Northwest **Power** and **Conservation** Council

October 2, 2018

MEMORANDUM

TO: **Fish and Wildlife Committee members**

FROM: **Mark Fritsch**

SUBJECT: **Developments in Sharing Yakama Nation Fish and Habitat Information**

BACKGROUND:

Presenter: Michelle Steg-Geltner and Steve Parker, Confederated Tribes and Bands of the Yakama Nation (YN).

Summary: Michelle and Steve will present what has been accomplished with this project over the past seven years and will demonstrate products to date and where they intend to take this project and its tools into the future years.

Background: On January 12, 2010 the Council supported proposal #2009-002-00, *Status and Trend Annual Reporting* for implementation. The goal of this Accord project was to support mitigation described in the 2008 FCRPS Biological Opinion and the obligations of the Council's Fish and Wildlife Program by annually reporting progress towards salmon recovery efforts.

Products developed include an annual comprehensive report covering implementation of all BPA funded Yakama Nation projects, the status and trend of target species, and other relevant impacts and benefits. Additional developments include online interactive resources, processing and sharing efficiencies, and regional reporting services.

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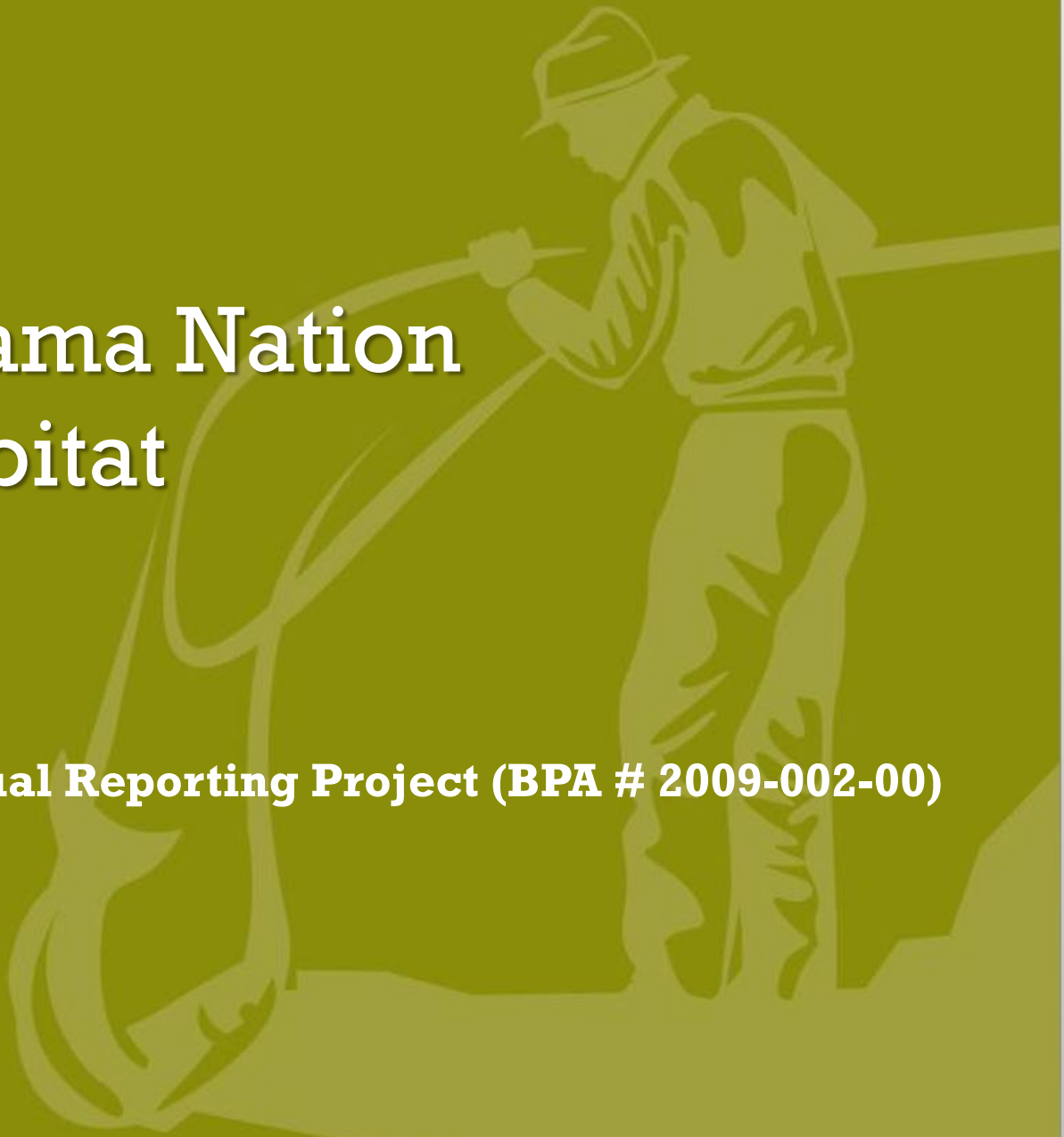
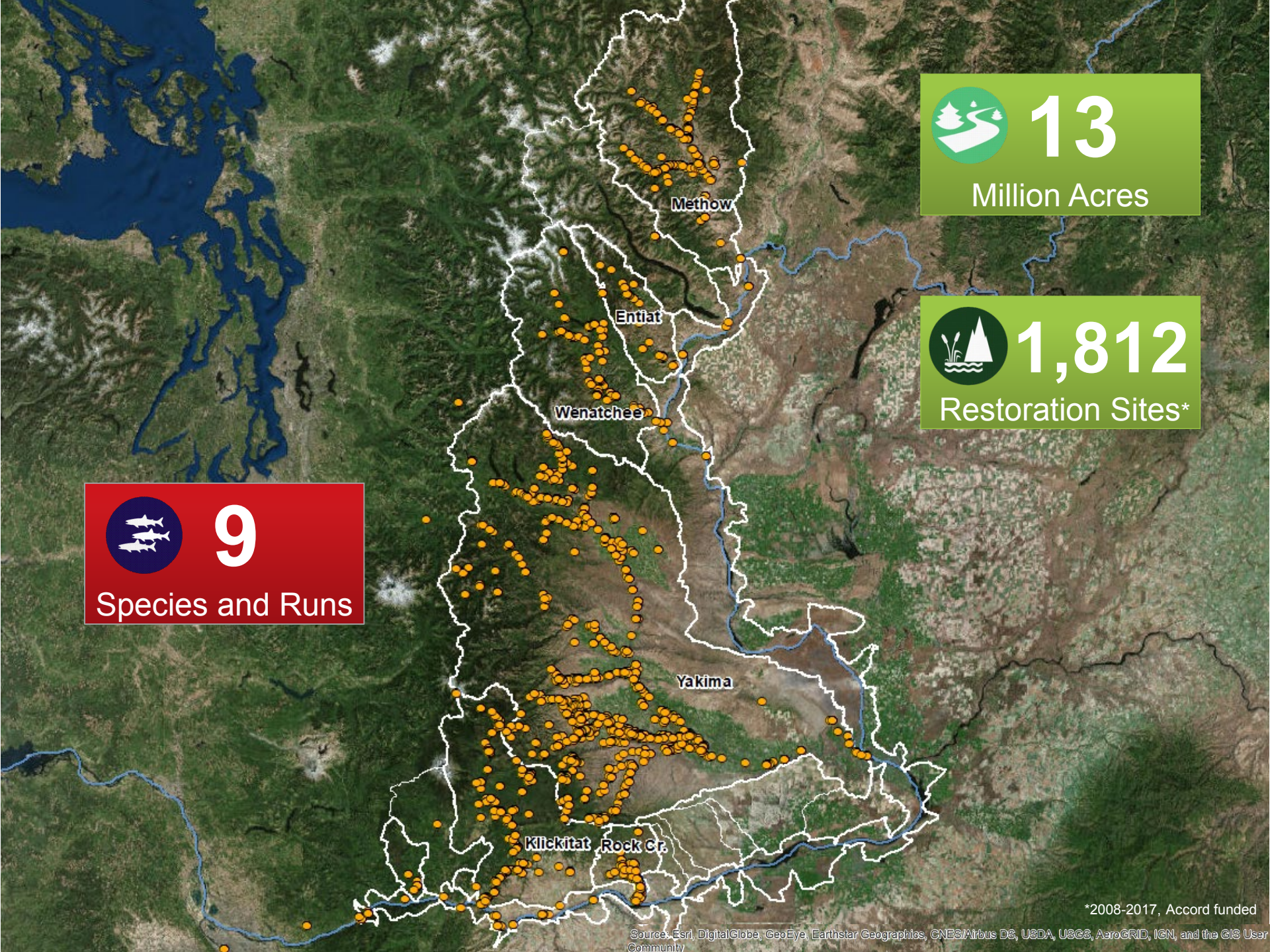
Sharing Yakama Nation Fish and Habitat Information

