COORDINATED ASSESSMENTS PROJECT
HATCHERY INDICATORS WORKSHOP

March 11, 2021

Coordinated Assessments Partnership
Fish and Habitat Data Exchange

StreamNet
www.streamnet.org

pacific northwest aquatic monitoring partnership

WELCOME AND INTRODUCTIONS

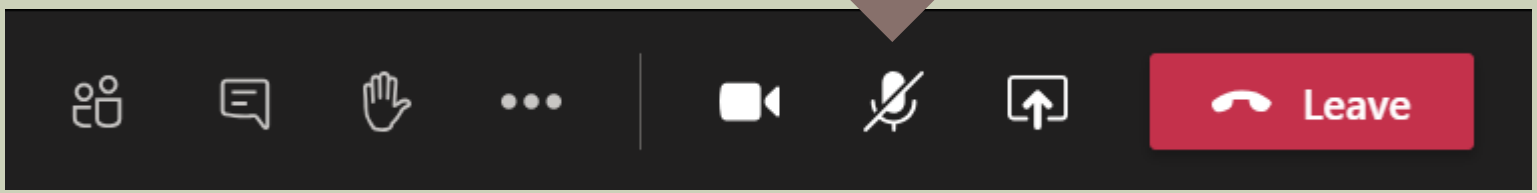
Jen Bayer
USGS-PNAMP
CAP Co-lead

TIPS

Please mute yourself when not speaking.

Use *6 to mute phone audio.

Use the microphone icon on the control bar to mute computer audio.



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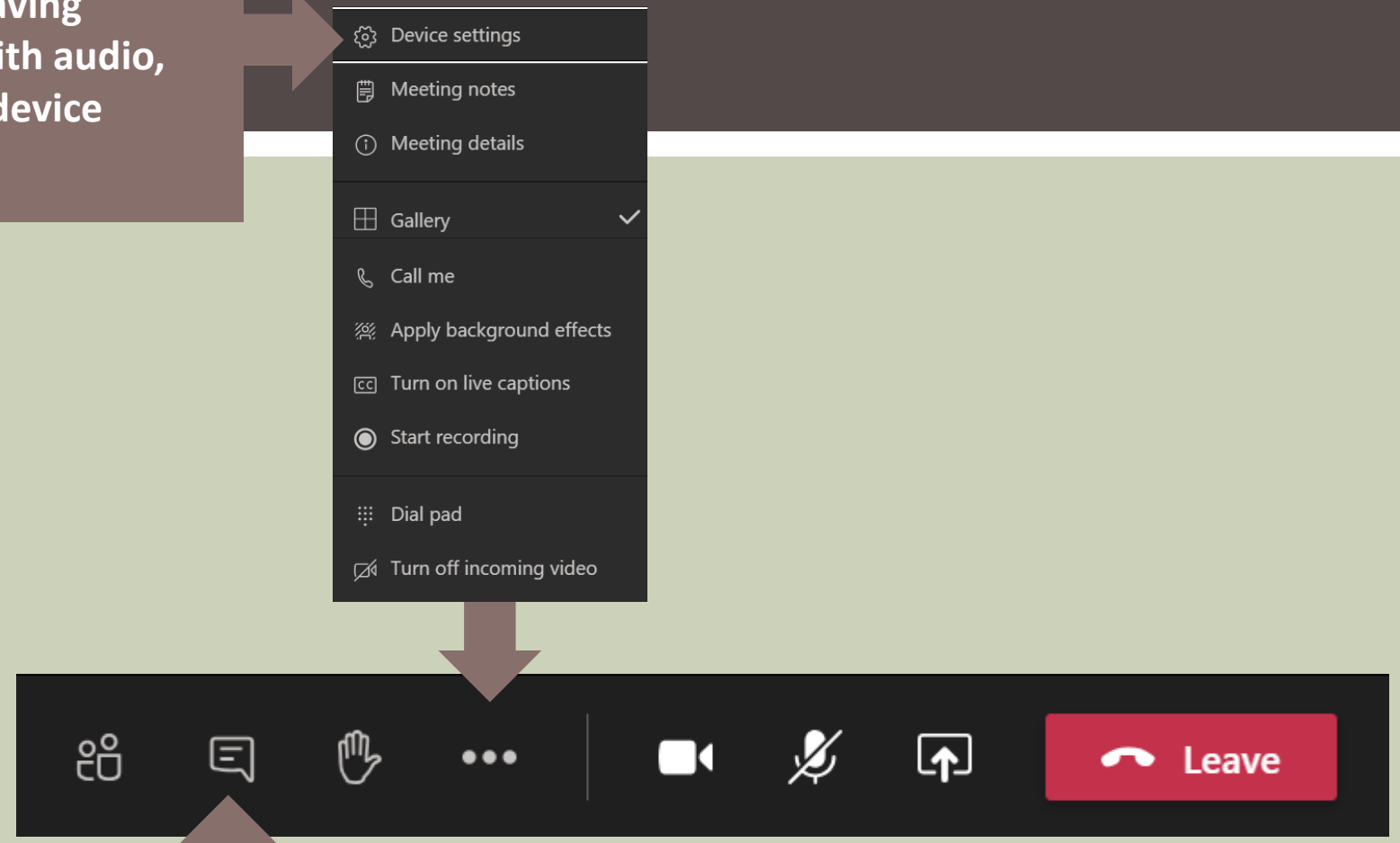
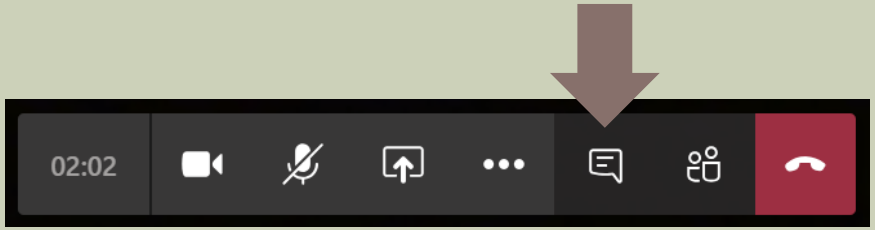


Use the meeting chat if you need assistance.

Chats can be seen by all participants.

ICE BREAKER - LIVE POLL

Click the link in the meeting chat



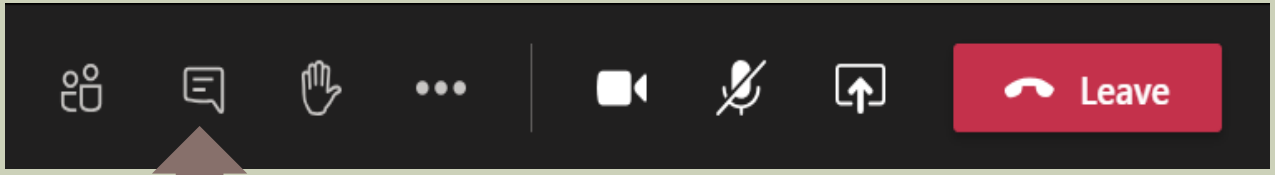
Point phone camera but don't click

Photo credit: USFWS

INTRODUCTIONS USING TEAMS CHAT

Share your

- name
- affiliation
- interest in HCAX



Use the meeting chat to introduce yourself.

Chats can be seen by all participants.

AGENDA

Time	Agenda Item
12:30	Welcome and introductions
1:00	What is the Coordinated Assessments Partnership (CAP)
1:10	Value of sharing hatchery indicators
1:25	Regional demands for hatchery data
1:55	Discussion of hatchery indicators to prioritize for phase 1
2:00	Break
2:15	Discussion of hatchery indicators to prioritize for phase 1 (continued)
3:15	Next Steps
3:30	Adjourn

WHAT IS THE COORDINATED ASSESSMENTS PARTNERSHIP (CAP)

Nancy Leonard

PSMFC-StreamNet Program

CAP co-lead

COORDINATED ASSESSMENTS PARTNERSHIP (CAP)

Collaborative process to improve access to standardized PNW fish data to inform reporting and decision-making

ORIGIN OF COORDINATED ASSESSMENTS PARTNERSHIP

2021 CAP HCAX workshop

Added: NOF indicators and data from outside CRB

CAP supports 2016 NOAA-F status review

2011 Workshop for Coordinated Assessments

2012 data exchange standard-4 Natural Origin Fish (NOF) indicators

2015 data flow begins with Columbia River Basin (CRB) populations

Nov 2009: draft Data Management Collaboration Supporting a Regional M&E Strategy

2010 Data Sharing Workshop

Oct-Nov 2009: ***Columbia Basin Coordinated Anadromous Monitoring Strategy*** (Skamania Workshops)

CURRENT CAP PROCESS

- Co-lead by PNAMP and StreamNet
- Funded by BPA, EPA Exchange Network Grants, NOAA-F, states and tribes.

CAP Core Team
- Supports CAP partners, maintains forward momentum

CAP Outreach Forum
- broadest group of interested parties

PNAMP Fish Monitoring Workgroup
- Supports CAP indicator development and refinement

StreamNet (SN) Executive Committee
- Approves 5-year plan for Coordinated Assessments Partnership

SN Steering Committee
- Implements data flow from state and tribal data systems to Coordinated Assessments data eXchange (CAX) system

SN Teams
- Data stewards and programmers coordinate development and implementation of the data exchange standards

CURRENT CAP HLI DATA

(DECEMBER 31, 2020)

Geographic Area	High Level Indicator	Pops	Superpops* Only	Records	Year Range
Columbia River Basin	Natural Origin Spawner Abundance (NOSA)	175	1	6,362	1938 - 2020
	Presmolt Abundance	8	0	162	1993 - 2018
	Juvenile Outmigrants	70	4	1,355	1978 - 2020
	Smolt to Adult Return Rate (SAR)	99	75	1,177	1985 - 2018
	Recruits per Spawner (RperS)	83	14	3,141	1949 - 2018
	Proportionate Natural Influence (PNI)	5	0	164	1985 - 2019
Oregon Coast	Natural Origin Spawner Abundance (NOSA)	56	35	589	1994 - 2019
	Juvenile Outmigrants	7	0	132	1997 - 2017
	Smolt to Adult Return Rate (SAR)	7	0	124	1997 - 2016
	Recruits per Spawner (RperS)	21	0	715	1994 - 2016
Puget Sound	Juvenile Outmigrants	2	0	32	1999 - 2019

**Superpops: populations that are represented only as part of one or more groups of populations, not individually.*

UPCOMING CAP DATA CATEGORIES

- **Pending funding and regional prioritization the below data categories have been considered in the Five-Year Coordinated Assessments Partnership Work Plan:**

Hatchery Fish

Bull Trout

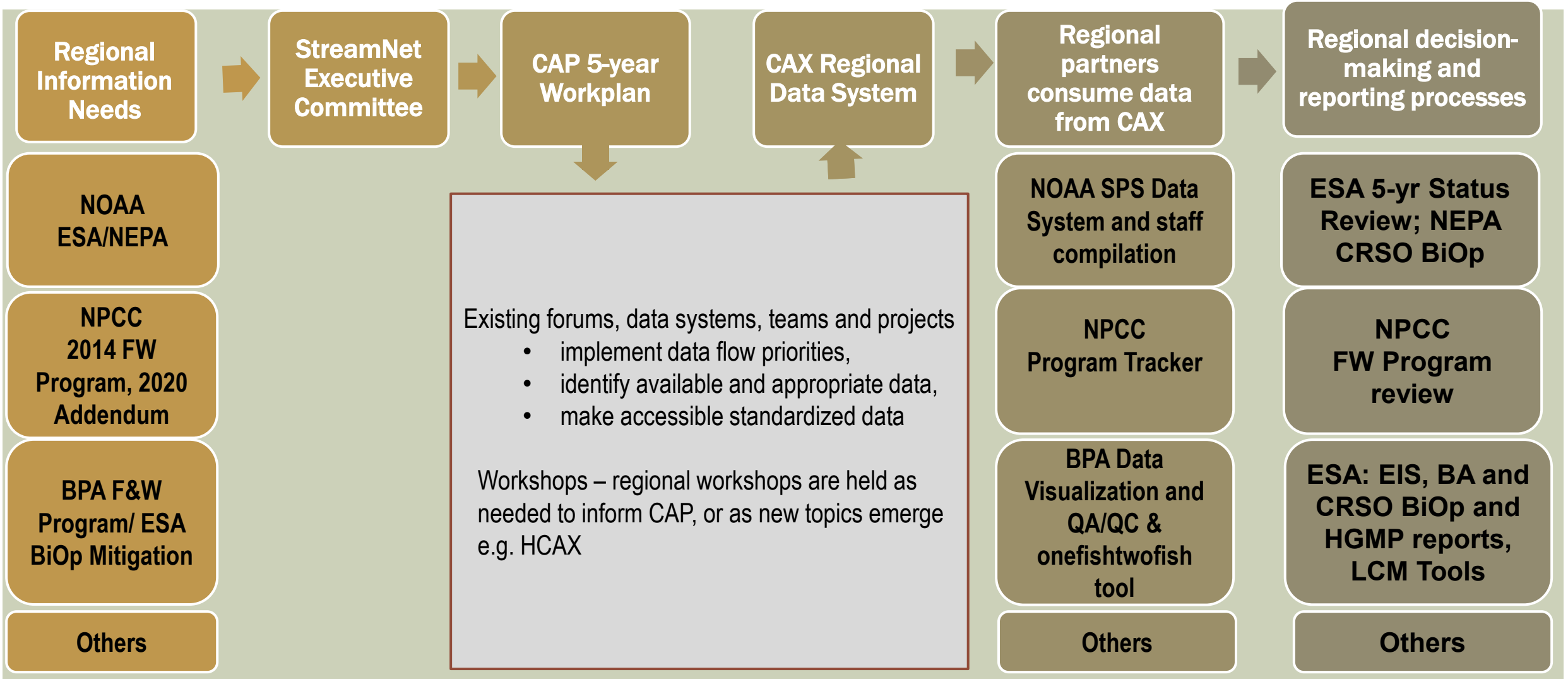
Carrying Capacity

White Sturgeon

Other Fish

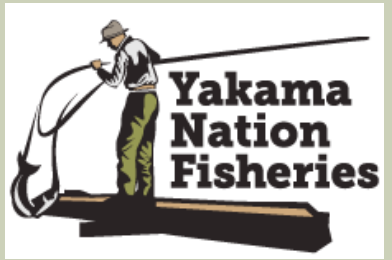
HCAX
work has begun!

