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December 5, 2023

MEMORANDUM

TO: **Fish and Wildlife Committee Members**

FROM: **Kris Homel**

SUBJECT: **Update on the Fish Passage Center data management project**

BACKGROUND:

Presenter: Brandon Chockley (Data Analyst/ Fishery Biologist) and Joe Nowinski (Database Administrator/ Application Software Specialist), Fish Passage Center

Summary: The Fish and Wildlife Committee will hear a presentation on the resources available to the region through the Fish Passage Center (FPC) project. The presentation will include information on how FPC resources relate to the Council's Fish and Wildlife Program and how they are accessed and shared, along with a discussion of future data management needs and emerging tools or innovations.

Relevance: Regional data and information-management projects are critical to supporting the Program's data management, analysis, access, and communication functions. As part of the Mainstem and Program Support Project Review in 2019, the Council formulated a programmatic issue to address the importance of these projects. The programmatic issue emphasized the need to identify which resources house information derived from Program funded projects and how those resources can be accessed by the public. Over the course of this year, the staff have invited all seven of the data management projects included in the Mainstem and Program Support Review to share similar presentations. The Committee

has heard from six projects so far- the Columbia Basin Fish and Wildlife Library, the Inter-Tribal Monitoring Data Project, Data Access in Real Time, StreamNet, Intermountain Province Subbasin Data Management Project, and the Pacific Northwest Aquatic Monitoring Partnership. In December, the committee will hear from the last project (FPC), which is administered under Project # 1994-033-00.

Background: A large amount of data is collected throughout the basin by many different projects and having access to that information is critical. This is the role filled by data management projects- they support the Program's data management, analysis, access, and communication functions. Each project is a little different and each fits different needs for their organizations.

The seven data management projects were reviewed in the 2019 Mainstem and Program Support Project Review. In this review, the ISRP highlighted, and the Council agreed with, the importance of supporting regional and sub-regional data management, storage, and dissemination of information necessary for Program implementation and assessment (please see Programmatic Issue #2, pages 8 and 9). In particular, intentional planning for, and dedication of funding is necessary for (1) sharing information that informs decisions and (2) keeping pace with new technologies and knowledge through workshops and other learning experiences. This requires balancing investments in data collection with investments for data processing (data management, analysis, data steward expertise/support) and communication of information.

In an effort to address the Council recommendation and to advance the Council's efforts in the assessment of program performance, there is a need to better understand the information and data sharing resources in the basin, which provide the Council and region with critical Program data and information. In the decision document from the 2019 review, the Council recommended that a subcommittee of the Regional Coordination Forum be convened. The tasks of this subcommittee would be to (1) communicate the role of the regional and sub-regional databases/ repositories in providing public access to information derived from Program funded projects, (2) identify the primary regional databases/ repositories that house information supporting the Program, and (3) address efficient flow of information between regional and subregional databases/repositories, and projects collecting and analyzing data.

Toward this end, the Council organized a series of presentations on data and information management projects during 2023 for Fish and Wildlife Committee meetings. The Council developed a set of questions to better understand the specific work each data management project is doing, how they relate to each other, and how they relate to the Council's Program. Some of these questions were asked of every project during their presentation, and others were specific to individual projects. The

presentation on FPC will provide answers to questions 1-3, and 5-7, below.

The required questions are:

1. Describe the data and resources that you provide to the region.
2. How do these data and resources relate to the Council's Fish and Wildlife Program?
3. How are these resources accessed and/ or shared among organizations?

The additional questions are:

4. What kind of collaborations or relationships exist between your data/repositories/organization, and other data management projects/organizations in the basin (not just within the Program)?
5. As the basin and program continue changing and other information needs arise or change, what opportunities do you have to adapt to these different needs?
6. What do we need to be aware of in the future to continue providing data management for the full suite of work implemented under the program?
7. Are there emerging tools or technologies we should be aware of? New data management needs? Innovations to share?

Through these presentations, we hope to highlight the resources that are available from these projects as they relate to the Program both to better understand the accomplishments of the Program, and to inform the region. Following the series of presentations, the Council will develop a summary of the answers each project provided to their specific questions.

More Info: https://www.fpc.org/fpc_homepage.php

Fish Passage Center

Brandon Chockley

Joe Nowinski

December 12, 2023

Fish Passage Center

Established in 1983 through the NPCC Fish and Wildlife Program

Contract administered through PSMFC

FPC staff includes a manager, biologists/analysts/NR specialists, computer science/web design/IT specialists, and administrative support

Project lead and support staff for Comparative Survival Study and Smolt Monitoring Program

Fish Passage Center Tasks

Primary Task: Provide technical support/analysis/data to state, federal, and tribal fisheries agencies to serve current management needs.

