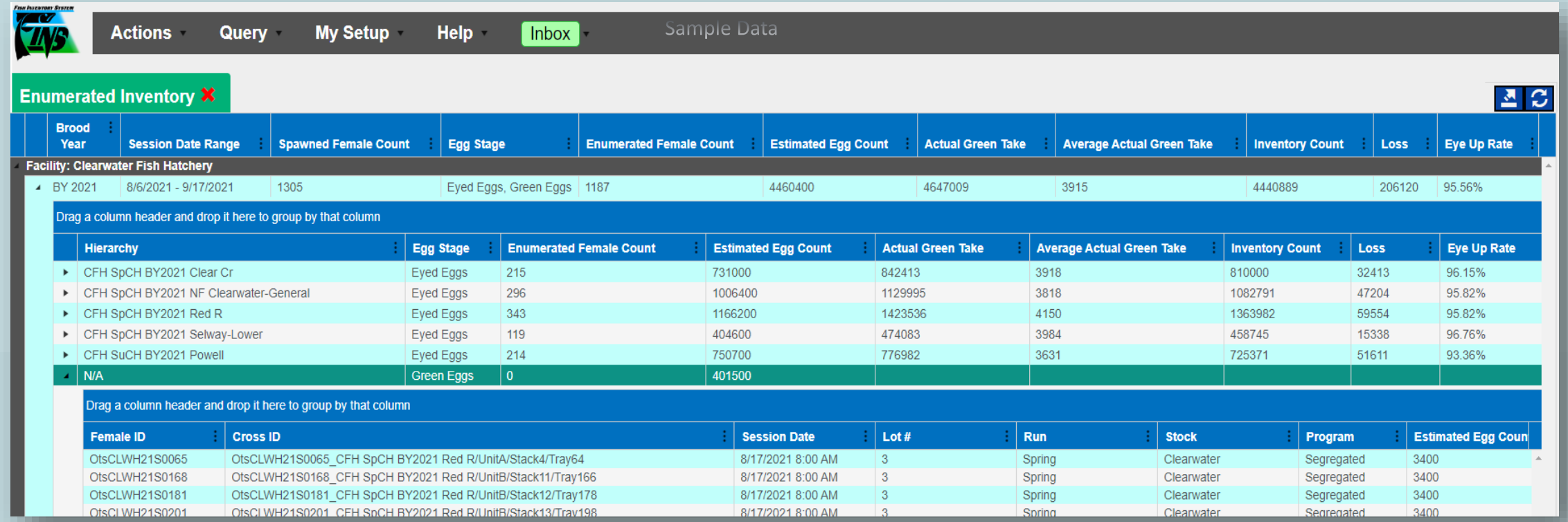
	Living Status	Purpose	Moved From	Moved To	Origin	Age	Male	Female	Total
Disposed	PondMort	General Disposal	HP 1	Landfill	Hatchery-Segregated	Adult		2	2
			HP West	Landfill	Hatchery-Segregated	Adult	1		1
						Jack/Jill	1		1
						Total Disposed	2	2	4
						Total Out	214	35	249

Highlights of Existing FINS Features

Green/Enumerated Inventory Report

(user requested summary)

- Summarized output for in-season and post-season annual reporting by
  - Brood Year, Facility, Species, Hierarchy and Female ID of all Spawning Sessions by Date and Lot # for viewing Egg Enumeration status for all spawned eggs
- Report enhanced per Beta Testing user feedback to include Green (Non - Enumerated) Egg data for comparison/contrast