CAP'S CURRENT ROLE IN SUPPORTING REGIONAL INFORMATION NEEDS



CAP PARTICIPANTS
(AS OF 2020)

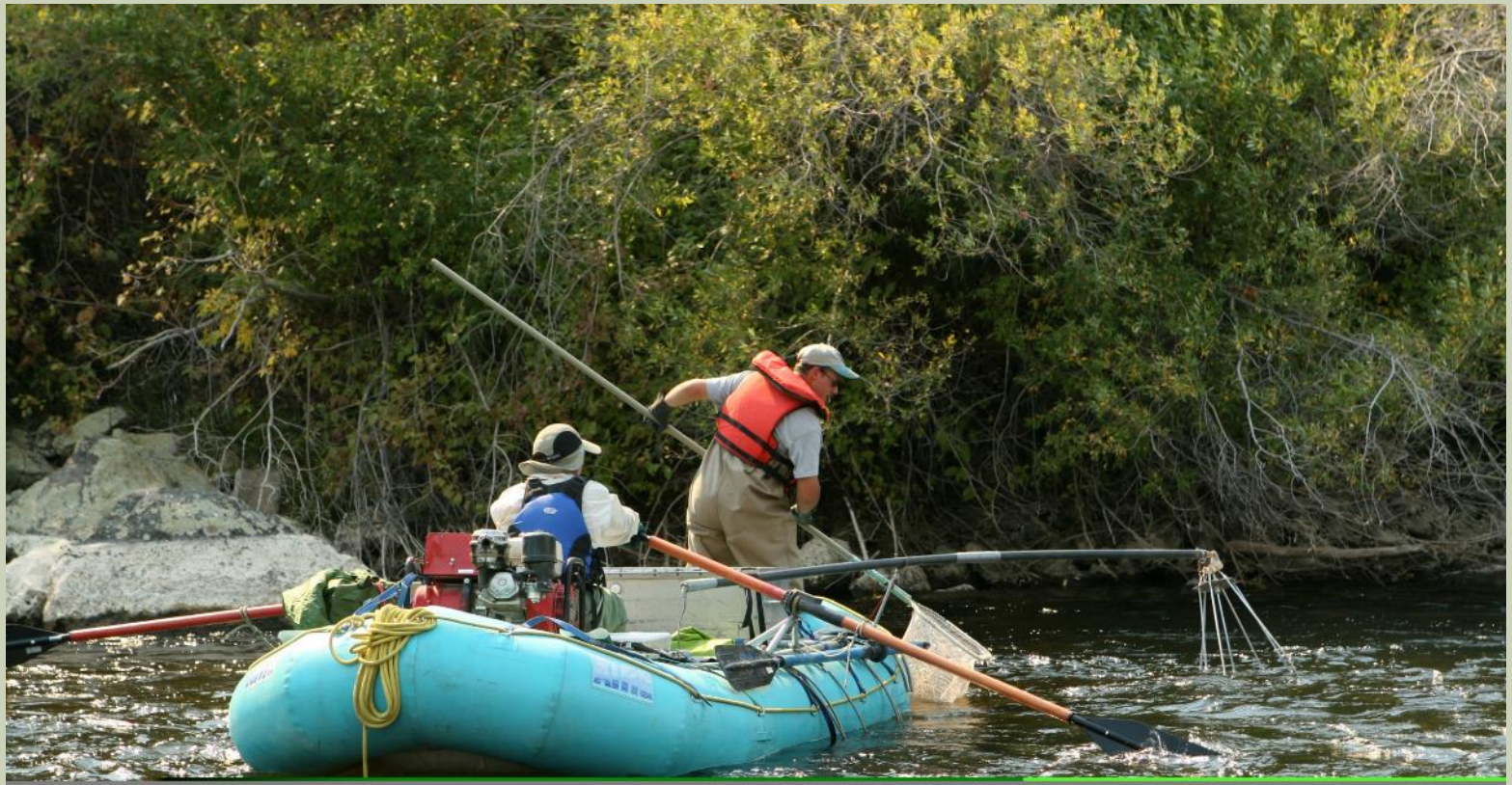
participants vary in their level and degree of involvement



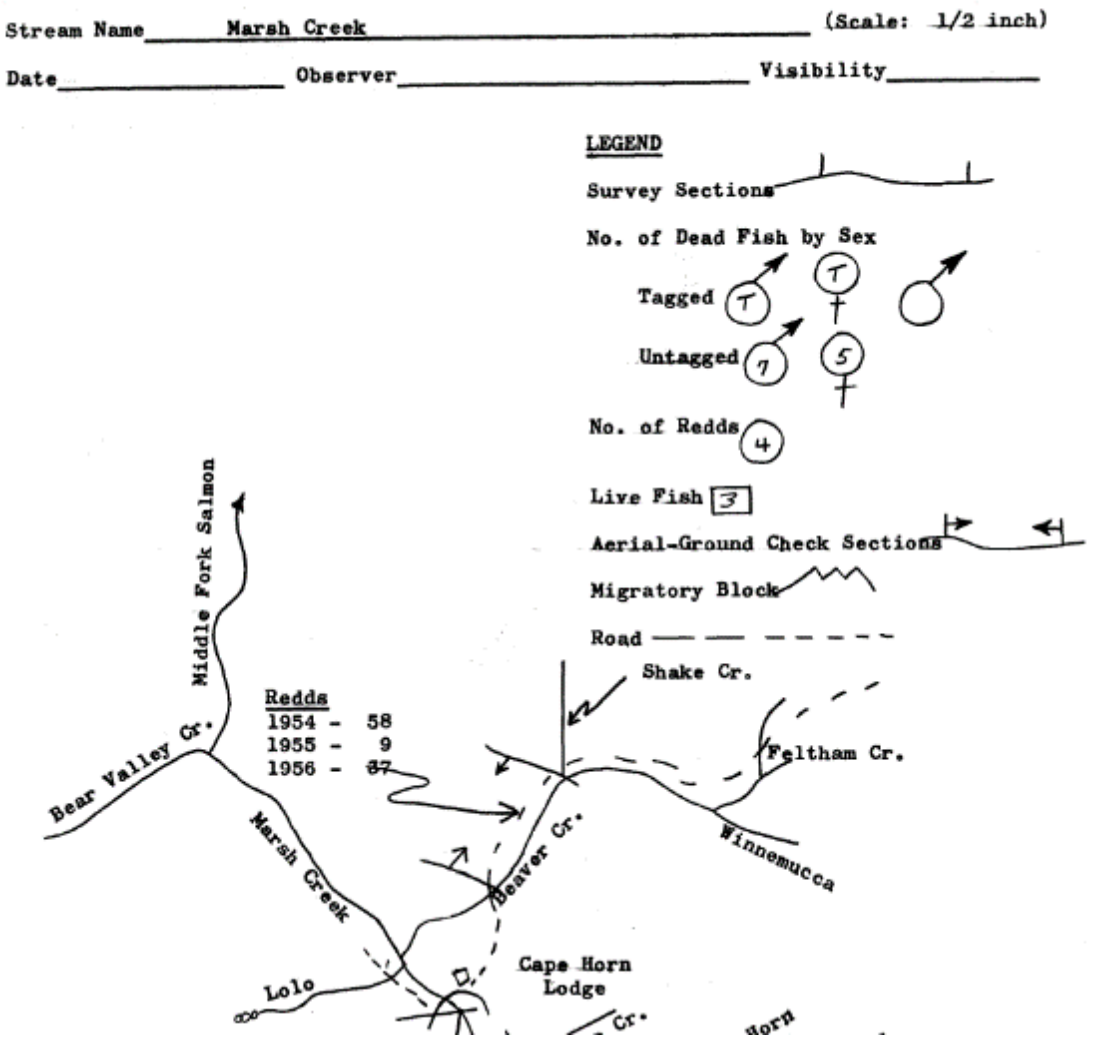
VALUE OF SHARING HATCHERY INDICATORS

Lance Hebdon
IDFG

VALUE OF SHARING DATA…MY PERSPECTIVE



IN THE BEGINNING…

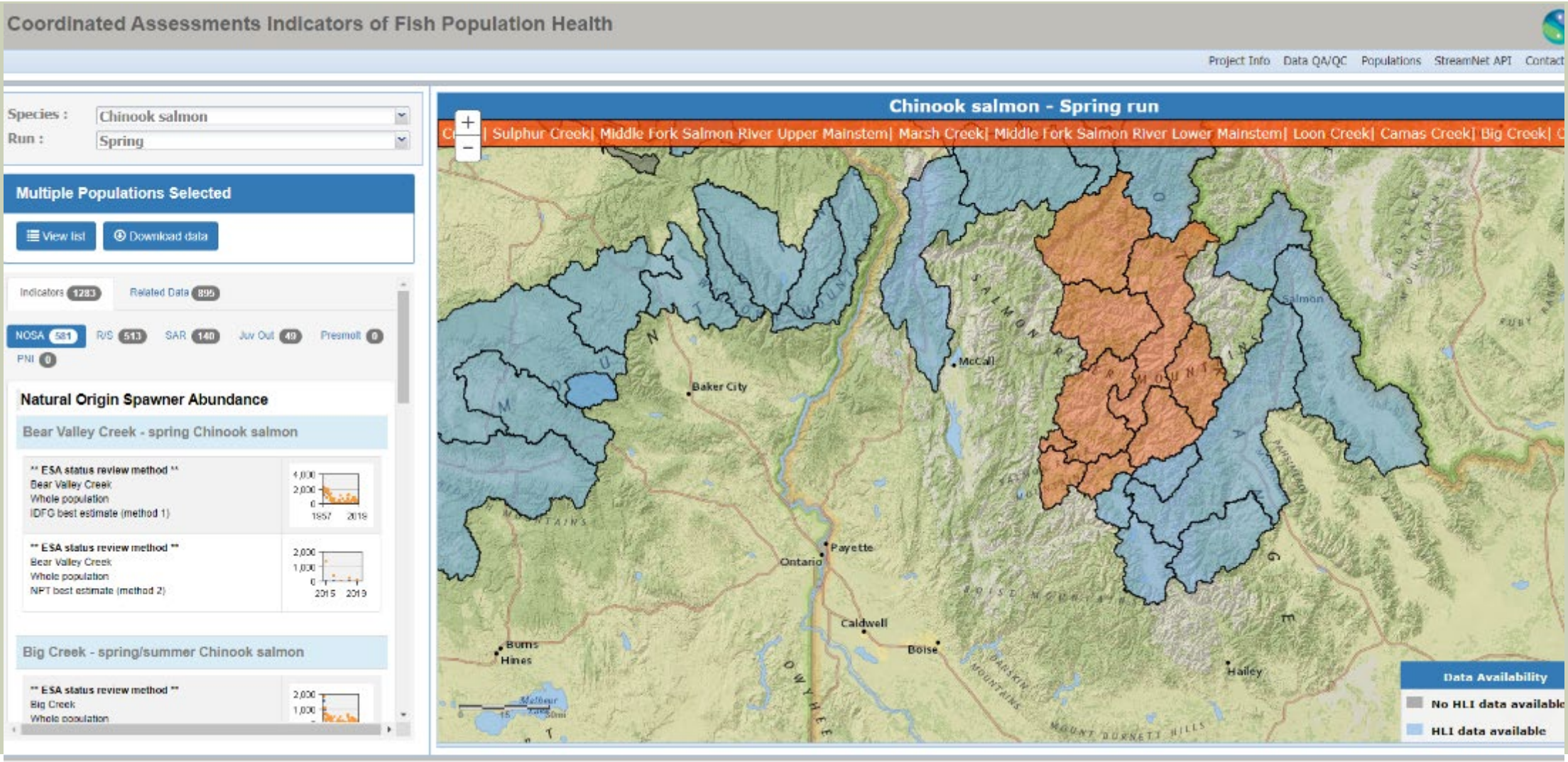


MS EXCEL (AKA…DATABASE)

