Coordinated Assessments Partnership
Fish and Habitat Data Exchange

April 26, 2021

HCAX Project Workshop 1 Summary and Next Steps

Resources

Find HCAX Workshop 1 (March 11, 2021) Materials: https://www.pnamp.org/event/hcax-workshop-1
Learn more about the HCAX Project and the Coordinated Assessments Partnership (CAP)

- Technical: https://www.streamnet.org/data/ coordinated-assessments/
- Events and background:
  - HCAX Project: https://www.pnamp.org/project/hatchery-data-sharing-hcax
  - CAP: https:// www.pnamp.org/project/coordinated- assessments-for-salmon-and-steelhead

Contact HCAX Project Core Team: Nancy Leonard (nleonard@psmfc.org); Jen Bayer (Jbayer@usgs.gov); Tom Iverson (t.k.iverson@comcast.net); Brodie Cox (Brodie.Cox@dfw.wa.gov), John Arterburn (john.arterburn@colvilletribes.com), and Keith Dublanica (keith.dublanica@gsro.wa.gov)

Workshop Summary

Objective: initiate process to collaboratively identify a list of hatchery indicators to share during phase 1.
Participants: see table at end of document.
Guiding principles:

- Identify which hatchery stock indicators to standardize to inform assessments and reporting; we are not identifying standardized indicators for individual hatchery facilities.
- Build on previous work by considering existing indicators that are used by managers, using the standardized terms in the CAP data exchange standards (DES) for natural-origin salmon and steelhead, and the draft standardized terms from the 2017 draft DES for hatchery indicators (see background section at end of document for more details).
- Access data from existing regional data infrastructure (RMIS, PTAGIS, CAX, etc.) and avoid duplicating data management and sharing efforts.

Workshop Results:
See Workshop slides here
The workshop organizers reviewed multiple information sources to identify where and what hatchery indicators are reported (see slides 29-42). This information shaped a pre-workshop survey which asked HCAX participants to provide input regarding their priorities for hatchery data sharing in advance of the workshop. The survey results were used to inform the discussion and further prioritization exercises during the workshop (see slides 42-52).

Workshop organizers identified three categories of information being shared:
1) Hatchery Program information that will likely be required when sharing any hatchery stock indicators;
2) Juvenile Production metrics that describe hatchery fish releases; and
3) Hatchery Stock indicators that help understand hatchery stock performance in the non-hatchery environment.

The workshop attendees were asked to provide input and rank the metrics/indicators within these three categories while considering the following criteria:

- Information is needed for regional decision-making/reporting

- Sequencing of metrics and indicators e.g., if a metric or indicator needs to be standardized first to support another indicator, etc.
- Data informing a metric or indicator is dynamic, i.e., data are updated or added to regularly
- Exclude content aimed at within hatchery improvements that is more suitable for individual organization's data systems

Result of Hatchery Program Information Exclusion/Inclusion Exercise

The workshop attendees were asked what supporting information should be included when sharing hatchery stock metrics and indicators. These data describe the hatchery program that produces the fish being measured. Using the subset identified from the pre-workshop survey, participants were asked if any should be excluded. None were selected by the majority of the participants for exclusion:

- Species
- Hatchery stock name/ID or population name
- Facility production purpose and type
- Name of source hatchery facility
- Spawning location(s)
- Number of fish spawned (male/female)
- Number of juveniles produced

An additional 15 metrics had been proposed through the survey by individual respondents. The workshop participants were asked whether any of these should be added to the above list of items. None of these metrics were selected by more than 50% of the workshop participants; thus, no other metrics were added to the Hatchery Program Information category at this time.

It was noted that some of the items included in the Hatchery Program Information category may be better suited to the Juvenile Production metrics category, such as the number of juveniles produced), or the Hatchery Stock Indicators, such as number of fish spawned. Subsequent work will consider whether any of these items should be moved to the other two categories based on how these will be used.

Result of Juvenile Production Metrics Ranking Exercise

Following the Hatchery Program Information exercise above, the workshop attendees were asked to rank the following seven Juvenile Production Metrics, with #1 in the below list being ranked the highest. These metrics inform assessments, reporting, and for calculating the Hatchery Stock Indicators.