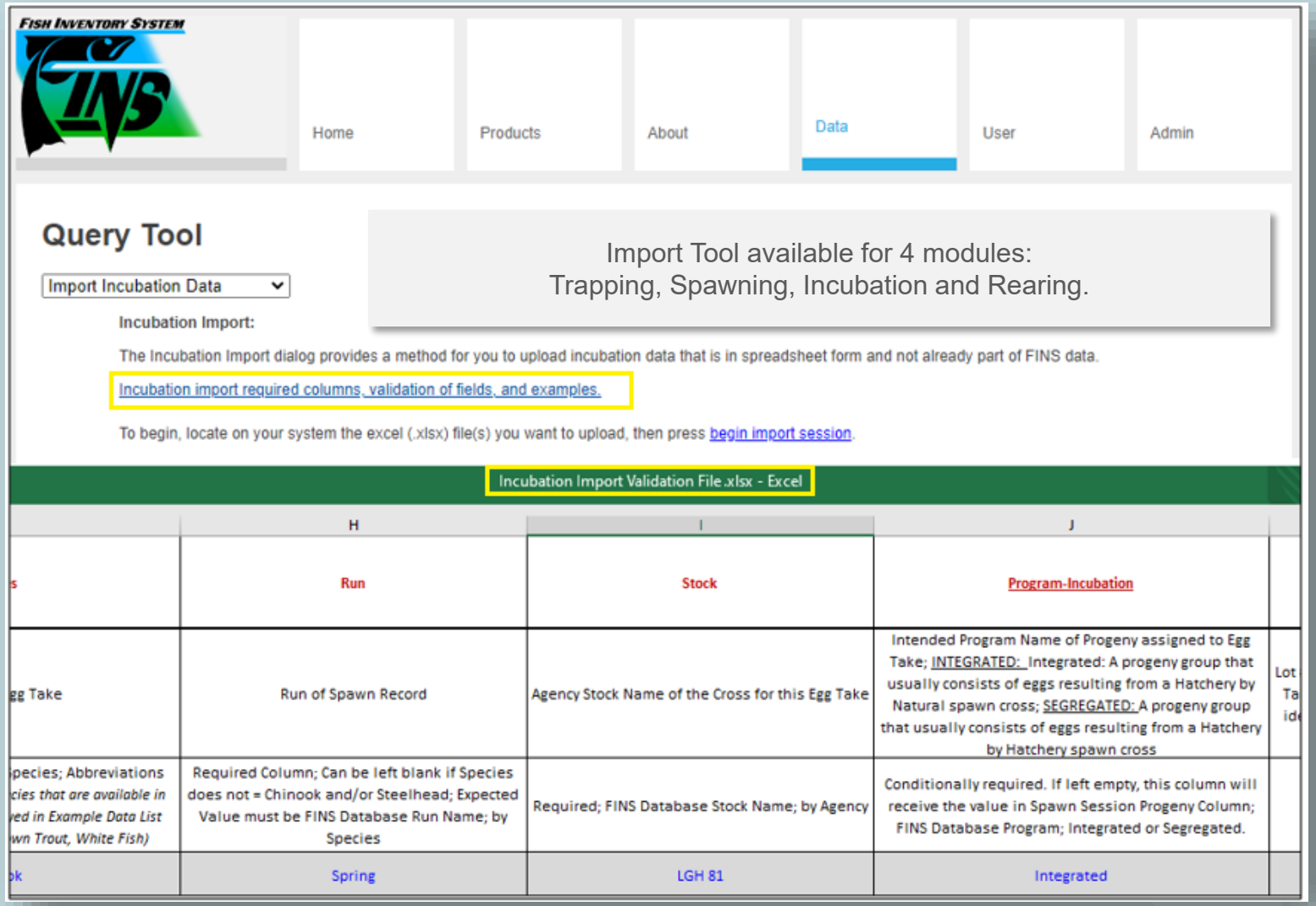


Highlights of Existing FINS Features

Import Tool

Replaces manual data entry process to facilitate upload data:

- Past and/or received data from non-FINS Facilities.
- Historical data and/or data from facilities that do not collect unique individual data on each spawn cross.
- Custom non-standardized data fields that the collaborator collected and wants to be able to query within FINS.