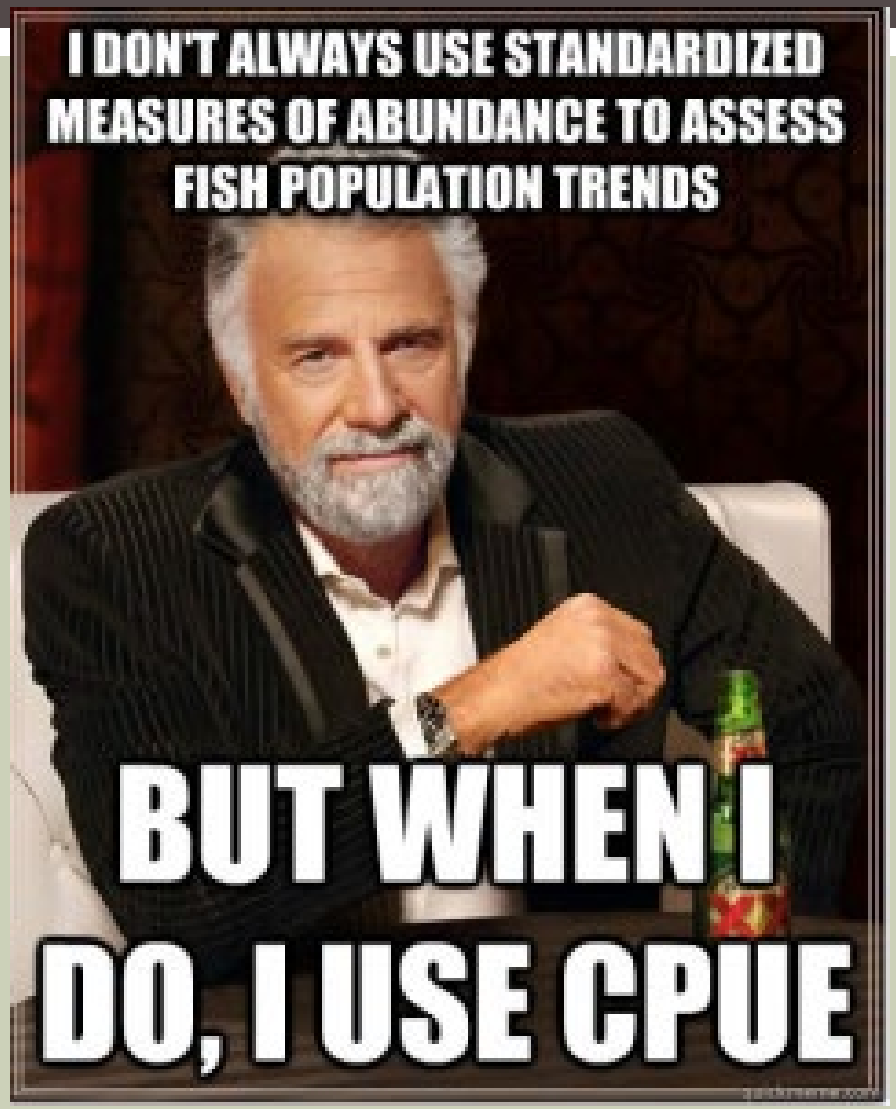
ear	Total Upriver Run River Mouth	Snake R. Sp/su Chinook Total	SRW	% Snake	Upper Columbia Spring Chinook Total	UPCwild	% Up Col	Mid-Columbia Spring Chinook a_/ Total	% Mid C	Yakima	% Yakima
1991	64,479	23,665	13,106	37%	8,665	2,437	13%	32,149	50%	2,802	9%
1992	95,691	39,679	20,657	41%	20,722	4,261	22%	35,290	37%	4,492	13%
1993	119,963	41,149	17,911	34%	25,998	4,050	22%	52,815	44%	3,800	7%
1994	24,095	7,713	3,721	32%	3,421	1,044	14%	12,961	54%	1,282	10%
1995	12,792	5,262	3,395	41%	1,645	224	13%	5,885	46%	526	9%
1996	55,552	16,799	9,062	30%	3,427	575	6%	35,327	64%	3,060	9%
1997	124,321	82,849	9,278	67%	9,673	1,222	8%	31,800	26%	3,092	10%
1998	44,308	26,714	13,733	60%	4,495	547	10%	13,100	30%	1,771	14%
1999	43,067	13,034	5,525	30%	4,663	401	11%	25,370	59%	1,513	6%
2000	186,715	64,184	13,921	34%	22,443	1,367	12%	100,088	54%	17,519	18%
2001	440,336	260,232	63,154	59%	51,645	6,252	12%	128,459	29%	21,225	17%
2002	335,214	170,999	52,209	51%	36,745	2,992	11%	127,471	38%	14,616	11%
2003	242,605	137,704	50,645	57%	23,470	2,198	10%	81,431	34%	4,868	6%
2004	221,675	125,907	33,101	57%	15,351	2,308	7%	80,417	36%	13,974	17%
2005	106,911	49,746	15,147	47%	16,064	2,806	15%	41,101	38%	8,059	20%
2006	132,583	53,304	16,831	40%	15,132	1,463	11%	64,148	48%	5,951	9%
2007	86,247	44,911	10,351	52%	6,414	458	7%	34,922	40%	2,968	8%
2008	178,629	100,559	23,939	56%	15,347	829	9%	62,723	35%	6,615	11%
2009	169,296	89,184	20,242	53%	12,481	1,086	7%	67,631	40%	7,441	11%
2010	315,345	165,879	34,793	53%	37,185	3,101	12%	112,281	36%	11,027	10%
2011	221,158	123,016	30,520	56%	15,941	2,639	7%	82,201	37%	13,398	16%

EXCEL IS NOT A DATABASE..