1. Actual hatchery fish release number
2. Release location and date
3. Life stage of hatchery fish when released
4. Size of hatchery fish when released
5. Number of fish marked/tagged by mark type
6. Facility production purpose and type
7. Juvenile rearing location(s)

Result of Hatchery Stock Indicators Ranking Exercise

The workshop attendees were asked whether any of the additional five Hatchery Stock Indicators provided by pre-workshop survey respondents should be added to the existing list of nine Hatchery Stock Indicators. Based on the poll results, "Age at Return" was added to the list that was then ranked by the attendees. The resulting ten Hatchery Stock Indicators were ranked as follows by the workshop attendees, with #1 being ranked the highest:

1. Escapement – adult fish return to a location

2. Smolt to adult survival rates
3. Proportion of natural origin brood stock (pNOB)
4. Age at return
5. Hatchery origin spawner abundance (HOSA)
6. Natural origin spawner abundance (NOSA)
7. Proportion natural influence (PNI)
8. Recruits per spawner (RperS)
9. Estimate of hatchery stock harvested
10. Hatchery return (replacement) rates (HRR)

Next Steps

- Small subgroup of hatchery experts from tribal, state, and federal organizations will work with the HCAX Core Team to interpret the ranking results obtained during the HCAX Workshop 1 and propose an efficient sequencing approach for which elements to focus on for data sharing first (e.g., which of the program information, juvenile production metrics, and hatchery stock indicators need to be developed first, or can be omitted at this time, or should be lumped/split).
- HCAX Biologist Work Group
    - HCAX Biologist representatives will be invited to attend a series of technically focused work group meetings. These work group meetings will serve to:
        - Confirm final suite of Hatchery Stock indicators to include in the HCAX Data Exchange Standard (DES).
        - Confirm the Hatchery Program Information and the Juvenile Production metrics needed to support these indicators.
        - Identify which (if any) of the selected indicators and supporting metrics need to be further refined and clarified.
        - For indicators that rely on other metrics or indicators, clarify these relationships
        - Begin work to document definitions and controlled vocabulary needed for these indicators.
        - Finalize the details needed to inform the work to be accomplished by the HCAX Data Steward Work Group.
        - Review the existing CAP EULA/DSA and discuss any needed additions/modifications.
- HCAX Data Steward Work Group
    - HCAX Data expert representatives will be invited to attend a series of technically focused work group meetings to develop the technical aspects needed to initiate data sharing with the CAP CAX system.
- HCAX Workshop 2
    - All HCAX representatives and interested parties are invited to review the products produced and provide final input before finalizing.

What we need from HCAX Participants:

- Feedback on draft list proposed by the subgroup of hatchery experts and HCAX Core Team (see attachment: HCAX Next Steps).
- Availability for Biologist Work Group (virtual) in late May/early June, **please Doodle here.**

Following completion of the definitions/controlled vocabulary step, we will convene the Data Steward Work Group to develop the schema and data exchange standards for sharing those indicators.

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Background on the 2017 draft Hatchery DES

The 2017 draft hatchery DES was developed as a pilot by a subset of CAP participants and it is organized into three tables (file name: Coordinated Assessments Hatchery DES 2017-07-01 DRAFT*)*. The draft hatchery DES was built leveraging relevant standardized terms/fields from the Natural Origin Salmon and Steelhead DES adopted at that time (current updated of the natural-origin DES is version 20200715, file: Coordinated Assessments Data Exchange Standard version 20200715).

With the overlap in the three categories of information ranked during the HCAX 1 Workshop (hatchery program information, juvenile production metrics, and hatchery stock indicators) we are providing a brief overview of the content in the draft hatchery DES and indicate as well what content is currently in use in the natural-origin DES.

2017 Draft Hatchery DES Table Content Overlapping with HCAX Workshop information, metrics and indicators

1) Hatchery Spawning Table.

This table stores information concerning hatchery spawning. "Spawners" refers to the number of fish that were actually spawned in a hatchery or hatchery complex under a specific program, not necessarily the total number of fish spawned at the hatchery (complex). Excess non-spawned fish are ignored and are not included in this table.