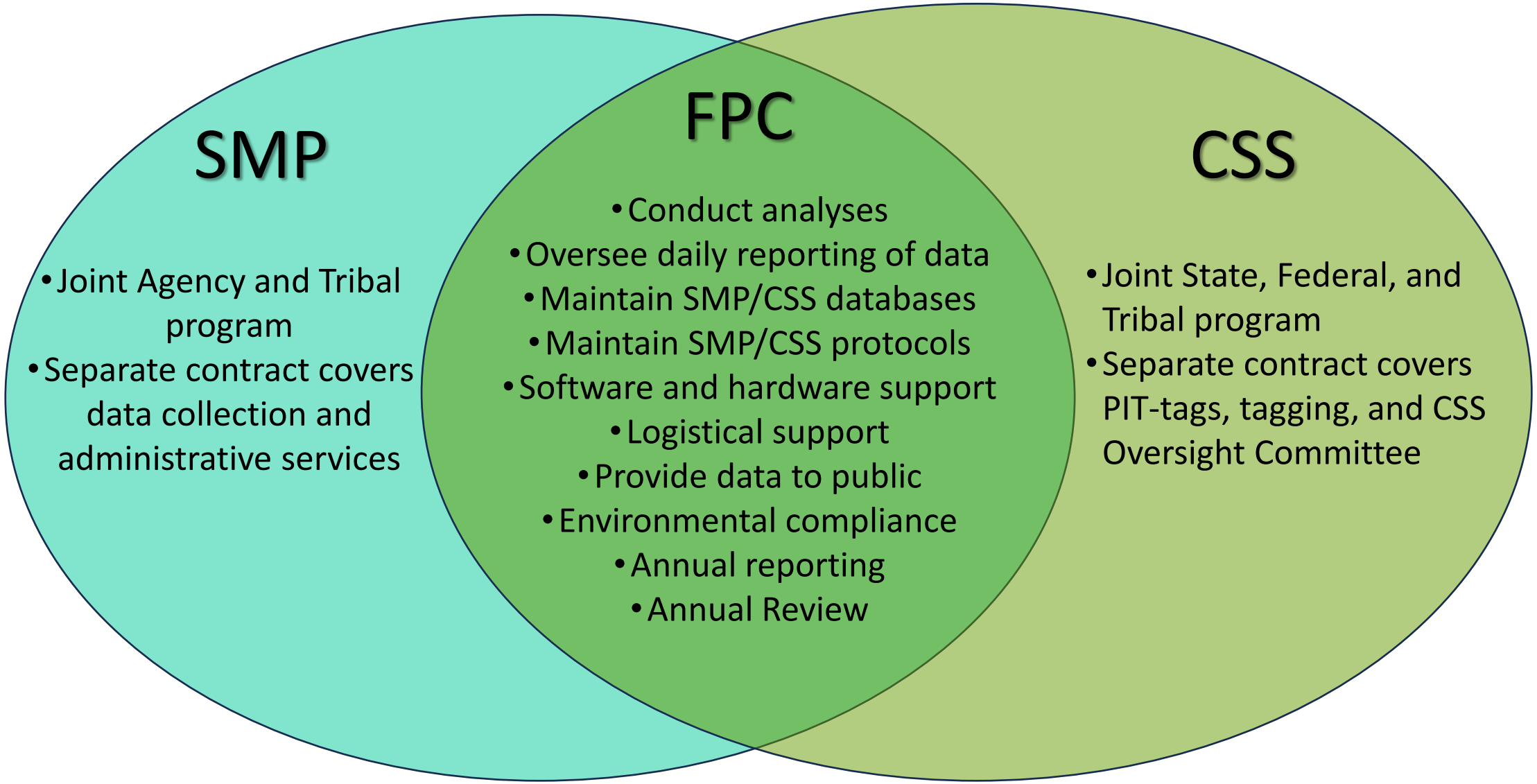
Data management, storage, analysis, implementation, technical oversight, and reporting for the **Smolt Monitoring Program (SMP)**

Data management, storage, analysis, implementation, oversight, and reporting for the **Comparative Survival Study (CSS)**

Provide technical support/analysis to state, federal, and tribal fisheries agencies to serve current management needs

- Maintain databases for:
  - Primary Data Source: SMP, GBT, Condition Monitoring, CSS, Hatchery Release, USACE Adult Fish Count, and Adult Ladder Temperature data
  - Secondary Data Source for other data used for FPC analyses
  - All databases maintained by FPC used for analytical products
- Maintain FPC website for public access to databases and FPC analyses
- Implement Adult Fish Facilities Inspection Program
- Respond to requests for data and analyses
- Develop GBT Report for COE's Annual TDG Report to Water Quality Agencies
- Develop FPC Annual Report

Data management, storage, analysis, implementation, technical oversight, and reporting for the SMP and CSS



1. Describe the data and resources that you provide to the region.

- FPC is the primary data source for several datasets that are critical to the region:
  1. Smolt Monitoring Program
     - Nearly 40 years of sampling data
     - Data used to assess passage timing and relative magnitude
     - Juvenile survival estimates for several reaches, species, and regions across the basin
  2. Gas Bubble Trauma Monitoring Program
     - 30 years of salmonid and 3 years of non-salmonid GBT Monitoring data
     - GBT Monitoring used by managers to assess project operations such as spill programs
  3. Hatchery Releases
     - 45 years of comprehensive anadromous salmonid hatchery release data for entire Columbia River Basin
     - Complements the SMP to assess timing of hatchery releases in terms of smolt passage

1. Describe the data and resources that you provide to the region.

- FPC is the primary data source for several datasets that are critical to the region:
  4. COE Adult Fish Counts
     - FPC is primary source of COE Adult Count database after COE stopped managing it
     - 85 years of adult ladder counts used for fisheries management and assessing operations
  5. Adult Ladder Water Temperatures
     - Per the annual Fish Passage Plan, FPC is primary source of COE adult ladder water temperature data
     - Used for real-time assessment of adult passage
  6. CSS Analyses
     - Nearly 30 years of PIT-tag SARs and Adult Age Composition data for Snake, UCOL, and MCOL Chinook, steelhead, and sockeye
     - Nearly 30 years of SARs by study category, Transport:In-River Ratios (TIRs), In-River Survival (S_R), and *D* for Snake River Chinook, steelhead, and sockeye

1. Describe the data and resources that you provide to the region.

- FPC maintains databases of other data that are critical for FPC analyses
- These data are also made available to the region (i.e., secondary source), including:
  - Project Operations
  - Water Quality
  - PUD Adult Fish Count
  - Below Bonneville Spawning Ground Surveys
  - Etc.

2. How do these data and resources relate to the Council's Fish and Wildlife Program?

- According to Part III of the 2014 Fish and Wildlife Program (Section IV.A.8, p. 62):