Status and Trends Annual Reporting Project (BPA # 2009-002-00)



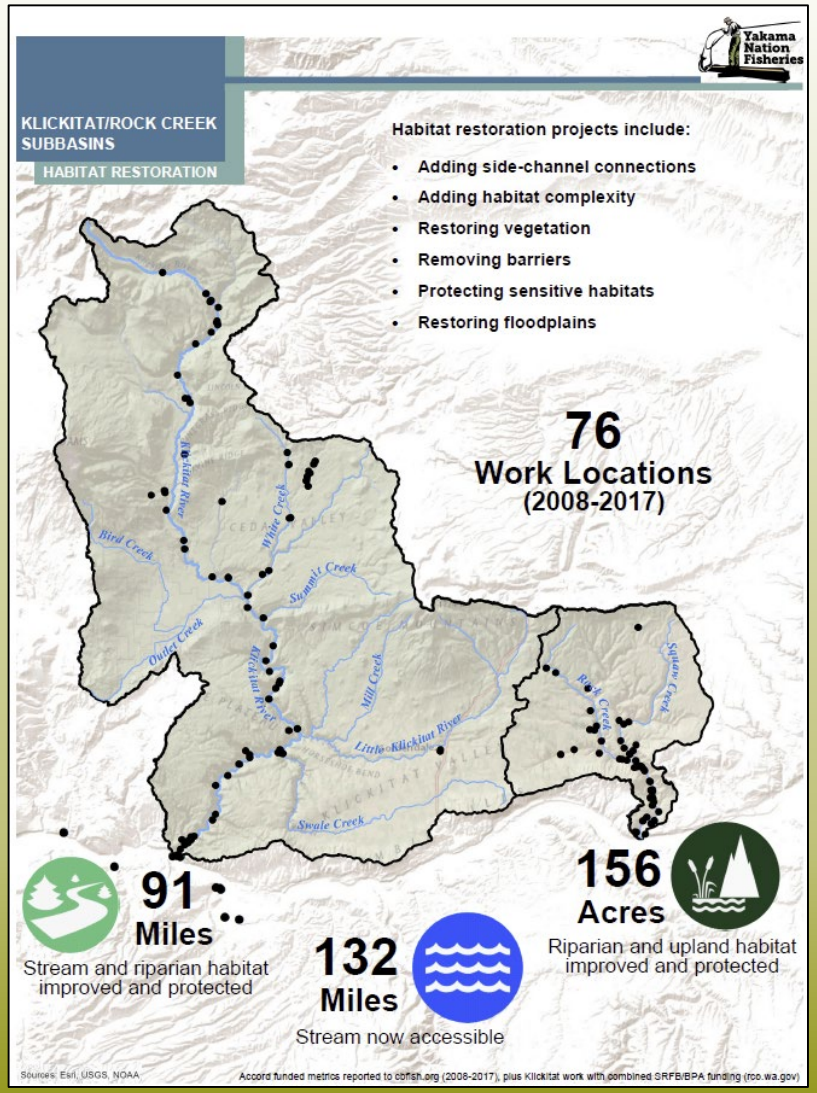
HONOR. PROTECT. RESTORE.