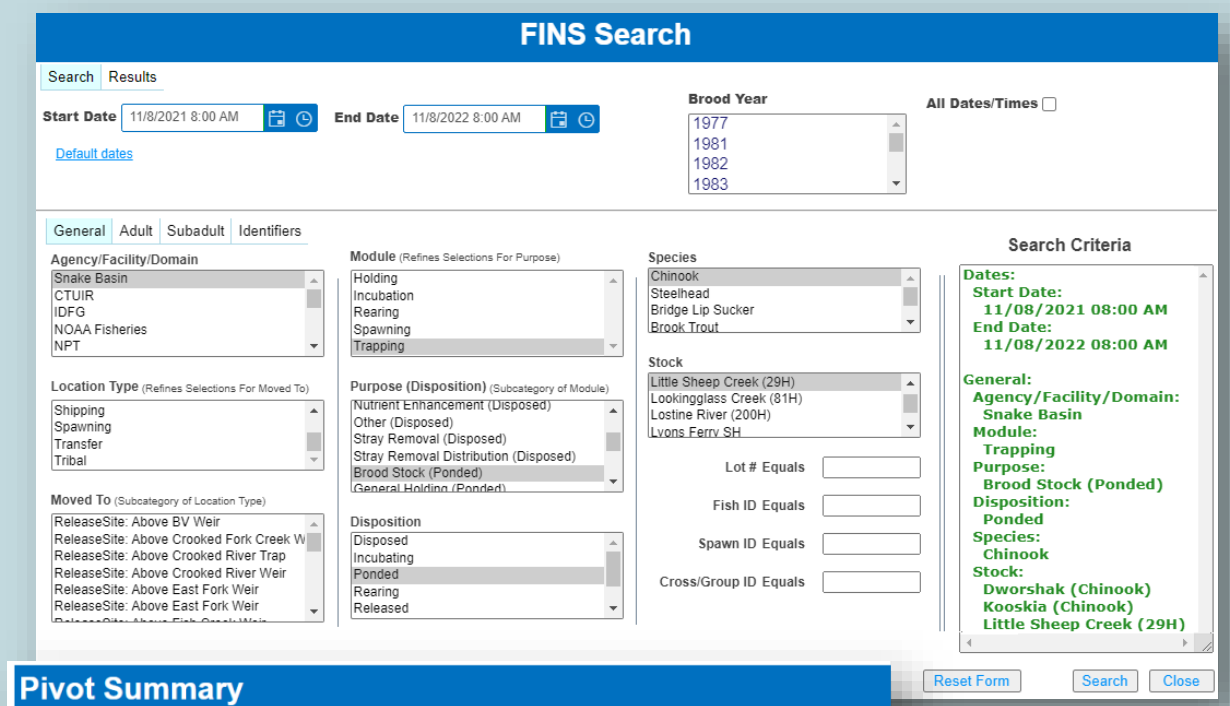


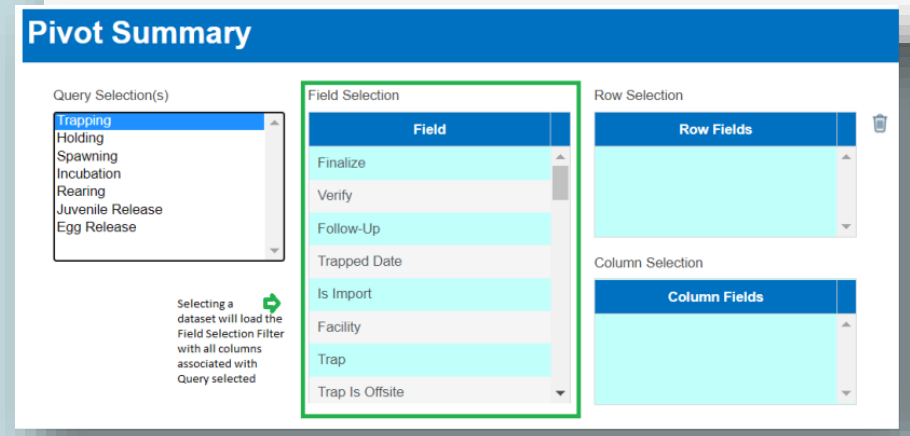
Highlights of Existing FINS Features

Custom Search/Query Filter Tool

Summary capability and improved data sharing to support coordination and data QA/QC by users

- FINS Search Tool
  - Custom querying for any FINS Hatchery
  - View output on screen.
  - Generates custom downloads.
  - Save queries for private or agency/facility use.
  - Searches data in Trapping, Holding, Spawning, Incubation, Rearing and Release.
- Pivot Summary (within FINS Search Tool)
  - Users can analyze and summarize their data by creating pivot tables for all FINS search results.