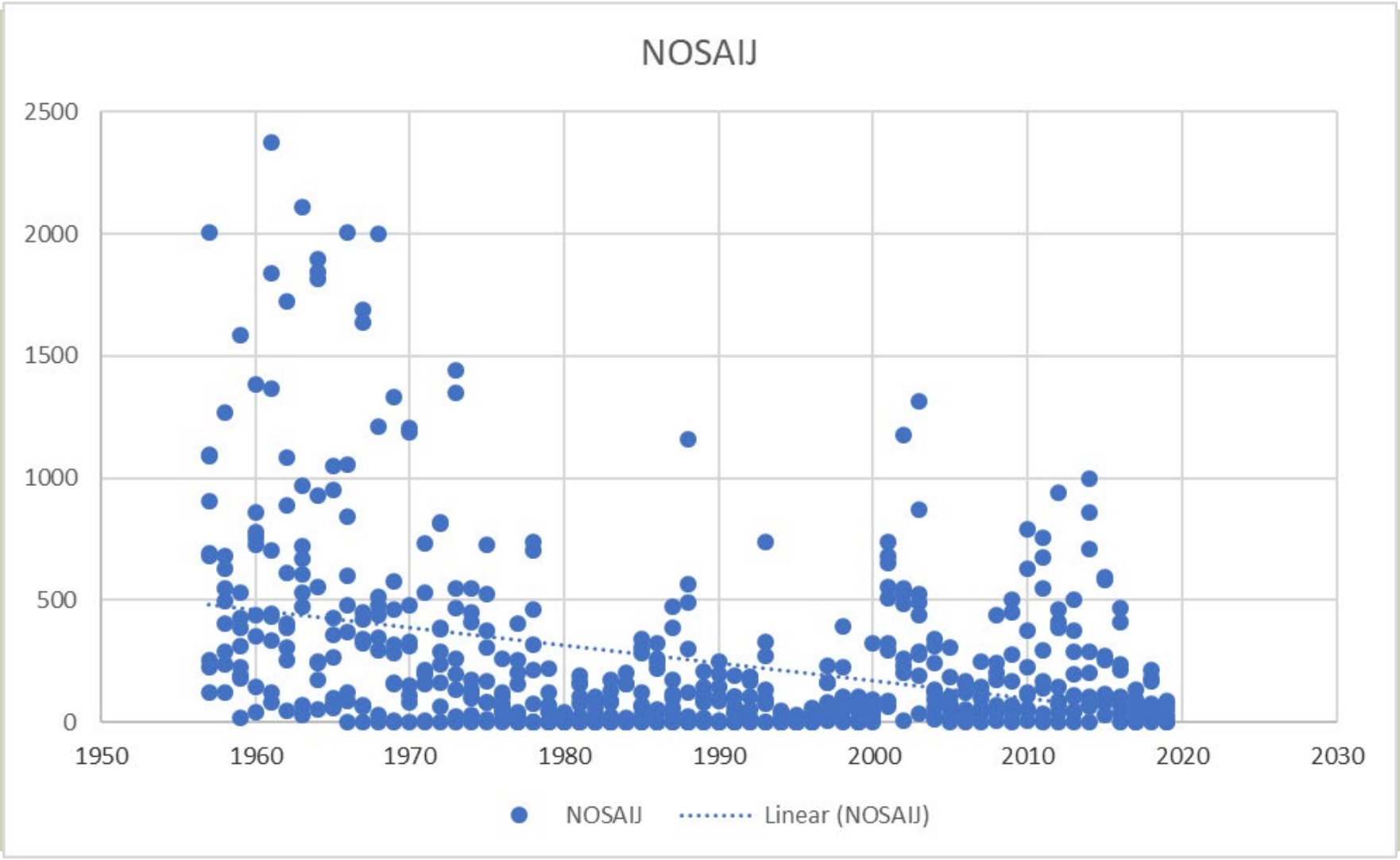
COORDINATED ASSESSMENTS



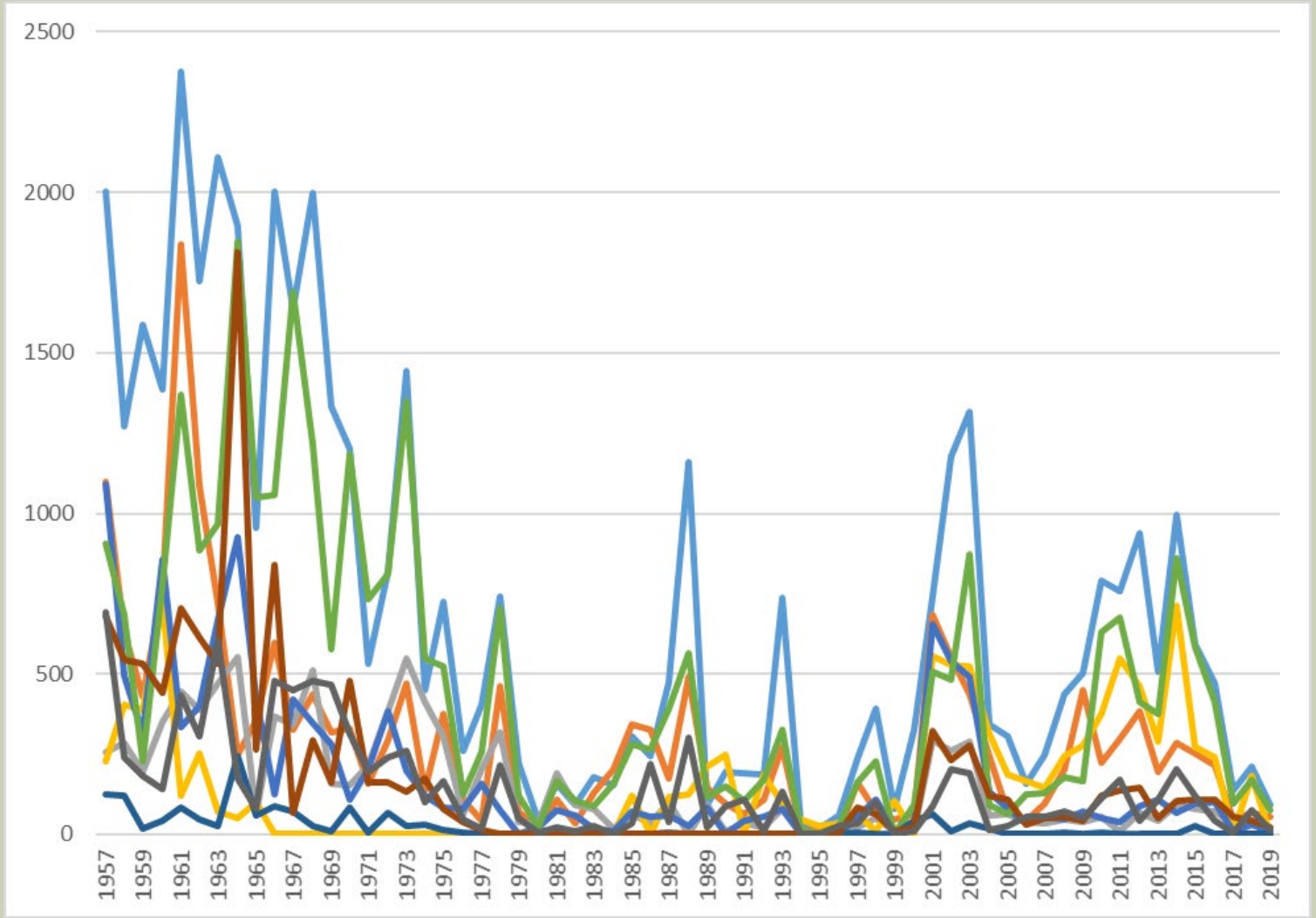
COORDINATED ASSESSMENTS



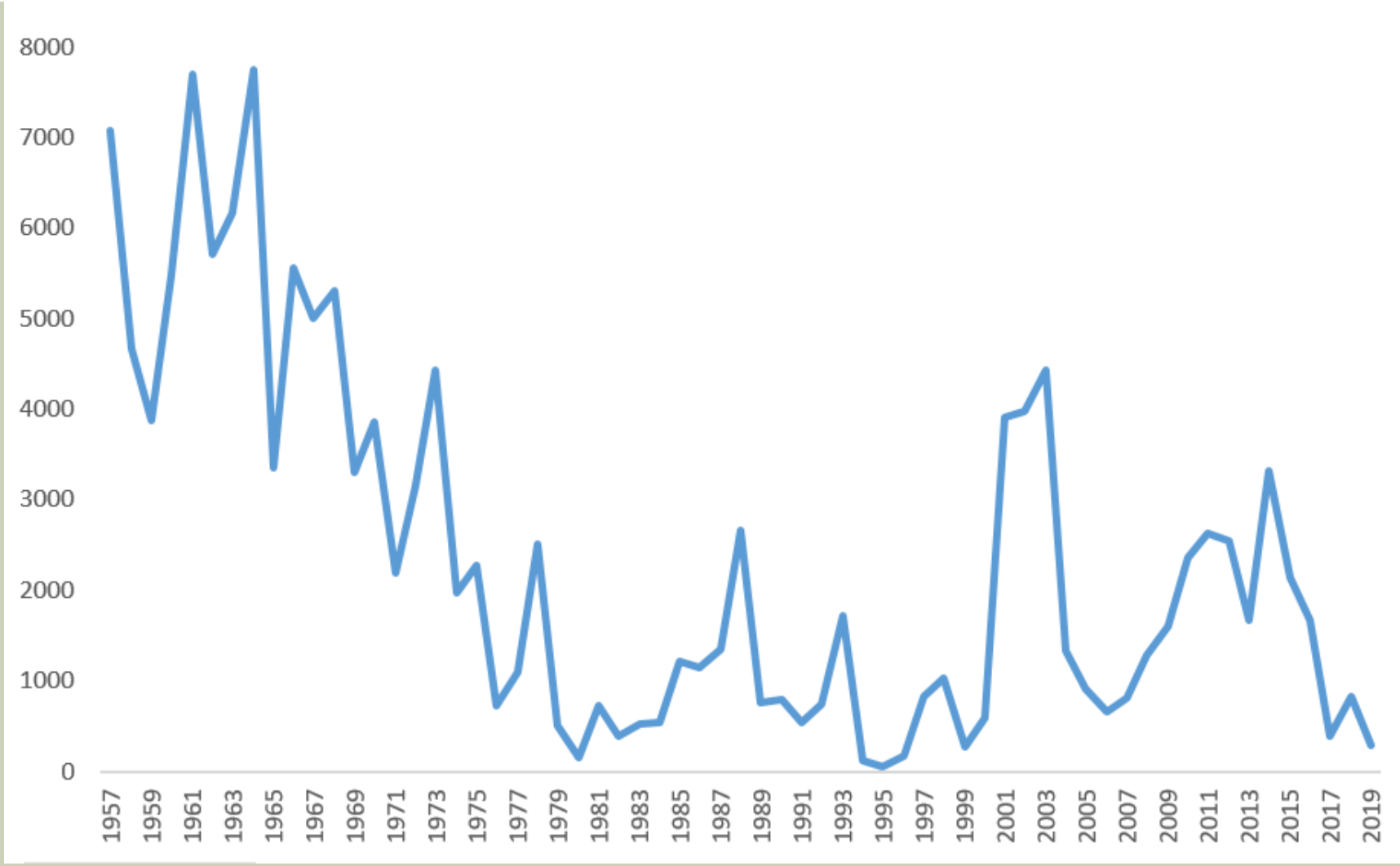
MIDDLE FORK SALMON - CHINOOK NOSA



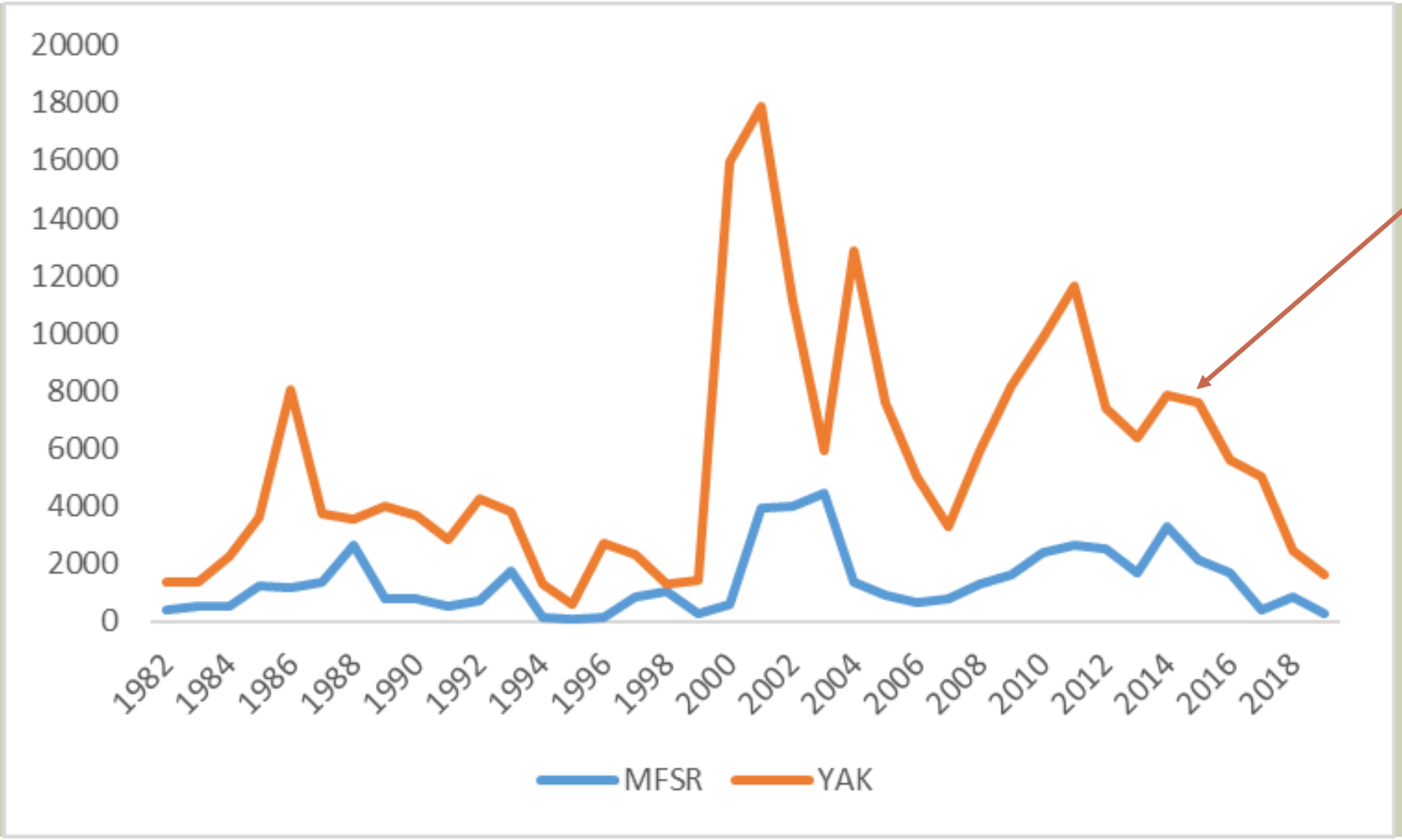
MIDDLE FORK SALMON NOSA BY POPULATION



MIDDLE FORK SALMON MPG



ADDITIVE AND COMPLIMENTARY



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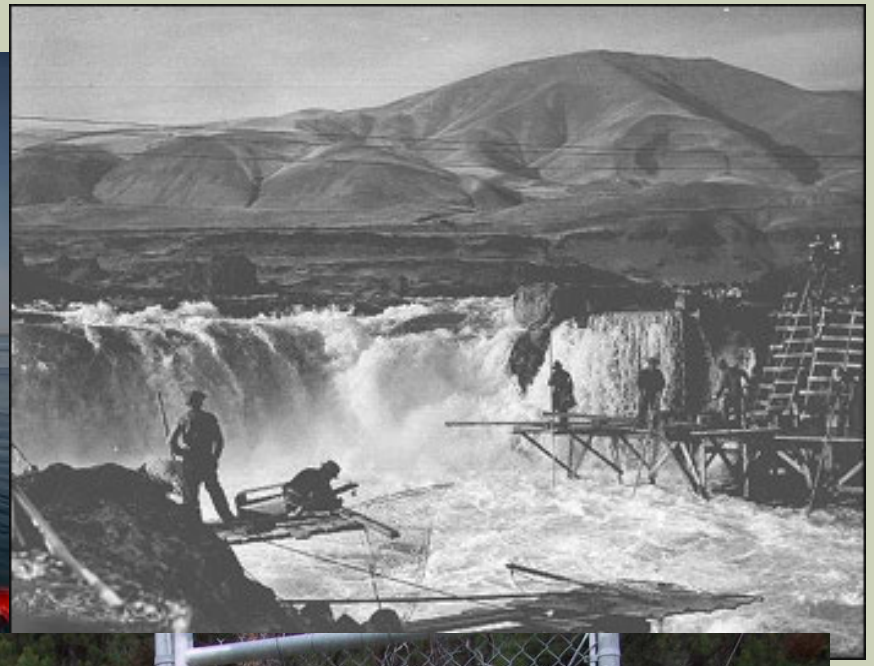
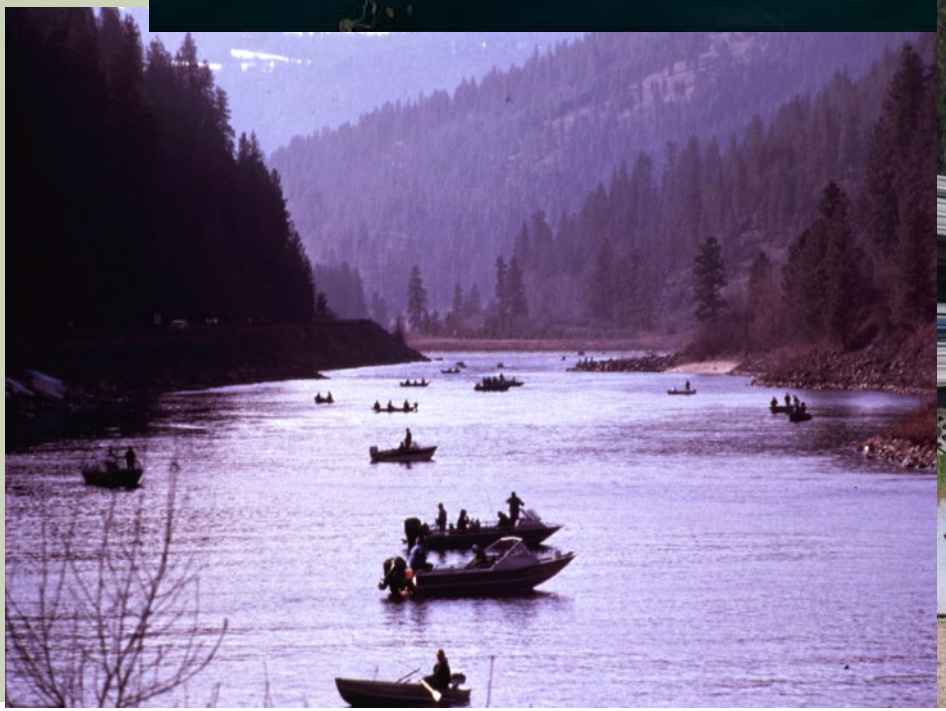
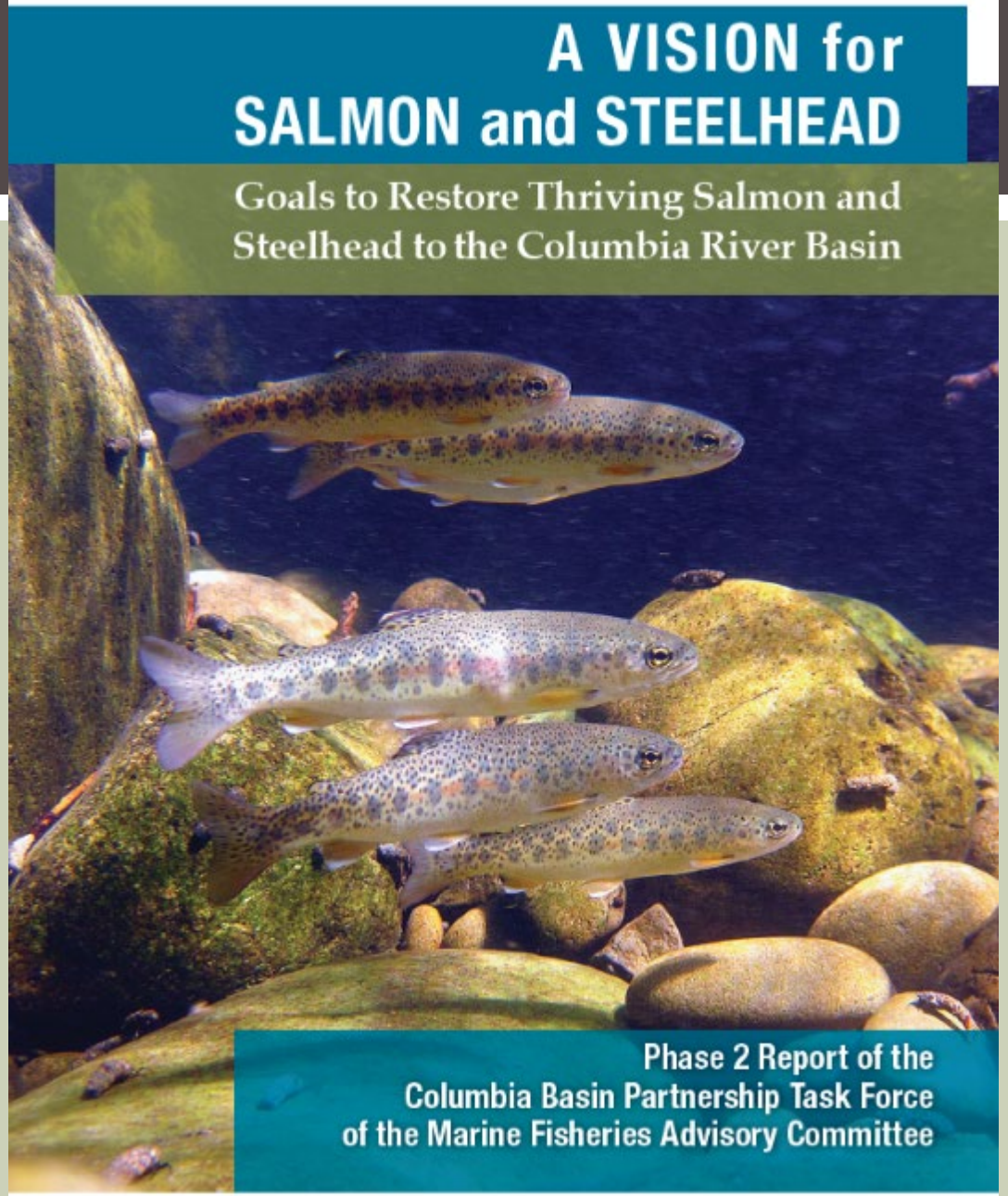
Data contact:
bill_bosch@yakama.com