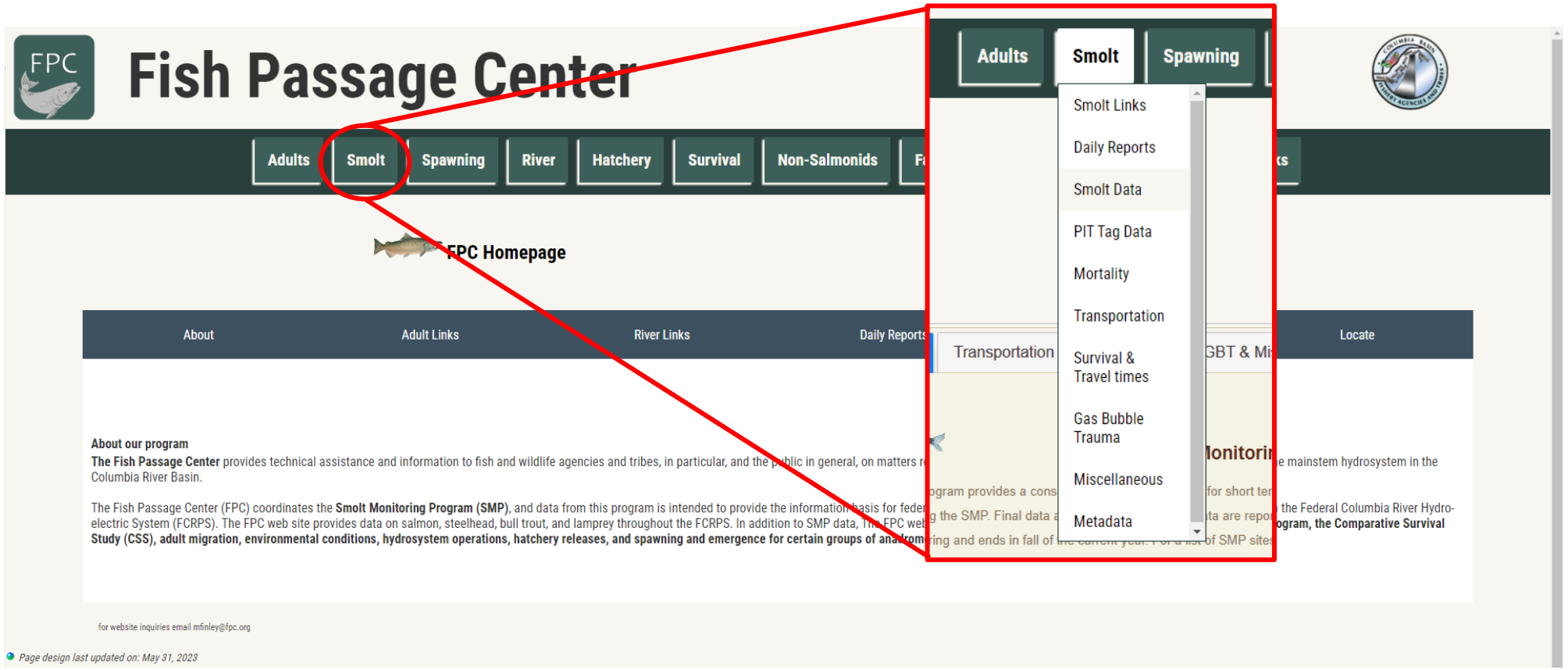
  "The Fish Passage Center provides technical assistance and information to the region's fish and wildlife agencies and tribes, and the public, on matters relating to the program's flow and passage measures"

- All data and resources provided by the FPC are used in support of this mandate

  - Assemble, organize, make publicly available, and maintain the primary archive of the smolt monitoring program data
  - Participate in the development of the annual smolt monitoring program implementation plan, and assist in the implementation of the program
  - Assemble, organize and make publicly accessible, data from other primary sources, and conduct analyses as requested to meet the information needs of the fish and wildlife agencies, tribes, and public with respect to water management, spill, and fish passage
  - Provide technical information necessary to assist the agencies and tribes in formulating in-season flow and spill requests that implement the measures in the Council's program, while also assisting the agencies and tribes in making sure that operating criteria for storage reservoirs are satisfied
  - Provide the technical assistance necessary to coordinate recommendations for storage reservoir and river operations that, to the extent possible, avoid potential conflicts between anadromous and resident fish
  - Archive and make publicly accessible the data used in developing all analytical results, associating the specific data with the respective analyses

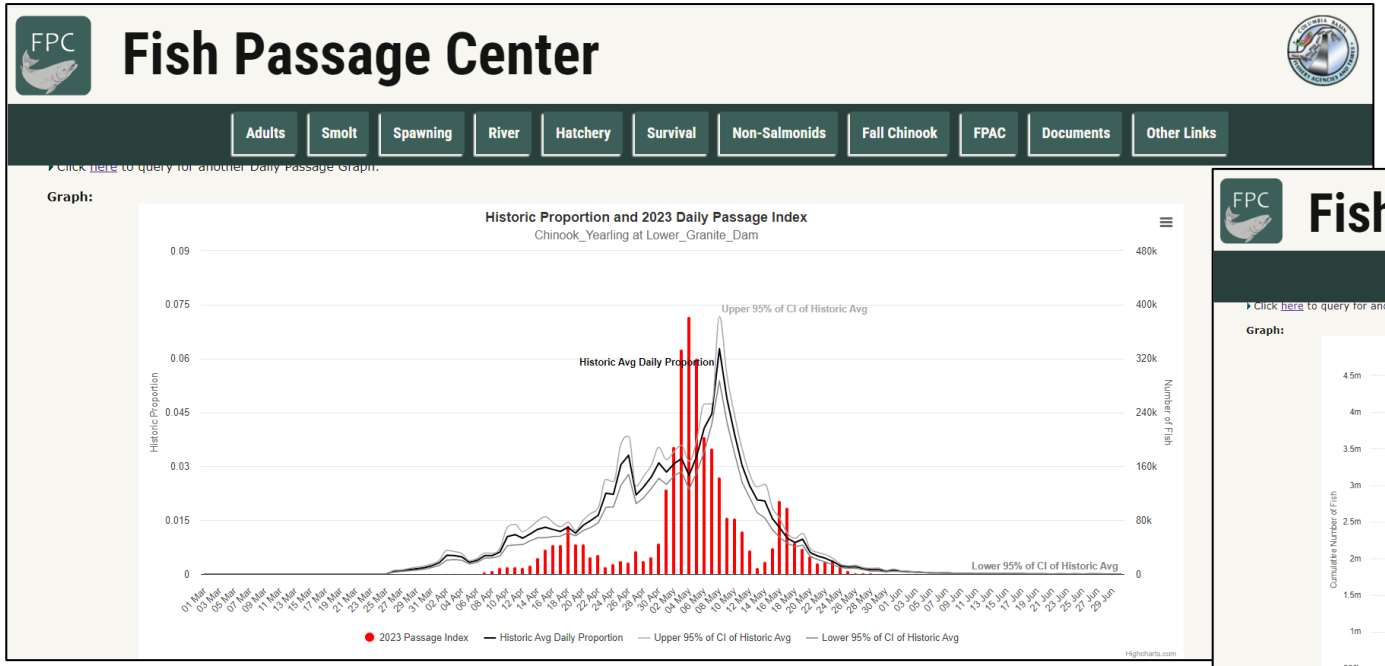
3. How are these resources accessed and/or shared among organizations?