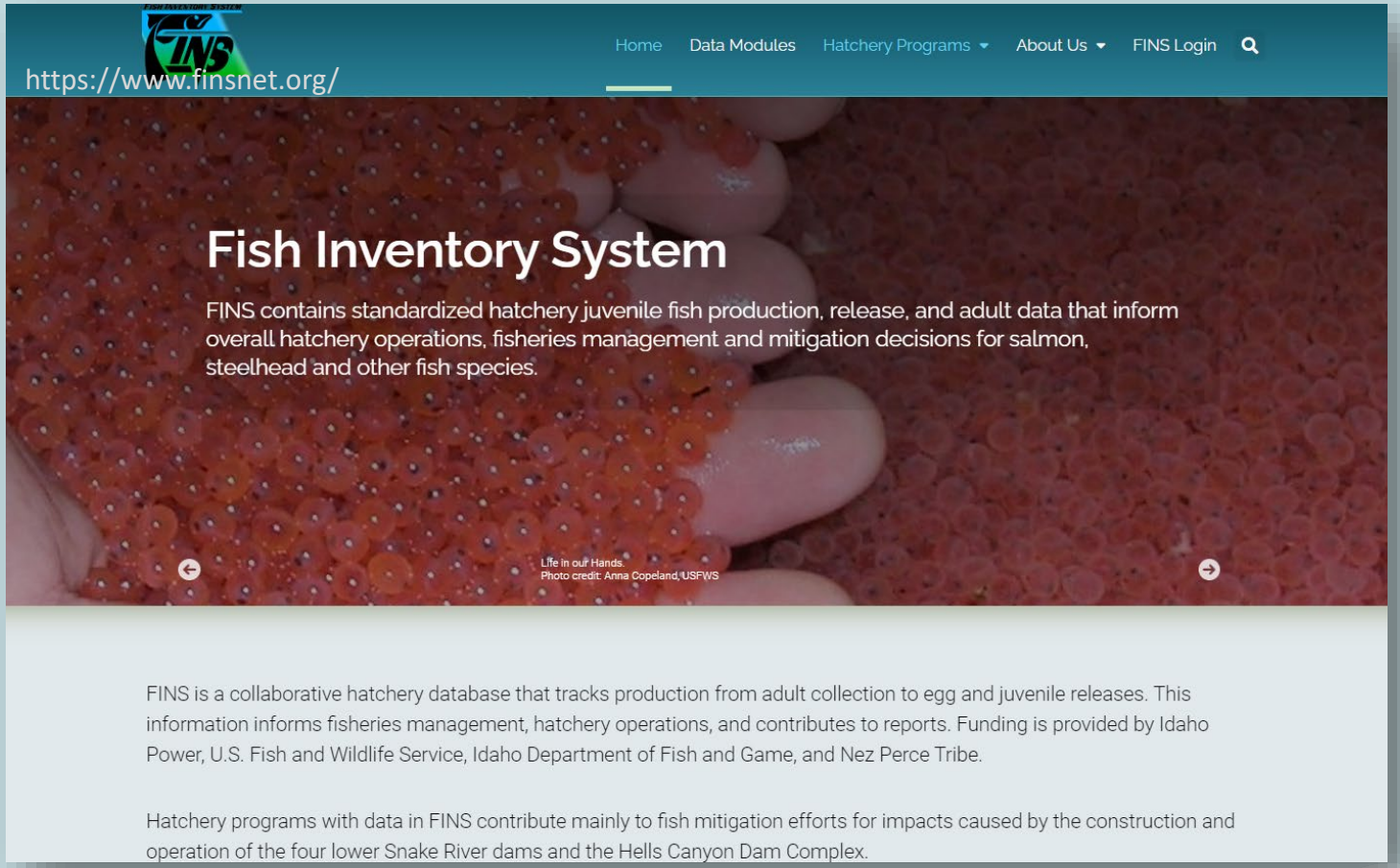
Highlights of Existing FINS Features

New Public Website

Target audience

- Reviewers, funders, and future cooperators.

- Enhances understanding about
  - Purpose
  - Process guiding FINS
  - Cooperators
  - Funding sources
  - Participating hatchery programs
  - Data categories



Thank you!

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TRAPPING HOLDING SPAWNING INCUBATION REARING RELEASE

Covering the entire hatchery production cycle