A VISION for
SALMON and STEELHEAD
Goals to Restore Thriving Salmon and Steelhead to the Columbia River Basin
Phase 2 Report of the
Columbia Basin Partnership Task Force
of the Marine Fisheries Advisory Committee

REGIONAL DEMAND FOR HATCHERY INFORMATION

EXISTING DOCUMENTS AND PRE-WORKSHOP SURVEY RESULTS

Tom Iverson
&
Nancy Leonard

SOURCES FOR CONSIDERATION IN DEVELOPMENT OF A HATCHERY INDICATOR DES

- Current CAP Natural Origin Data Exchange Standard (DES)
- Draft CAP Hatchery Origin DES (2017)NOAA HGMP requirements, ESA 5-year Status Reviews
- US v OR Technical Advisory Committee and Production Advisory Committee
- Regional MAFAC Columbia Basin Task Force goals
- NPCC 2020 Addendum to 2014 F&W Program goals and objectives and Program Tracker
- Ad-Hoc Hatchery Supplementation Work Group recommendations
- LSRCP Fish Inventory System (FINS) indicators
- Regional Mark Processing Center's (RMPC) Regional Mark Information System (RMIS)

CURRENT CAP NATURAL ORIGIN DES

Rearing Type – Natural Origin Indicators

- **Spawner Abundance**
- Presmolt Abundance
- Number of Outmigrants
- Proportion Natural Influence (PNI)
- **Smolt to Adult Return Rate (SAR)**
- **Recruits Per Spawner (RperS) Adults**
- **Recruits Per Spawner (RperS) Juveniles**

Photo credit: CRITFC

DRAFT CAP HATCHERY ORIGIN DES

SAR Hatchery Table

- **Smolt to Adult Return Rate (SAR)**

RperS Hatchery Table

- **Recruits per Spawner**

Hatchery Spawning Table

- **Number of Fish Spawned**
- Eggs Taken
- Proportion Natural Origin Broodstock (pNOB)

Photo credit: USFWS

NOAA HATCHERY CONSULTATIONS

HGMP Section 1.10 lists possible performance indicators, the indicators chosen for each hatchery varies specific to that hatchery.

Performance Indicators determine the degree that program standards have been achieved and indicate the specific parameters to be monitored and evaluated. Identify indicators of benefit and risk.

Generally:

- **Hatchery production** (pNOB, pHOS, PNI, release info, etc.)
- **Hatchery returns** (escapement to hatchery and natural areas)
- **Smolt to Adult survival rates**

BOLD represents elements in the natural origin DES and draft hatchery origin DES

US V OR MANAGEMENT AGREEMENT

2018-2027 U.S. v. Oregon Management Agreement Production Tables[1]

- Target **release number** by life stage for each hatchery program

[1]https://www.fws.gov/lsnakecomplan/Reports/USvOregon/FINAL.2018-%202027%20USvOR%20Management%20Agreement%20with%20Signature%20Feb%202018%20.pdf

2014 NORTHWEST POWER AND CONSERVATION COUNCIL (NPCC) COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM HATCHERY DATA NEEDS

Objectives for adult salmon and steelhead

- Potential indicators that should be tracked include: contribution to hatchery broodstock, natural spawning, and harvest by hatchery. Potential indicators that could be tracked include: in-hatchery survival (egg to smolt); juvenile production/releases; hatchery smolt-to-adult returns and hatchery recruits per spawner. *-2014 NPCC F&W Program, page 33.*

- **Fish Propagation Including Hatchery Programs Strategy**
- **General measures for comprehensive research, monitoring, assessment and reporting on hatchery effectiveness**
  - "Hatchery program implementation, monitoring, and evaluation results for all hatchery programs in the Columbia River Basin should be made electronically available and hatchery operators and funders should coordinate annual summary presentations to the Council."

NPCC 2020 ADDENDUM INDICATORS

- Biological Objective S1 - Hatchery origin **adult returns** to the mouth of the Columbia River
- Fish Propagation and Hatchery Indicators S1-2 - Current and anticipated hatchery production (**releases**) and adult returns by species
- All program-funded hatcheries have a **final management plan** and a reviewed and approved master plan, with specific objectives to track performance. (S6-1)
- Salmon and steelhead indicators for Bonneville-funded hatcheries tracked and compared to management goals as described in hatchery management plans and HGMPs. (S6-2)

CRB Task Force - A Vision for Salmon and Steelhead, Goals and Pathways for Restoring Thriving Salmon and Steelhead to the Columbia River Basin. Phase 2 Report of the Columbia Basin Partnership Task Force to the NOAA Fisheries Marine Fisheries Advisory Committee, July 16, 2020 version.

[2]*https://www.nwcouncil.org/sites/default/files/2020-9.pdf*

NOAA PRESENTATION TO NPCC F&W COMMITTEE DECEMBER 2020[3]

Suggested guidance for BPA funded hatchery programs:

- Broad measures of environmental conditions at each hatchery
- General sense of genetic management strategy

- Hatchery Program
  - Production target
  - **5-year average production**
  - Release size target
  - 5-year average release size
  - **Returning adults**
- Environmental
  - Water source
  - Monthly average water temp
- Broodstock
  - Broodstock origin
  - Spawning dates
  - Spawning matrix design
- Husbandry
  - Age at release
  - Ponding date

[3]*https://nwcouncil.app.box.com/s/fyqcmgw758fz01phciqvq2fbbwjfkx5q*

AD-HOC HATCHERY SUPPLEMENTATION WORK GROUP[5]

Implementation and Compliance Monitoring

- Confirmation of **hatchery type** (segregated harvest augmentation, integrated supplementation, or conservation)
- Status of Hatchery Genetic Management Plan (HGMP) or similar master plan
- target and realized annual hatchery-natural **composition of broodstock**
- target and realized annual hatchery-natural **composition of natural spawners**
- target and realized annual **Proportionate Natural Influence** (PNI)
- target and realized annual rearing density
- target and life stage at release
- **total release by life stage**
- target and realized size at release (length and weight);
- target and annual acclimation period,
- target and annual and release location, and
- duration of program (number of years operated).

[5]*https://www.webapps.nwfsc.noaa.gov/assets/11/6509_03302009_114410_Final_Draft_AHSWG_report.pdf*

AD-HOC HATCHERY SUPPLEMENTATION WORK GROUP[5]

In order to determine potential causes if fitness differences are observed, data on characteristics of the spawning populations under study should be collected, including (where it is logistically feasible):

- **Number of spawning adults**
- **Number of juveniles produced**
- Individual run and spawn timing
- Sex
- Morphology (length, weight, possibly a photograph)
- Freshwater and saltwater age
- Hatchery versus wild origin (and if possible specific hatchery origin)
- Redd characteristics
- Egg voidance
- Spawning behavior
- Spawning location

[5]*https://www.webapps.nwfsc.noaa.gov/assets/11/6509_03302009_114410_Final_Draft_AHSWG_report.pdf*

FISHERIES INVENTORY SYSTEM (FINS)[4]

The Fisheries Inventory System (FINS) is a cooperative effort among state, tribal, federal and corporate fish and wildlife agencies in the Snake River Basin, including a Hatchery Database project that is designed to track anadromous fish in the Snake River Basin at Hatchery or Research Locations that are:

- TRAPPING: PIT Tags; Fish Data Entry; DOA vs Trap Morts
- HOLDING: **Count and Origin Summary**; Inventory Adjustments
- SPAWNING: Spawn Cross details; Split Eggs/Milt; In-Season Total Spawned/Total Egg Take Summary
- INCUBATION: Egg Takes; Female/Lot/Samples/Eye Up Rate; Group Moves; Mort Summary, Split Containers
- REARING: **Juvenile Data Management by Release Group**, Stock and/or Program; Split Containers; Production Summary by Month; PBT from Spawning and Incubation
- RELEASE: Stock and/or Program; **Release Summary by Release Location**; PBT from Spawning/Incubation/Rearing; Expected Survival; Agency defined Release Type/Strategies

[4]*https://www.finsnet.org/#!/About*

REGIONAL MARK PROCESSING CENTER'S (RMPC) REGIONAL MARK INFORMATION SYSTEM (RMIS)

Data Types/Classes

- Release (R)
- Catch/Sample (CS)
- Recovery (RC)
- Catch & Effort (CE)
- Location (LC)
- Description (DD)

Tag Types:

- Coded Wire Tags
- Fin mark

Data Fields (not all inclusive)

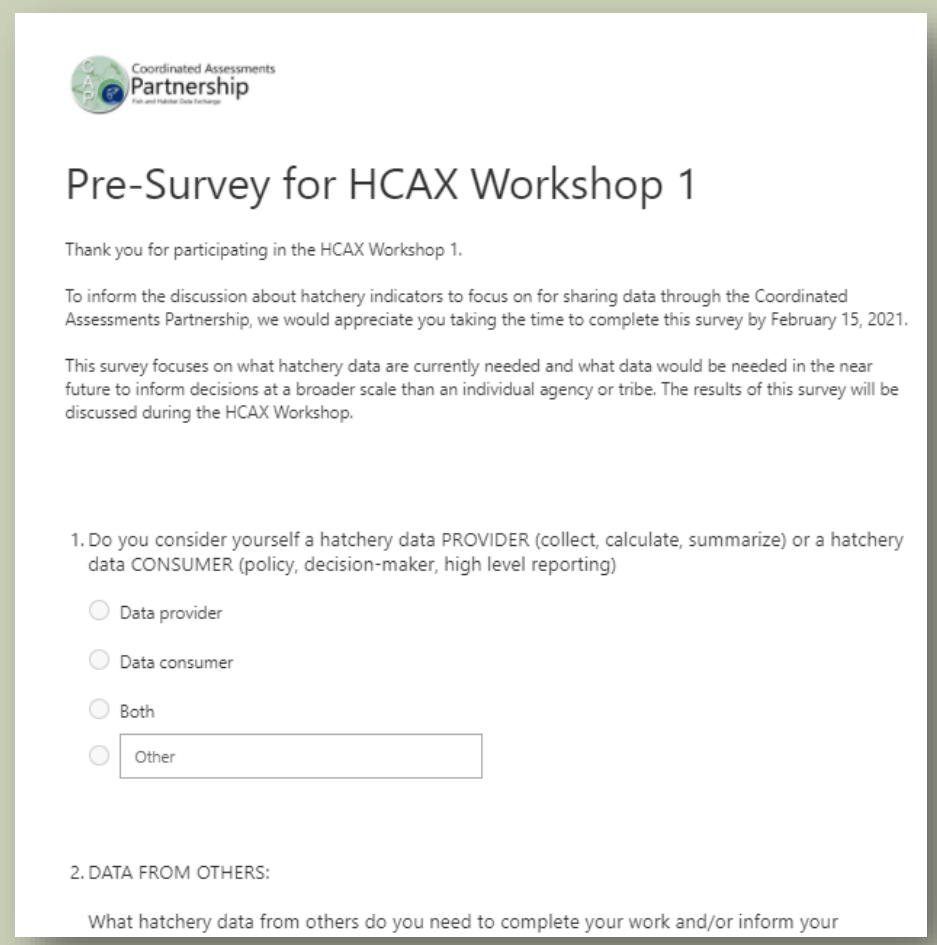
- Species, run, stock
- Age cohort
- Brood-year,
- Release year
- Release agency
- Hatchery name / location
- Release location / site
- Release stage
- Stock location
- Rearing type
- Tag information
- Tag recovery information
- Recovery location (freshwater escapement, troll, sportfishing, etc.)