13
Million Acres
1,812
Restoration Sites*
9
Species and Runs
Methow
Entiat
Wenatchee
Yakima
Klickitat
Rock Cr.
*2008-2017, Accord funded
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Audiences


-General Public
-Tribal Membership
-Funding Entities
-Decision/policy-makers
-General Council
-Tribal Council
-Reporting Entities
-Resource Managers
-Program Managers
-Project Managers
-Biologists
Non-technical
Technical

Today's Presentation



1. Describe the role of the STAR Project
2. YN process for developing, sharing information
3. Examples

Role: Answers to Common Questions

Project Accomplishments?

Habitat & Species Status and Trend?

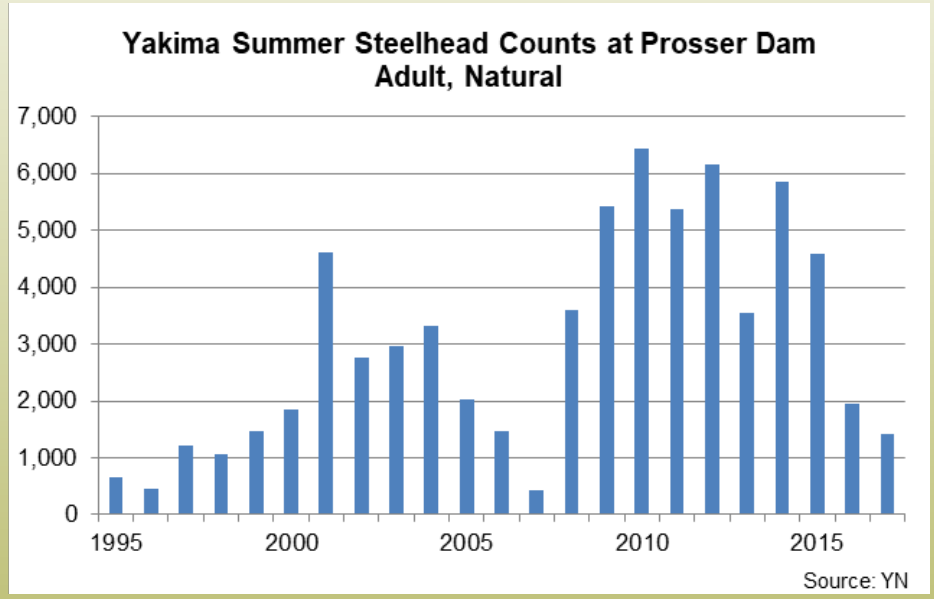
Resources Benefitting?