- Proportion of natural origin brood stock (pNOB, also in the natural-origin DES).
- Hatchery origin spawner abundance (HOSA).
- Natural origin spawner abundance (NOSA, also in the natural-origin DES).
- Proportion natural influence (PNI, also in the natural-origin DES).

2) SAR_Hatchery Table.

This table stores information on smolt to adult return rates (SAR). Smolt to adult return rates are specific to the smolt and adult locations described in each row of data. Adult returns include all fish that reach the location where adults are counted, regardless of their disposition after that point; strays, harvested fish, and fish with other dispositions are included as long as they reached the adult counting location.

- Escapement – adult fish return to a location (escapement and spawner abundance are both in the natural-origin DES).
- Smolt to adult survival rates (also in the natural-origin DES).

3) RperS_Hatchery Table.

This table stores information concerning recruits per spawner (RperS) for hatchery origin fish. Recruit per spawner ratios are specific to the locations and seasons described in each record of data. This table is for adult recruits only.

- Age at return (also in the natural-origin DES)
- Recruits per spawner (also in the natural-origin DES)
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Participants in HCAX Workshop 1 March 11, 2021

Name	Organization
Brady Allen	Bonneville Power Administration
Matt Schwartz	Bonneville Power Administration
Russell Scranton	Bonneville Power Administration
Tom Pansky	Bonneville Power Administration
Catherine Willard	Chelan County PUD
Denise Kelsey	Columbia River Inter-Tribal Fish Commission
Hayley Neutzel	Columbia River Inter-Tribal Fish Commission
Sheryn Olson	Columbia River Inter-Tribal Fish Commission
Andrea Pearl	Confederated Tribes of the Colville Reservation
George Batten	Confederated Tribes of the Colville Reservation
John Arterburn	Confederated Tribes of the Colville Reservation
Wesley Tibbits	Confederated Tribes of the Colville Reservation
Collette Coiner	Confederated Tribes of the Umatilla Indian Reservation
Jon Lovrak	Confederated Tribes of the Umatilla Indian Reservation
Mike McLean	Confederated Tribes of the Umatilla Indian Reservation
Chris Sullivan	Idaho Department of Fish and Game
Evan Brown	Idaho Department of Fish and Game
Lance Hebdon	Idaho Department of Fish and Game
Stuart Rosenberger	Idaho Power
Amelia Johnson	Lower Columbia Fish Recovery Board
Dawn Anderson	Montana Fish Wildlife and Parks
Tom Iverson	Natural Resource Consulting
Brian Beckman	NOAA- National Marine Fisheries Service
Christopher Tatara	NOAA- National Marine Fisheries Service
Don Larsen	NOAA- National Marine Fisheries Service
James Archibald	NOAA- National Marine Fisheries Service
Mari Williams	NOAA- National Marine Fisheries Service
Maureen Hess	Northwest Power and Conservation Council
Patty O'Toole	Northwest Power and Conservation Council
April Brenden-Locke	Oregon Department of Fish & Wildlife
Jake Chambers	Oregon Department of Fish & Wildlife
Jim Ruzycki	Oregon Department of Fish & Wildlife
Kasey Bliesner	Oregon Department of Fish & Wildlife
Nadine Craft	Oregon Department of Fish & Wildlife
George Nandor	PSMFC/RMPC/RMIS
Greg Wilke	PSMFC/StreamNet
Mike Banach	PSMFC/StreamNet
Nancy Leonard	PSMFC/StreamNet
Lytle Denny	Shoshone-Bannock Tribes
Sammy Matsaw Jr.	Shoshone-Bannock Tribes

Doug Threloff	US Fish and Wildlife Service
Hayley Muir	US Fish and Wildlife Service
Michael Humling	US Fish and Wildlife Service
Rod Engle	US Fish and Wildlife Service
Amy Puls	US Geological Survey/PNAMP
Jen Bayer	US Geological Survey/PNAMP
Meg Dethloff	US Geological Survey/PNAMP
Keith Dublanica	WA Governor's Salmon Recovery Office
Brodie Cox	Washington Department of Fish and Wildlife
Dan Rawding	Washington Department of Fish and Wildlife
Bill Bosch	Yakama Nation Fisheries
Michelle Steg-Geltner	Yakama Nation Fisheries