RMIS – User Guide, Version 3.1; March 2012

HATCHERY INDICATORS COMMON ACROSS MULTIPLE SOURCES

- Hatchery Program Type (purpose, authorization, production method, completed management plan)
- Brood stock spawning (number fish spawned, pNOB, eggs taken)
- Juvenile releases (date, location, release type, fish size, maybe marks)
- Adult returns by location (with/without jacks)
- Smolt to Adult Return rates (SAR) by brood stock
- Recruits per spawner (RperS)

SURVEY RESPONDENTS
RESULTS OF PRE-WORKSHOP SURVEY



Coordinated Assessments Partnership

Pre-Survey for HCAX Workshop 1

Thank you for participating in the HCAX Workshop 1.

To inform the discussion about hatchery indicators to focus on for sharing data through the Coordinated Assessments Partnership, we would appreciate you taking the time to complete this survey by February 15, 2021.

This survey focuses on what hatchery data are currently needed and what data would be needed in the near future to inform decisions at a broader scale than an individual agency or tribe. The results of this survey will be discussed during the HCAX Workshop.

1. Do you consider yourself a hatchery data PROVIDER (collect, calculate, summarize) or a hatchery data CONSUMER (policy, decision-maker, high level reporting)

- ○ Data provider
- ○ Data consumer
- ○ Both
- ○ Other

2. DATA FROM OTHERS:

What hatchery data from others do you need to complete your work and/or inform your

Survey Respondents

- 26 respondents in total

SURVEY RESPONDENTS
RESULTS OF PRE-WORKSHOP SURVEY

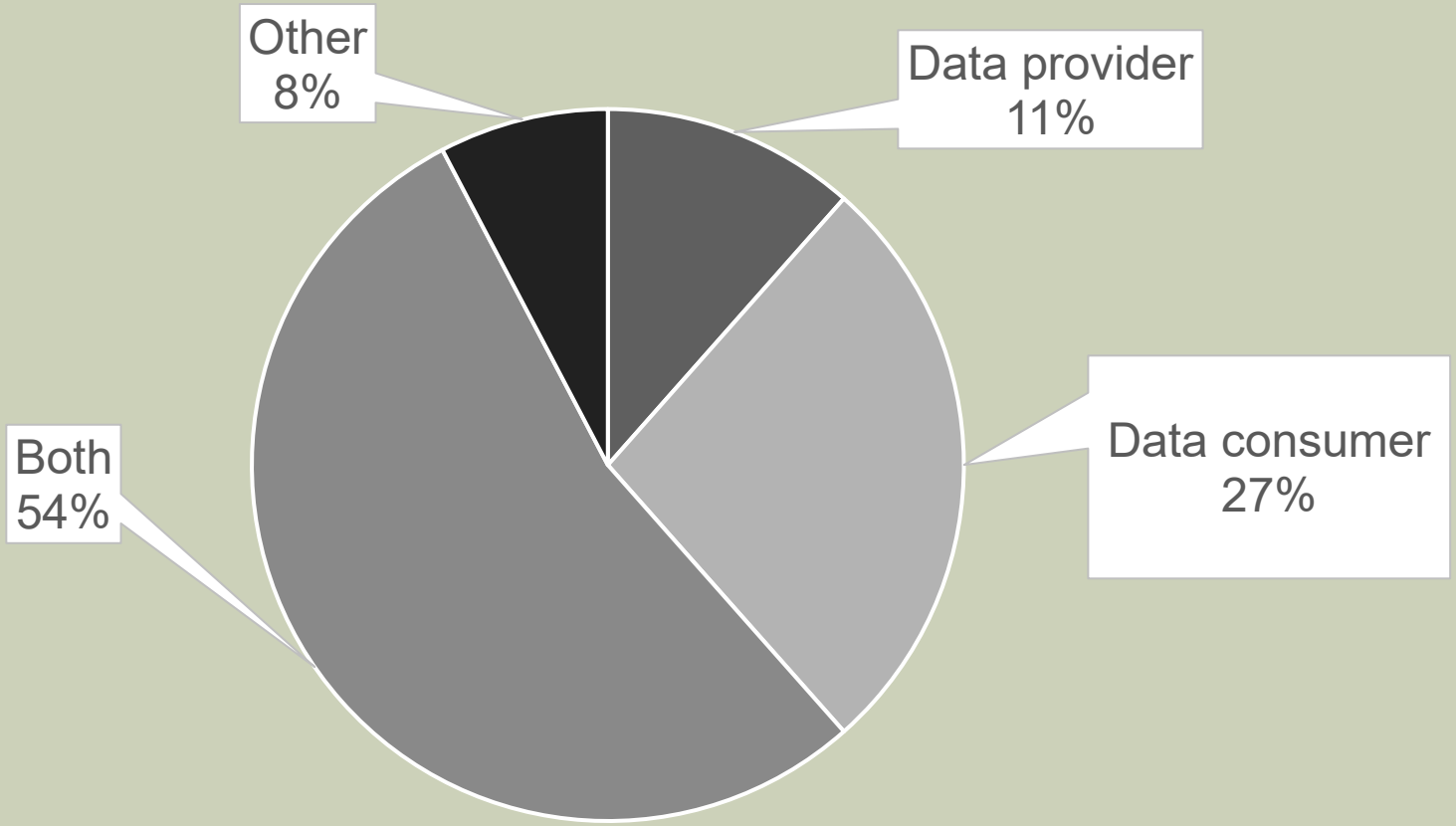
- Respondents represented 15 organizations

Organization Represented by Survey Respondents	Number of Respondents
Bonneville Power Administration	1
Chelan Public Utility District	1
Confederated Tribes of the Umatilla Indian Reservation	1
Idaho Power Company	1
Lower Columbia Fish Recovery Board	1
Oregon Department of Fish and Wildlife	1
Shoshone-Bannock Tribes	1
Washington Department of Fish and Wildlife	1
Confederated Tribes and Bands of the Yakama Nation	1
Pacific States Marine Fisheries Commission	1
Columbia River Intertribal Fish Commission	2
Idaho Department of Fish and Game	2
Confederated Tribes of the Colville Reservation	3
U.S. Fish and Wildlife Service	4
NOAA Fisheries	4
Unspecified	1

SURVEY RESPONDENTS
RESULTS OF PRE-WORKSHOP SURVEY

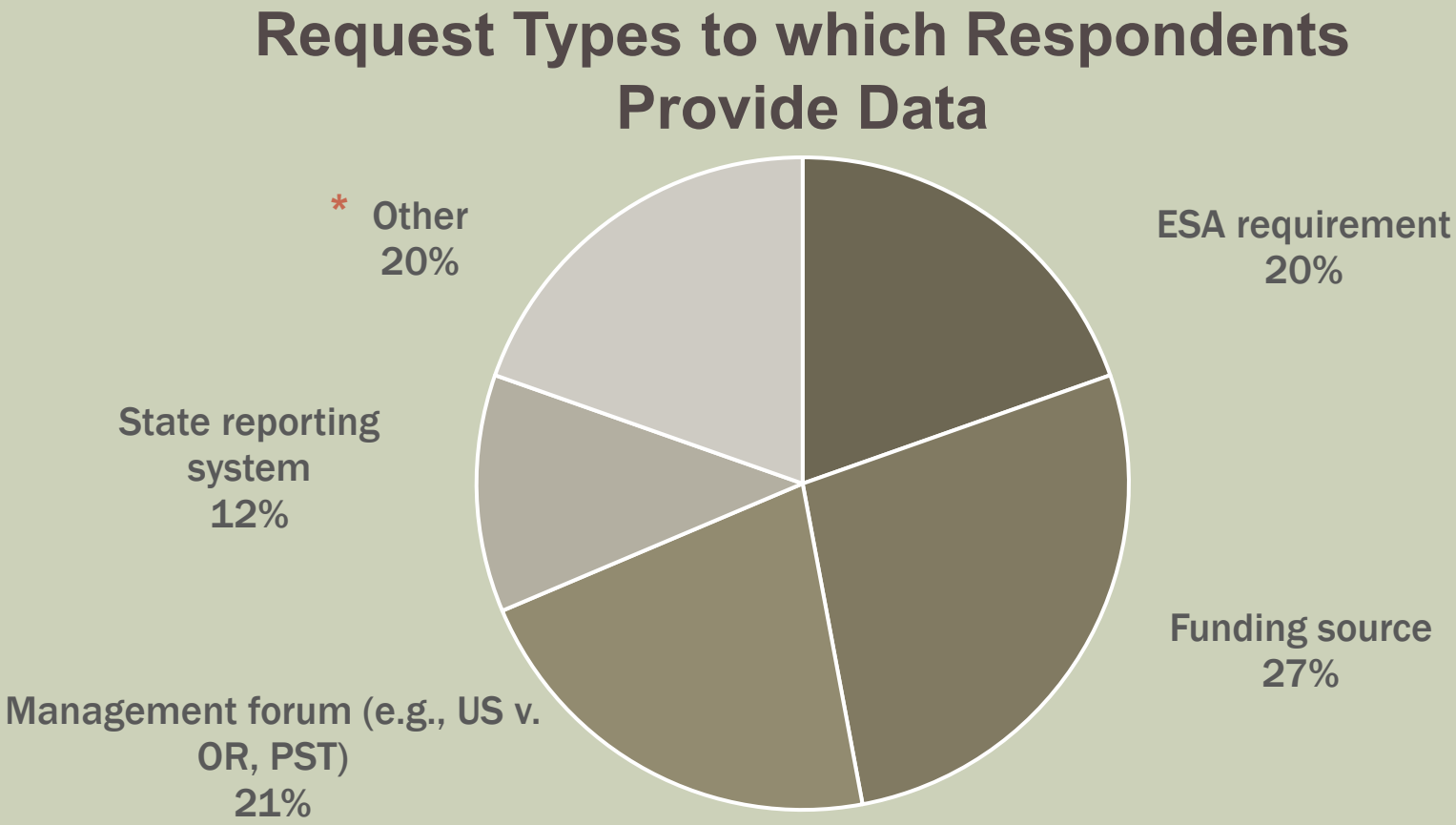
26 respondents self-identified with these broad groups

Are You a Data Provider or Data Consumer?



WHY DO YOU PROVIDE DATA TO OTHERS?

24 Respondents

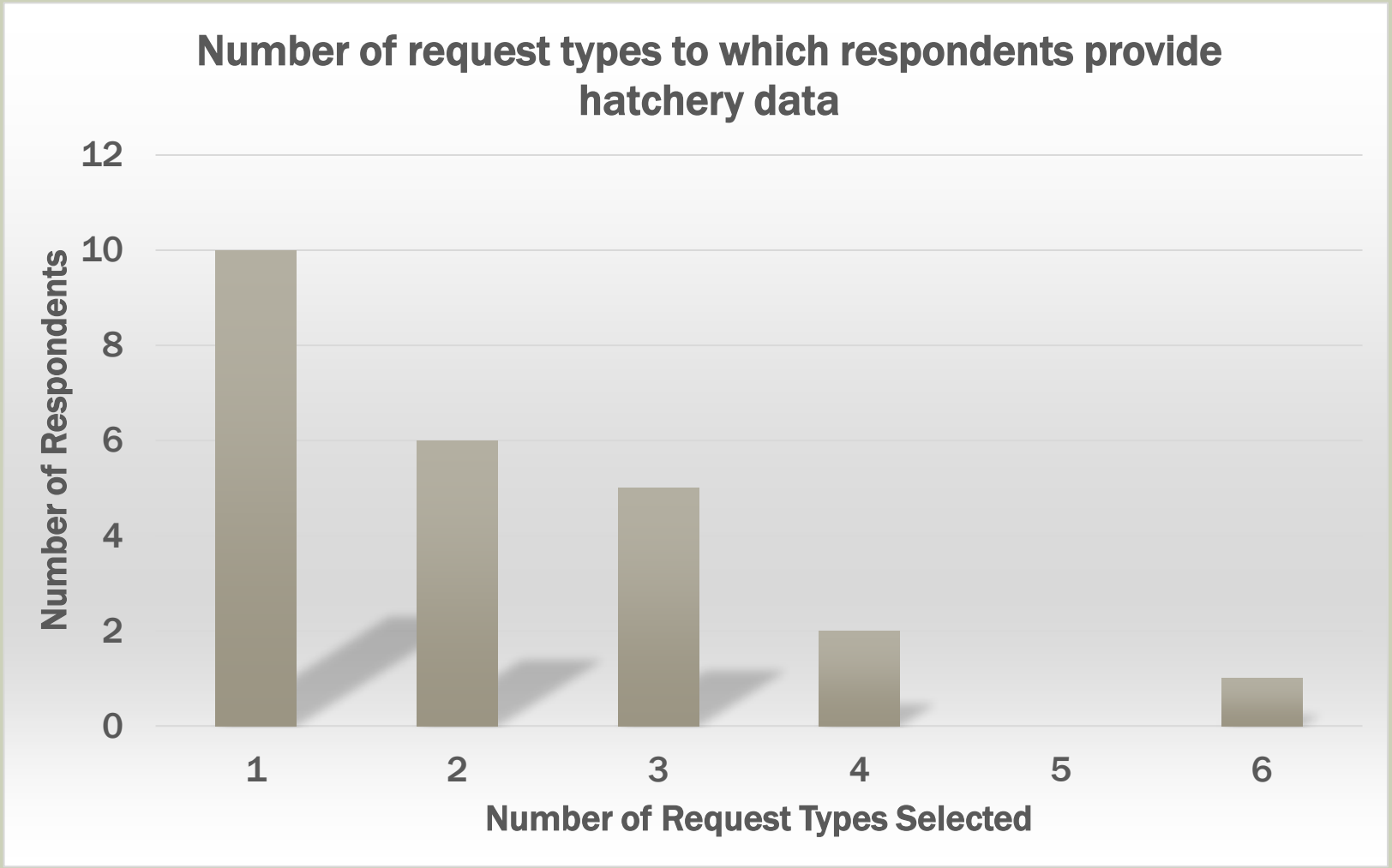


***Other Request types:** Specific facility being studied; Collaborative cross-program comparisons and analyses; Data (email) requests; Federal reporting systems; To inform habitat restoration projects; License requirements; Not sure; I do not share data.