Photo Credit: Tony Grover, Flickr

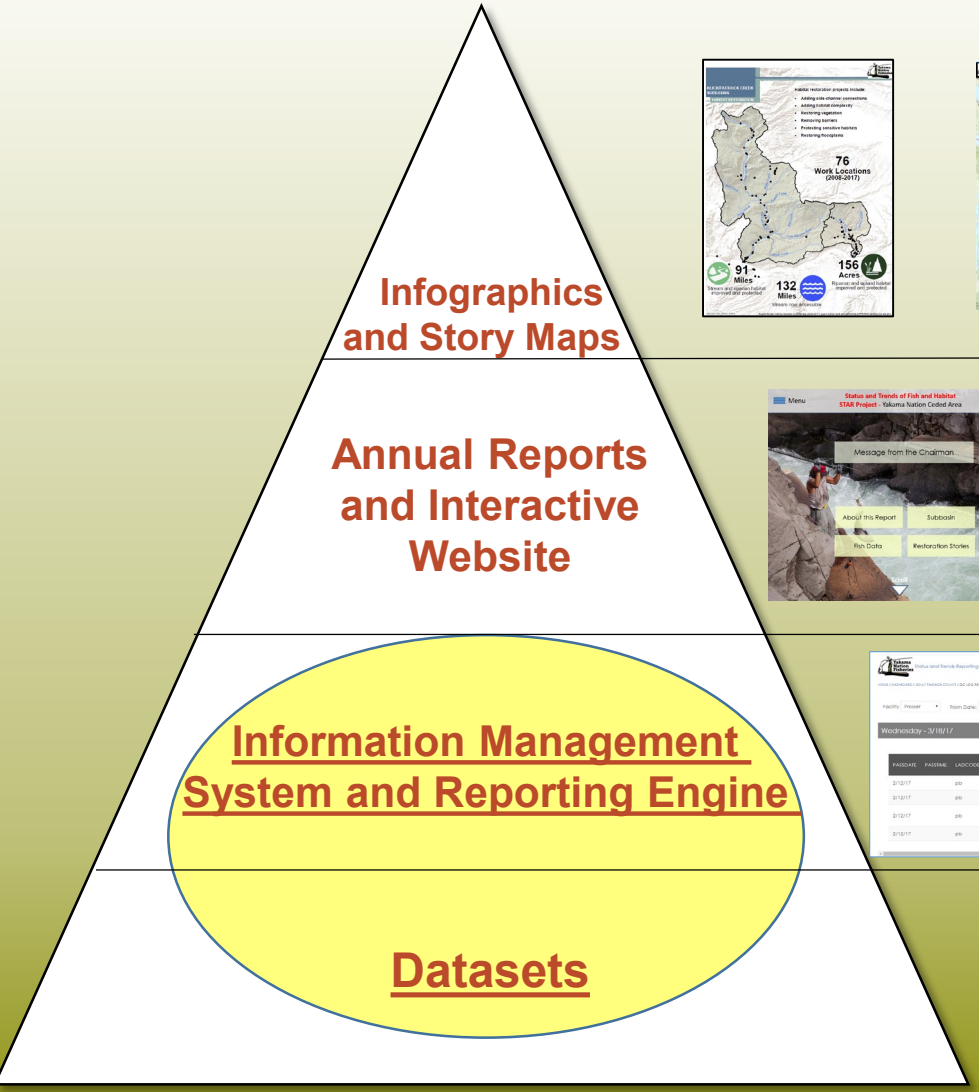
Developing our Methods

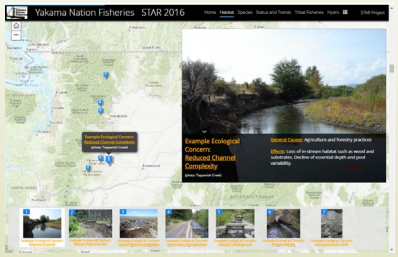
Guiding Questions:

- **Audience?**
- **Message?**
- **Appropriate data?**
- Is it **intuitive**?