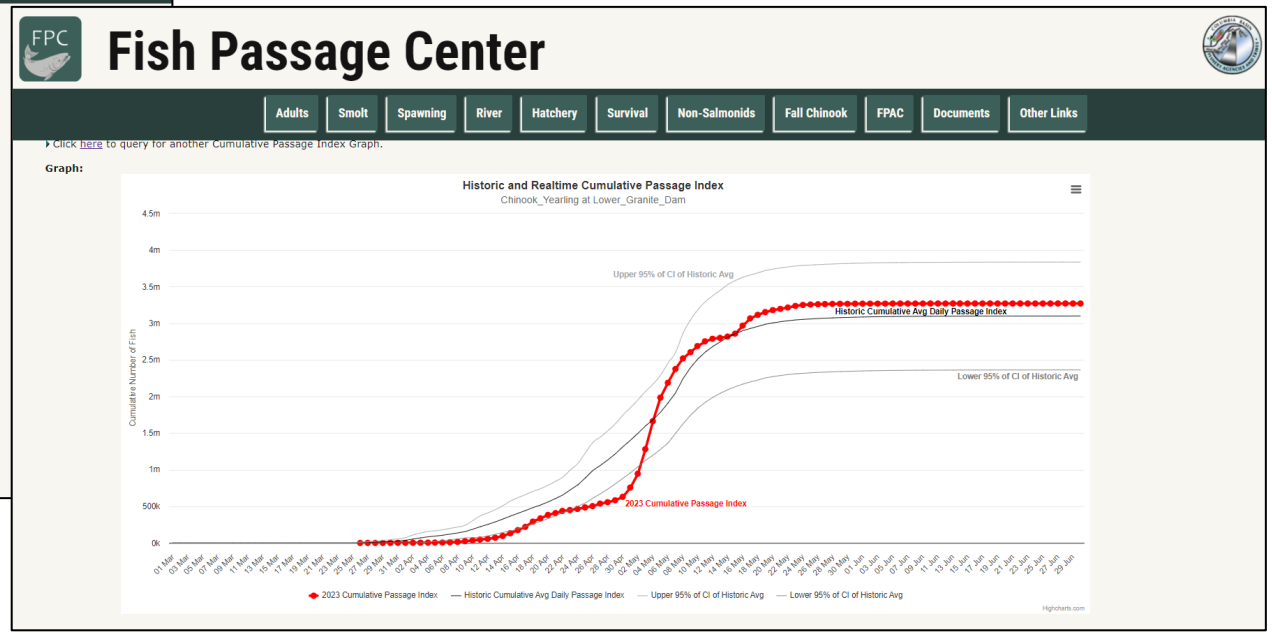
- FPC data and resources are available to the public via the FPC website (https://www.fpc.org/fpc_homepage.php)



3. How are these resources accessed and/or shared among organizations?

- Weekly meetings with **Fish Passage Advisory Committee (FPAC)** to support pending hydrosystem operational discussions and decisions





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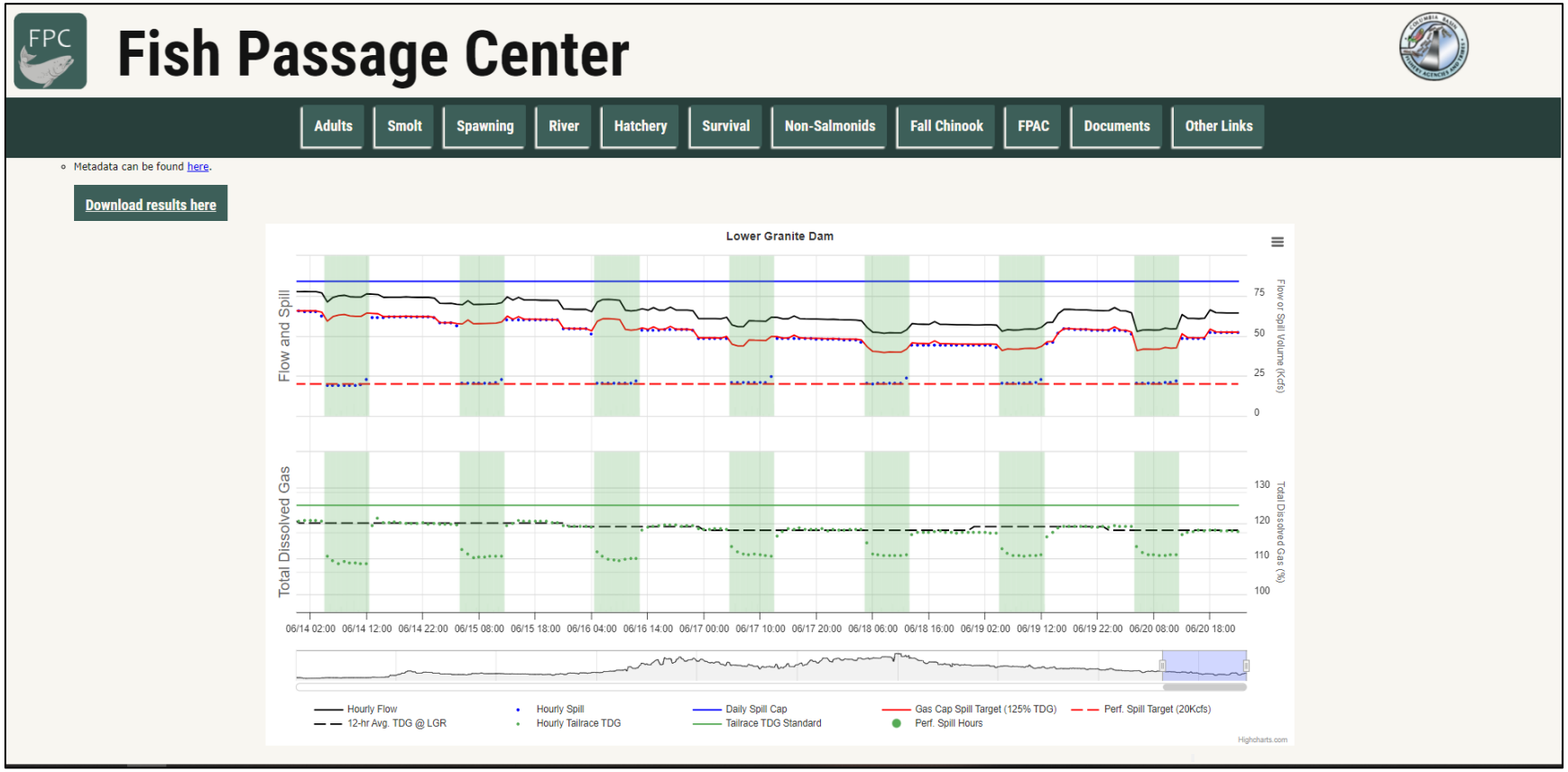