WHY DO YOU PROVIDE DATA TO OTHERS?

24 Respondents

15 of 24 (63%) respondents indicate that they support more than 1 request for data

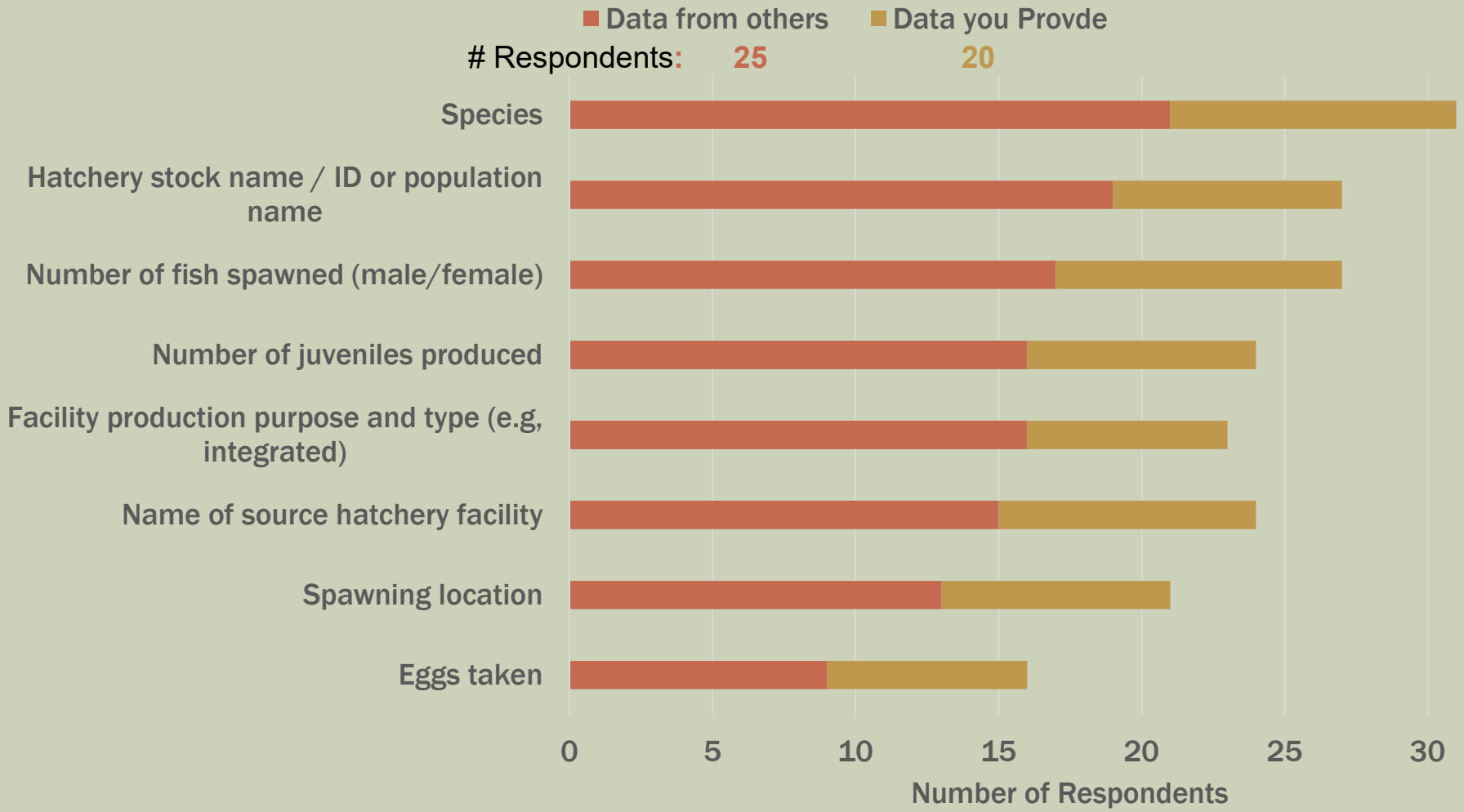


YOUR ASSESSMENTS OF THE CURRENT DATA ACCESS STATUS FOR THESE BROAD DATA CATEGORIES

SURVEY CAPTURED CURRENT DEMAND FOR THREE GROUPS OF HATCHERY FISH INFORMATION

- Program Information
  - Descriptive content that accompanies all data sets
  - Some may be available from other regional data systems (RMIS)
  - E.g., species, stock
- Juvenile Metrics
  - Inform the calculations of hatchery performance indicators
  - Some may be available from other regional data systems (RMIS)
  - E.g., release information
- Hatchery Stock Performance Indicators
  - Inform impact of hatchery stocks on wild stock, harvest, mitigation
  - E.g., escapement, SAR

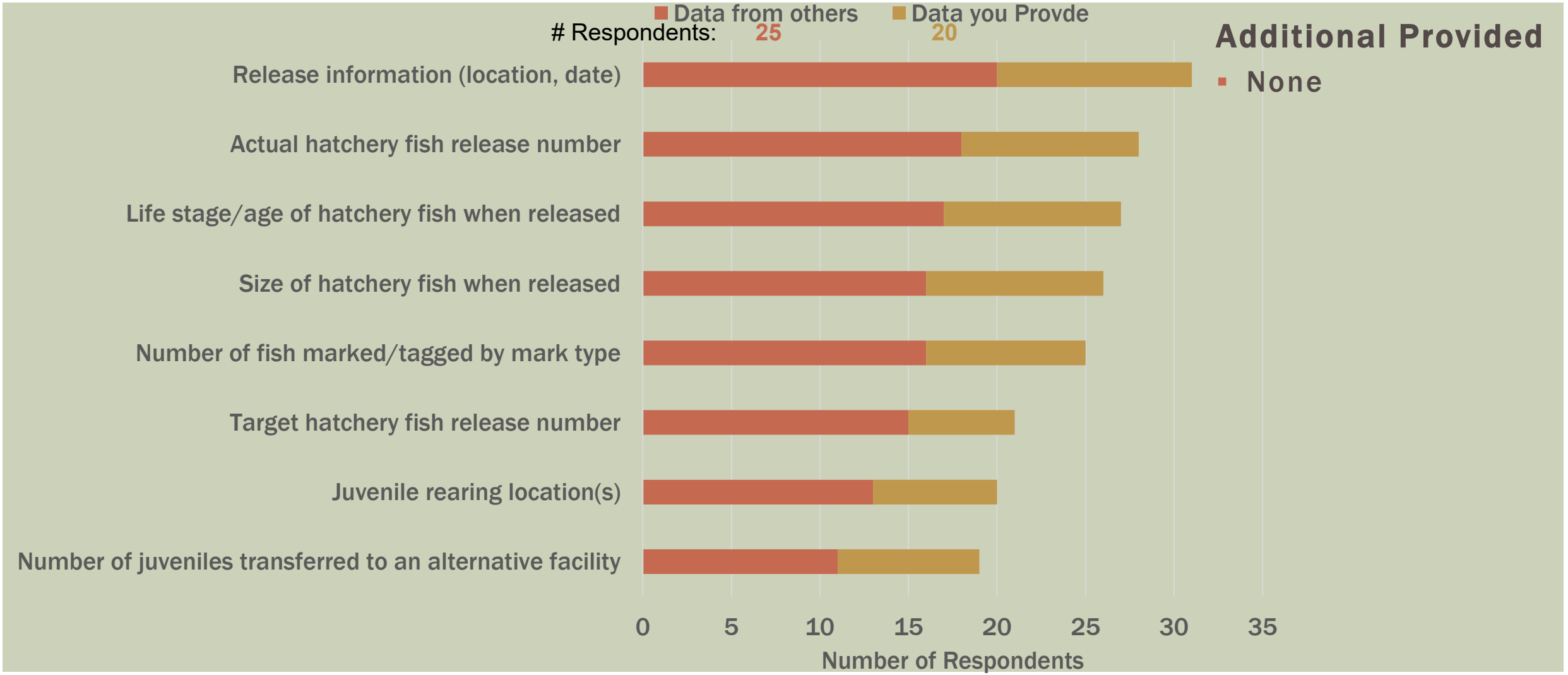
PROGRAM INFORMATION
OBTAINED FROM OTHERS & PROVIDED TO OTHERS



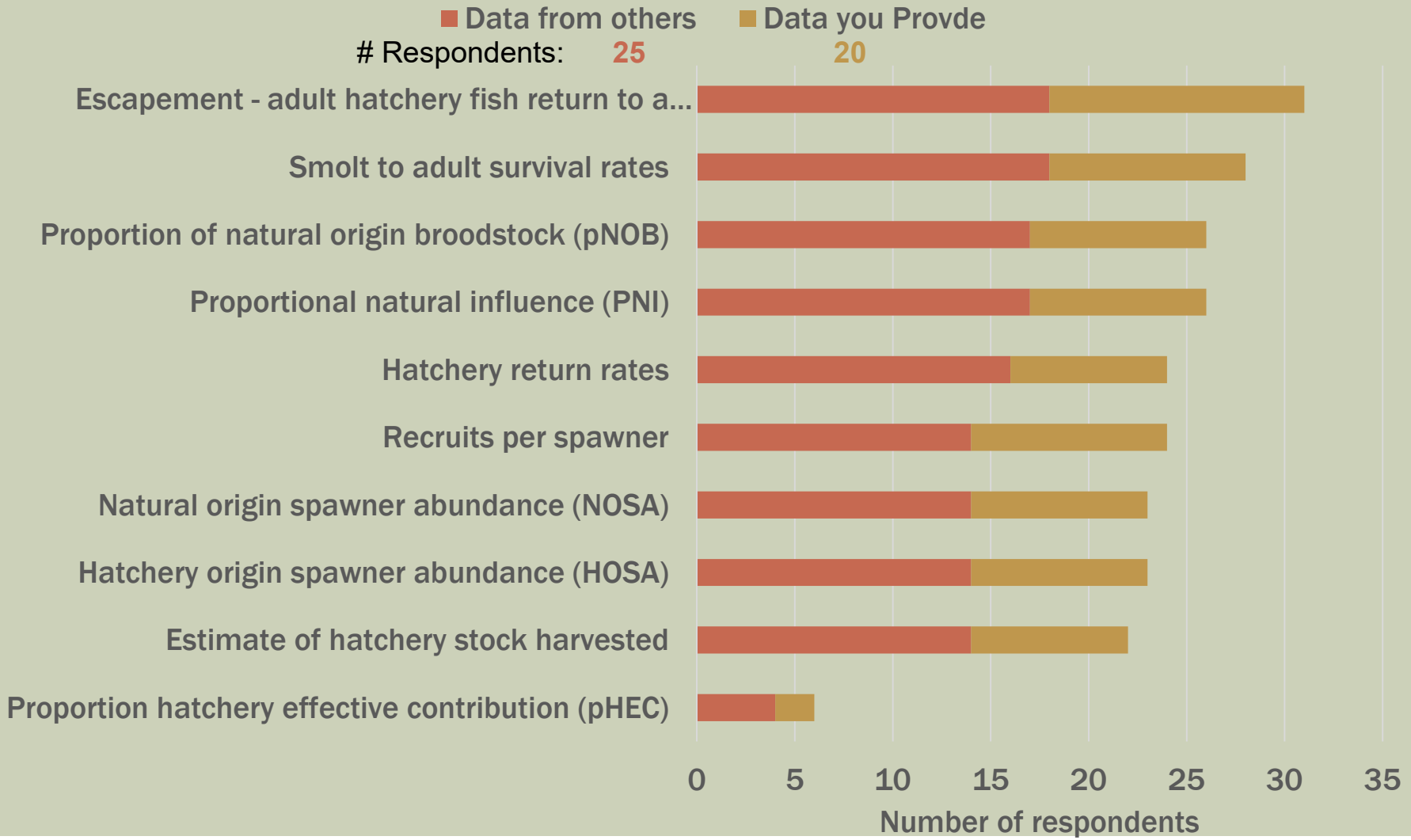
Additional input

- Water sources
- Water temperature
- Spawning dates
- Brood stock origin
- Spawning matrix design
- Ponding dates
- First feeding date
- Rearing density
- Life-history (sex, maturity age)
- Physiology
- Stray rates
- Growth rates
- Historical production
- Adult return metrics (age, sex ratio, length)
- Progress towards hatchery goals
- Individual productivity
- Fish condition / health