3. How are these resources accessed and/or shared among organizations?

- FPC Adult Count Passage Report used by **Technical Advisory Committee (TAC)** for fisheries management decisions

WILLAMETTE FALLS

DATE	CHINOOK ADULT	CHINOOK JACK	SPRING CHINOOK ADULT	SPRING CHINOOK JACK	SUMMER CHINOOK ADULT	SUMMER CHINOOK JACK	FALL CHINOOK ADULT	FALL CHINOOK JACK	COHO ADULT	COHO JACK	TOTAL STEELHEAD	UNCLIPPED 2) STEELHEAD	SHAD	SOCKEYE	LAMPREY	CHUM	PINK	SOURCE
10/26/2023	0	0	0	0	n/a	n/a	0	0	64	19	1	1	n/a	n/a	n/a	n/a	n/a	WFA
10/27/2023	0	0	0	0	n/a	n/a	0	0	69	6	1	0	n/a	n/a	n/a	n/a	n/a	WFA
10/28/2023	2	0	0	0	n/a	n/a	2	0	45	7	1	0	n/a	n/a	n/a	n/a	n/a	WFA
10/29/2023	1	0	0	0	n/a	n/a	1	0	64	9	3	3	n/a	n/a	n/a	n/a	n/a	WFA
10/30/2023	0	0	0	0	n/a	n/a	0	0	36	10	0	0	n/a	n/a	n/a	n/a	n/a	WFA
10/31/2023	0	0	0	0	n/a	n/a	0	0	26	7	0	0	n/a	n/a	n/a	n/a	n/a	WFA
11/01/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
YTD	25609	935	23422	667	n/a	n/a	2187	268	27007	10739	3070	2016	n/a	n/a	n/a	n/a	n/a	

BONNEVILLE DAM

DATE	CHINOOK ADULT	CHINOOK JACK	SPRING CHINOOK ADULT	SPRING CHINOOK JACK	SUMMER CHINOOK ADULT	SUMMER CHINOOK JACK	FALL CHINOOK ADULT	FALL CHINOOK JACK	COHO ADULT	COHO JACK	TOTAL STEELHEAD	UNCLIPPED 2) STEELHEAD	SHAD	SOCKEYE	LAMPREY	CHUM	PINK	SOURCE
10/26/2023	236	30	0	0	0	0	236	30	87	42	19	9		0	0	7	0	USACE
10/27/2023	132	29	0	0	0	0	132	29	122	21	19	13		0	1	1	0	USACE
10/28/2023	166	42	0	0	0	0	166	42	98	12	32	11		0	0	9	0	USACE
10/29/2023	150	37	0	0	0	0	150	37	69	7	31	12		0	0	9	0	USACE
10/30/2023	86	23	0	0	0	0	86	23	168	23	19	15		0	0	2	0	USACE
10/31/2023	108	30	0	0	0	0	108	30	465	21	10	3		0	0	15	0	USACE
11/01/2023	109	30	0	0	0	0	109	30	144	10	15	7		0	0	14	0	USACE
YTD	721590	85211	109966	10133	79259	10012	532365	65066	130619	17701	115200	41039	4345373	327600	63938	69	36	

THE DALLES DAM

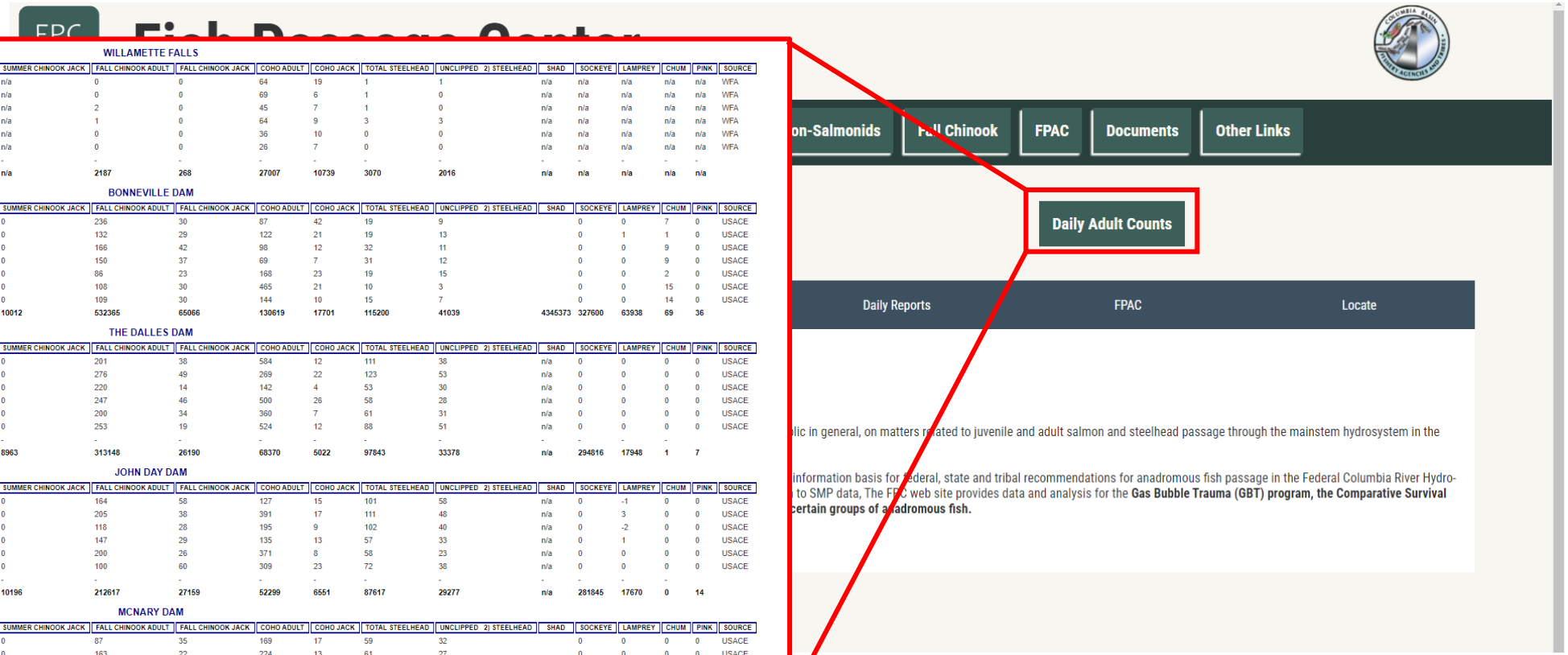
DATE	CHINOOK ADULT	CHINOOK JACK	SPRING CHINOOK ADULT	SPRING CHINOOK JACK	SUMMER CHINOOK ADULT	SUMMER CHINOOK JACK	FALL CHINOOK ADULT	FALL CHINOOK JACK	COHO ADULT	COHO JACK	TOTAL STEELHEAD	UNCLIPPED 2) STEELHEAD	SHAD	SOCKEYE	LAMPREY	CHUM	PINK	SOURCE
10/26/2023	201	38	0	0	0	0	201	38	584	12	111	38	n/a	0	0	0	0	USACE
10/27/2023	276	49	0	0	0	0	276	49	269	22	123	53	n/a	0	0	0	0	USACE
10/28/2023	220	14	0	0	0	0	220	14	142	4	53	30	n/a	0	0	0	0	USACE
10/29/2023	247	46	0	0	0	0	247	46	500	26	58	28	n/a	0	0	0	0	USACE
10/30/2023	200	34	0	0	0	0	200	34	360	7	61	31	n/a	0	0	0	0	USACE
10/31/2023	253	19	0	0	0	0	253	19	524	12	88	51	n/a	0	0	0	0	USACE
11/01/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
YTD	454641	43477	72921	8324	68572	8963	313148	26190	68370	5022	97843	33378	n/a	294816	17948	1	7	