JUVENILE METRICS
OBTAINED FROM OTHERS & PROVIDED TO OTHERS



HATCHERY STOCK PERFORMANCE
OBTAINED FROM OTHERS & PROVIDED TO OTHERS



Additional Provided

- Hatchery Replacement Rate (HRR)
- Smolt to smolt survival
- VSP parameters
- Relative Reproduction Success (RRS)
- Age at return
- Productivity by stock, origin, acclimation site
- Minijack rates
- Early maturation/ residualism rate

HCAX
INDICATORS AND METRICS TO CONSIDER

DISCUSSION OF HATCHERY INDICATORS TO PRIORITIZE FOR PHASE 1

Tom Iverson
& Jen Bayer

CRITERIA FOR PRIORITIZING INDICATORS

- Why: we want to limit ourselves to fewer indicators to start
- Consider
  - Information needed for regional decision-making/reporting
  - Sequencing e.g., actions that must be done first, second, etc.
  - Dynamic content that is updated or added to regularly
  - Exclude content aimed at within hatchery improvements that is more suitable for individual organization's data system

PROGRAM INFORMATION
WHICH TO CONSIDER FOR INCLUSION IN HCAX

- Selected by more than 20 respondents

25 or more respondents

- Number of juveniles produced
- Number of fish spawned (male/female)
- Hatchery stock name / ID or population name
- Species

20 or more respondents

- Spawning location
- Name of source hatchery facility
- Facility production purpose and type

- Should we include others suggested:
  - Water sources, water temperature
  - Spawning dates, Brood stock origin
  - Spawning matrix design
  - Ponding dates
  - First feeding date
  - Rearing density
  - Life-history (sex, maturity age)
  - Physiology
  - Stray rates
  - Growth rates
  - Historical production
  - Adult return metrics (age, sex ratio, length)
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- Species

20 or more respondents

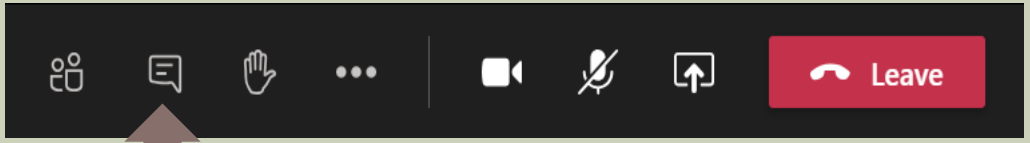
- Spawning location
- Name of source hatchery facility
- Facility production purpose and type

Poll:
Confirm this list or identify which to exclude

LIVE POLLING: PROGRAM INFORMATION PART 1

Keeping the criteria in mind:

- Needed for regional decision-making/reporting
- Sequencing
- Dynamic content
- Exclude if aimed at within hatchery/individual org. needs



Find the Menti poll link in the Chat.

Point phone camera but don't click

PROGRAM INFORMATION
WHICH TO CONSIDER FOR INCLUSION IN HCAX

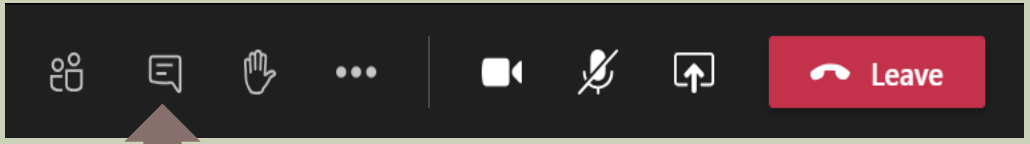
Poll:
Should we ADD any of these?
Choose maximum of 2

- Should we include others suggested:
  - Water sources, water temperature
  - Spawning dates, Brood stock origin
  - Spawning matrix design
  - Ponding dates
  - First feeding date
  - Rearing density
  - Life-history (sex, maturity age)
  - Physiology
  - Stray rates
  - Growth rates
  - Historical production
  - Adult return metrics (age, sex ratio, length)
  - Progress towards hatchery goals
  - Individual productivity
  - Fish condition/health

LIVE POLLING: PROGRAM INFORMATION PART 2

Keeping the criteria in mind:

- Needed for regional decision-making/reporting
- Sequencing
- Dynamic content
- Exclude if aimed at within hatchery/individual org. needs



Find the Menti poll link in the Chat.

Point phone camera but don't click

JUVENILE METRICS
WHICH TO CONSIDER FOR INCLUSION IN HCAX

- Selected by more than 20 respondents

25 or more

Number of fish marked/tagged by mark type

Size of hatchery fish when released

Life stage/age of hatchery fish when released

Actual hatchery fish release number

Release information (location, date)

20 or more

Juvenile rearing location(s)

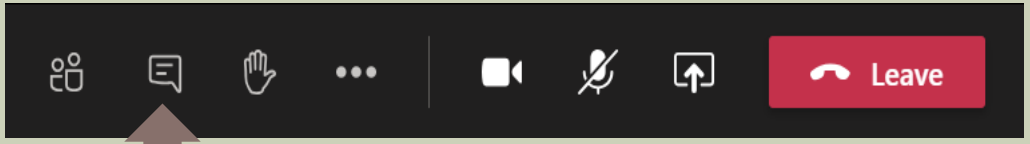
Target hatchery fish release number

Photo credit: NOAA

LIVE POLLING: JUVENILE METRICS

Keeping the criteria in mind:

- Needed for regional decision-making/reporting
- Sequencing
- Dynamic content
- Exclude if aimed at within hatchery/individual org. needs



Find the Menti poll link in the Chat.

Point phone camera but don't click

HATCHERY STOCK PERFORMANCE INDICATORS WHICH TO CONSIDER FOR INCLUSION IN HCAX

- Selected by more than 20 respondents

25 or more

- Hatchery return (replacement) rates (HRR)
- Proportional natural influence (PNI)
- Proportion of natural origin broodstock (pNOB)
- Smolt to adult survival rates

20 or more

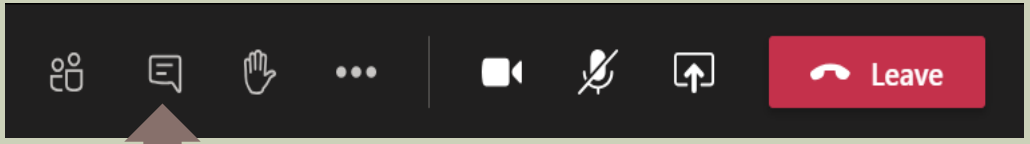
- Escapement - adult hatchery fish return to a location
- Estimate of hatchery stock harvested
- Hatchery origin spawner abundance (HOSA)
- Natural origin spawner abundance (NOSA)
- Recruits per spawner

- Others suggested:
  - Smolt to smolt survival
  - Relative Reproduction Success (RRS)
  - Age at return
  - Productivity by stock, origin, acclimation site
  - Minijack rates

LIVE POLLING: PROGRAM INFORMATION

Keeping the criteria in mind:

- Needed for regional decision-making/reporting
- Sequencing
- Dynamic content
- Exclude if aimed at within hatchery/individual org. needs



Find the Menti poll link in the Chat.

Point phone camera but don't click

BREAK

We will take a 15-minute break.

Please return at 2:15

Photo credit: USFWS

DISCUSSION OF HATCHERY INDICATORS TO PRIORITIZE FOR PHASE 1 (CONTINUED)

- Live Poll Results

MOVING FORWARD

Photo credit: CRTIFC

Work groups will focus on achieving agreement on common terms and the fields needed.

- PNAMP will facilitate
- MS Teams will be used for collaboration
- Virtual meetings for the foreseeable future
- Building on previous work

NEXT STEPS

We envision these steps:

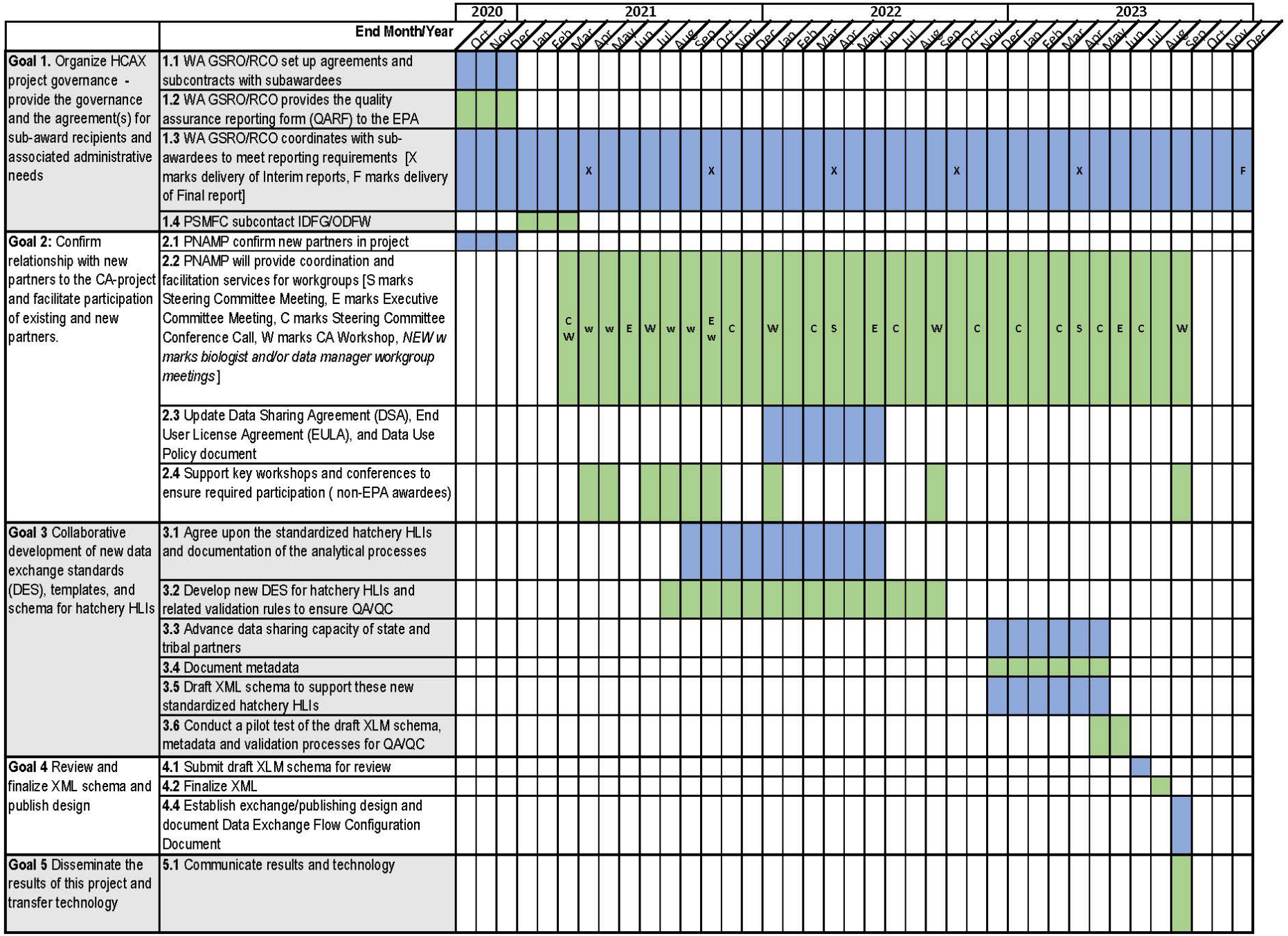
- Evaluate existing data resources against agreed upon list
  - Data available from other regional data systems
  - Data available from local (state/tribal/federal) systems and reports
- Agree to controlled vocabulary
- Hand off to data stewards to develop data exchange standard (DES)

Photo credit: CRITFC

TIMELINE

March – July biologist working group to

- Agree on indicators list
- Develop standard vocabulary/cross-walk



ADJOURN

Thank you for participating!

- Meeting materials found here: https://www.pnamp.org/event/hcax-workshop-1
- HCAX Project info found here: https://www.pnamp.org/project/hatchery-data-sharing-hcax
- More about CAP data exchange: https://www.streamnet.org/data/coordinated-assessments/

Coordinated Assessments Partnership
Fish and Habitat Data Exchange