JOHN DAY DAM

DATE	CHINOOK ADULT	CHINOOK JACK	SPRING CHINOOK ADULT	SPRING CHINOOK JACK	SUMMER CHINOOK ADULT	SUMMER CHINOOK JACK	FALL CHINOOK ADULT	FALL CHINOOK JACK	COHO ADULT	COHO JACK	TOTAL STEELHEAD	UNCLIPPED 2) STEELHEAD	SHAD	SOCKEYE	LAMPREY	CHUM	PINK	SOURCE
10/26/2023	164	58	0	0	0	0	164	58	127	15	101	58	n/a	0	-1	0	0	USACE
10/27/2023	205	38	0	0	0	0	205	38	391	17	111	48	n/a	0	3	0	0	USACE
10/28/2023	118	28	0	0	0	0	118	28	195	9	102	40	n/a	0	-2	0	0	USACE
10/29/2023	147	29	0	0	0	0	147	29	135	13	57	33	n/a	0	1	0	0	USACE
10/30/2023	200	26	0	0	0	0	200	26	371	8	58	23	n/a	0	0	0	0	USACE
10/31/2023	100	60	0	0	0	0	100	60	309	23	72	38	n/a	0	0	0	0	USACE
11/01/2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
YTD	340340	46330	66419	8975	61304	10196	212617	27159	52299	6551	87617	29277	n/a	281845	17670	0	14	

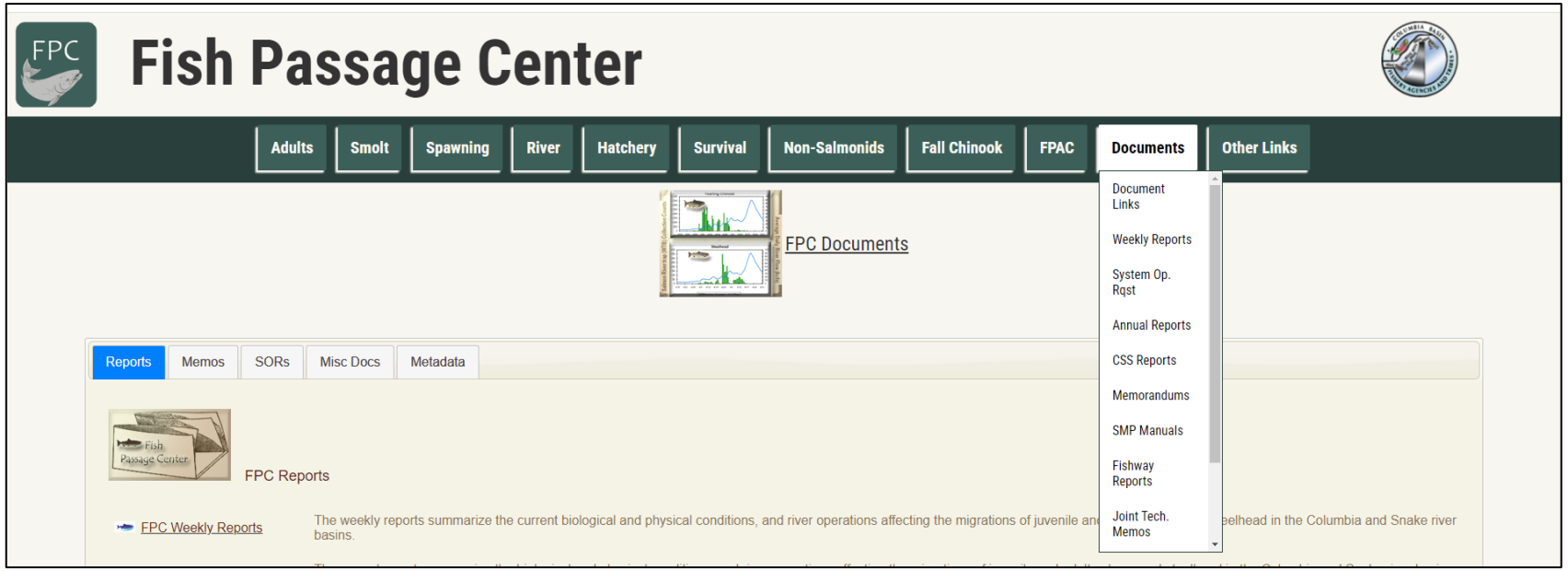
MCNARY DAM

DATE	CHINOOK ADULT	CHINOOK JACK	SPRING CHINOOK ADULT	SPRING CHINOOK JACK	SUMMER CHINOOK ADULT	SUMMER CHINOOK JACK	FALL CHINOOK ADULT	FALL CHINOOK JACK	COHO ADULT	COHO JACK	TOTAL STEELHEAD	UNCLIPPED 2) STEELHEAD	SHAD	SOCKEYE	LAMPREY	CHUM	PINK	SOURCE
10/26/2023	87	35	0	0	0	0	87	35	169	17	59	32		0	0	0	0	USACE
10/27/2023	163	22	0	0	0	0	163	22	224	13	61	27		0	0	0	0	USACE
10/28/2023	186	38	0	0	0	0	186	38	243	12	92	45		0	0	0	0	USACE
10/29/2023	276	41	0	0	0	0	276	41	278	19	93	57		0	0	0	0	USACE
10/30/2023	188	21	0	0	0	0	188	21	169	12	136	61		0	0	0	0	USACE



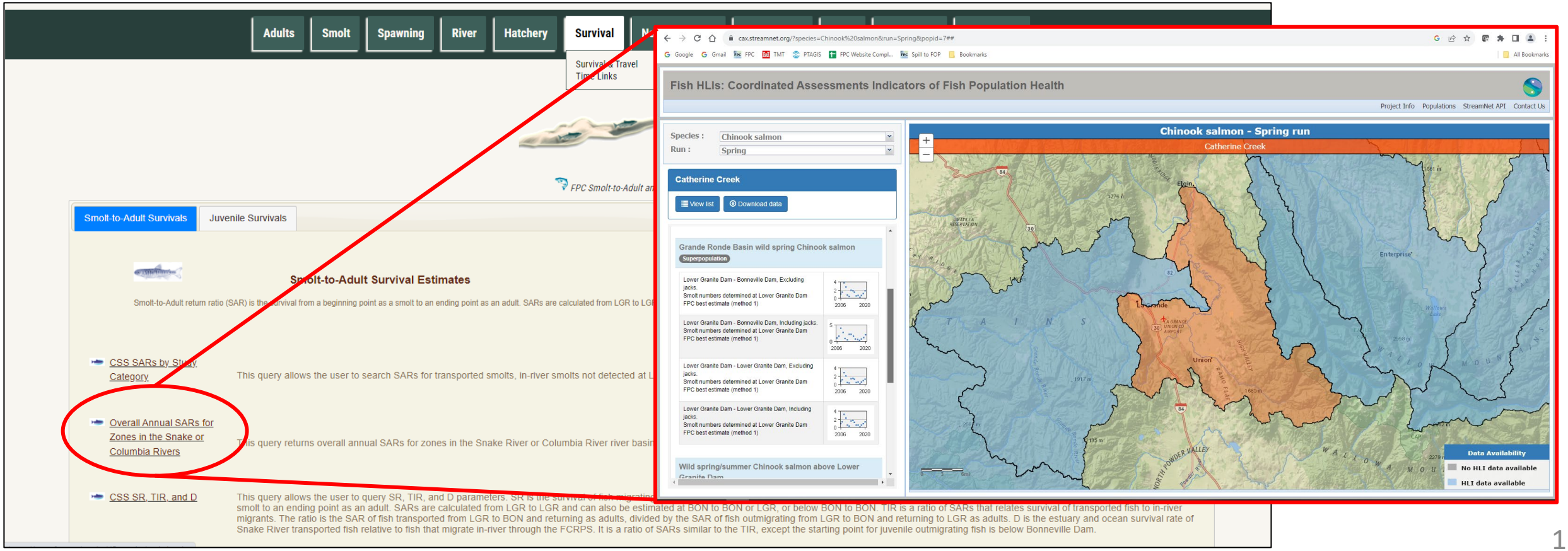
3. How are these resources accessed and/or shared among organizations?

- Data Requests
  - Data requests made by state, federal, and tribal fisheries managers and the public
  - Requests for datasets or more complicated analyses
  - All data requests are logged
  - FPC reports and documents all available via the FPC website



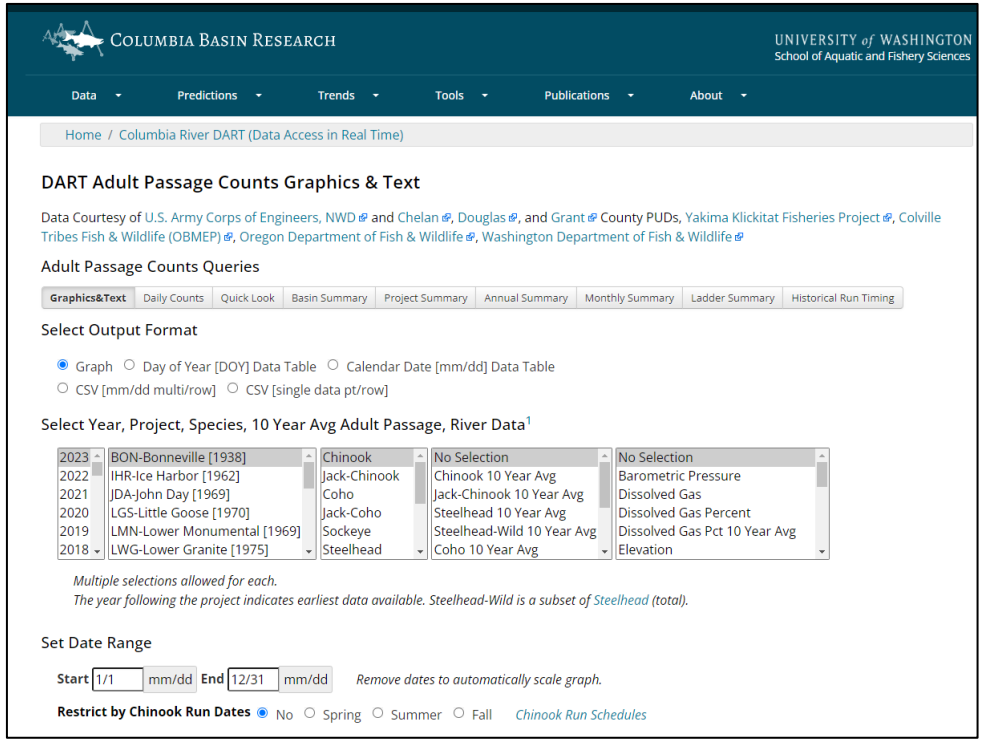
4. What kinds of collaborations or relationships exist between your data/repositories/organization and other data management projects/organizations in the basin (not just within the Program)?

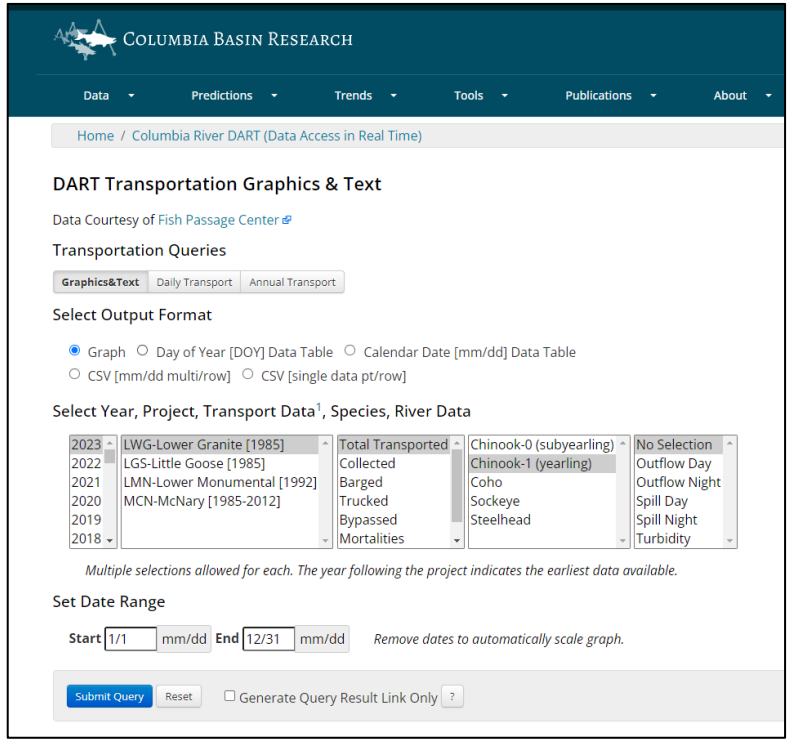
- FPC website used by the Data Repositories for their own displays/queries
  - **StreamNet/Coordinated Assessments** downloads CSS SARs for HLI SAR database

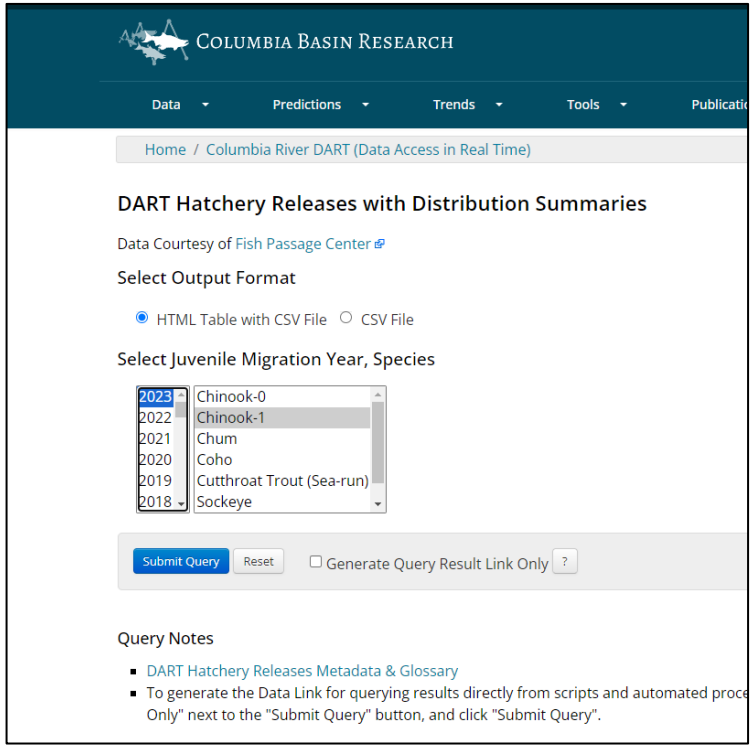


4. What kinds of collaborations or relationships exist between your data/repositories/organization and other data management projects/organizations in the basin (not just within the Program)?

- FPC website used by the Data Repositories for their own displays/queries
  - **Columbia Basin Research DART** downloads data from several FPC web queries and reports for use by their own queries







4. What kinds of collaborations or relationships exist between your data/repositories/organization and other data management projects/organizations in the basin (not just within the Program)?

- FPC website used by the Data Repositories for their own displays/queries
- SMP is a collaborative project
  - Oversight by FPAC and Fishery Managers
  - SMP & GBT data collection software developed and maintained by FPC
    - SMP & GBT software and hardware available to other users, not just SMP personnel
  - FPC provides training for both GBT monitoring programs
  - SMP & GBT data and analyses transparent and available

4. What kinds of collaborations or relationships exist between your data/repositories/organization and other data management projects/organizations in the basin (not just within the Program)?

- FPC website used by the Data Repositories for their own displays/queries
- SMP is a collaborative project
- CSS is a collaborative project
  - CSS Oversight Committee consists of representatives from state, federal, and tribal fisheries agencies
  - Oversight Committee collaborates on changes to CSS mark groups and analyses, based on management needs
  - CSS products/data transparent and available

5. As the basin and program continue changing and other information needs arise or change, what opportunities do you have to adapt to these different needs?

- FPC has and will continue to adapt to current needs of the managers and the region
  - 2016 – FPC Adult Ladder Temperature database and website created
  - 2018-2019 – FPC & CSS involved in CRSO-EIS modeling for 2020 Biological Opinion
  - 2019 – FPC became primary data source for USACE Adult Count data.
  - 2021 – GBT monitoring program modified to accommodate non-salmonid GBT monitoring
  - FPC analyses/responses to data requests constantly adapting to changing management needs
- FPC data system supports Structured Adaptive Management framework of CSS for evaluating of changes to hydrosystem operations

6. What do we need to be aware of in the future to continue providing data management for the full suite of work implemented under the program?

- Fish Passage Center is not a data warehouse project
  - Scope includes data management, coordination, technical support, and analysis
  - Data system supports FPC analysis and distribution of data and analysis to the pubic

- Data strategy and systems will continue to adapt
  - Data management principles outlined in Fish & Wildlife Program
  - FAIR principles for scientific data management and stewardship
  - Federal Information Security Management Act (FISMA)
  - Evolving information needs of regional managers

7. Are there emerging tools or technologies we should we aware of? New data management needs? Innovations to share?

- No new data management needs but…
- Need to improve precision of established metrics for evaluation of the hydrosystem
- CSS Oversight Committee & FPC have proposed actions to address this need, including:
  - Increased PIT-tag detection capabilities at or below Bonneville Dam
  - Install new PIT-tag detection capabilities at Mid- and Upper Columbia projects
  - Increase marking and mark groups

Summary and Discussion

- The FPC primary task is to provide technical support to fisheries managers
- FPC data are transparent and available to the public
- FPC project is highly adaptable

Questions?