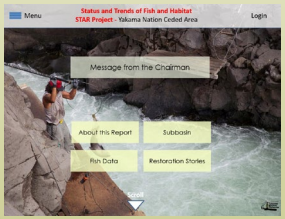


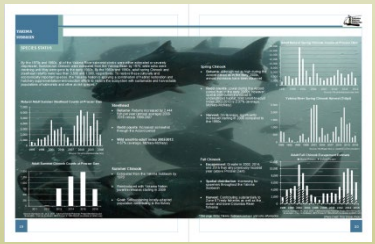
Our Products, Systems and Tools



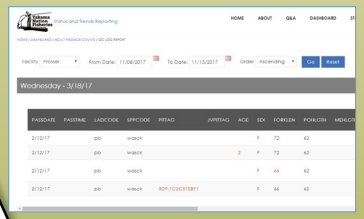


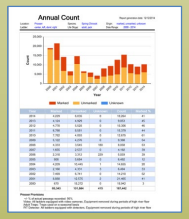
Target Audience:
- Non-technical

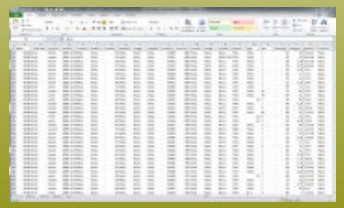




Target Audience:
- Non-technical and technical

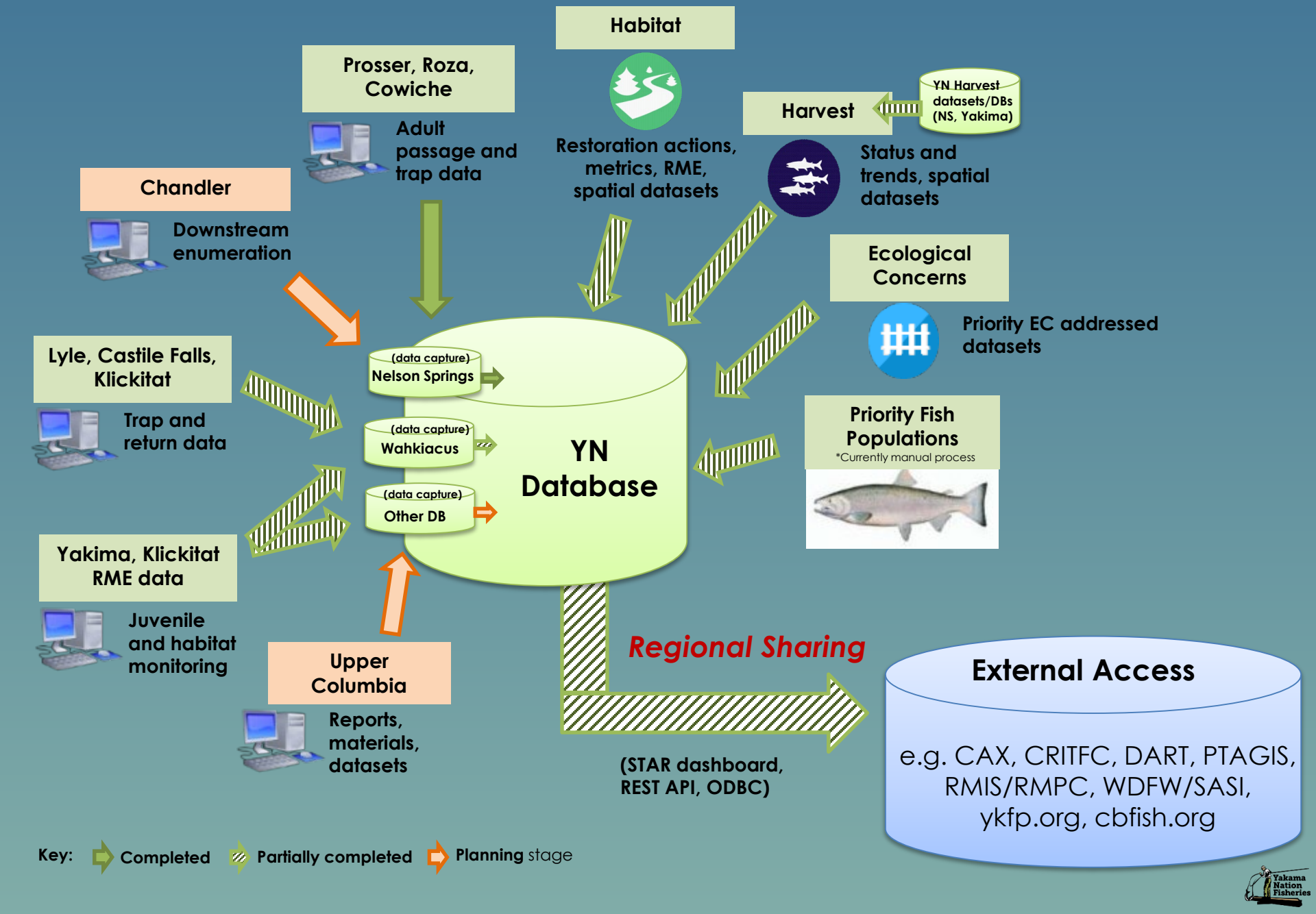




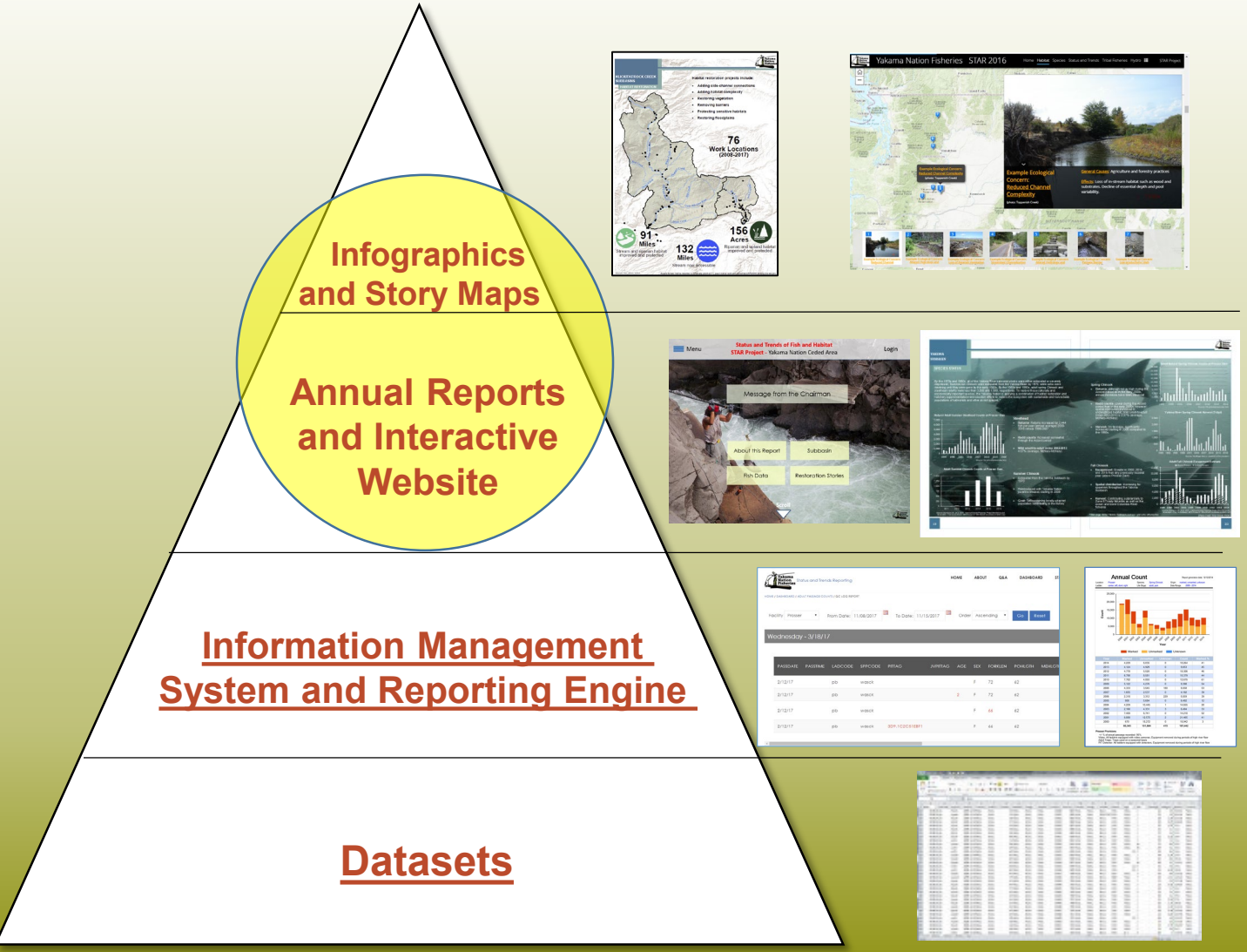


Target Audience:
-Technical

Dataset Consolidation and Regional Sharing



Non-technical Audiences



Target Audience:
- Non-technical

Target Audience:
- Non-technical and technical

Target Audience:
-Technical

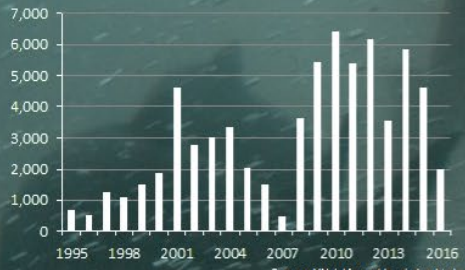
Species Status and Trends

YAKIMA SUBBASIN

SPECIES STATUS

By the 1970s and 1980s, all of the Yakima River salmonid stocks were either extirpated or severely depressed. Summer-run Chinook were extirpated from the Yakima Basin by 1970, while coho were declining until they were gone by the early 1980s. By the 1980s and 1990s, adult spring Chinook and steelhead returns were less than 3,500 and 1,000, respectively. To restore these culturally and economically important species, the Yakama Nation is applying a combination of habitat restoration and hatchery supplementation/reintroduction efforts to restore the ecosystem with sustainable and harvestable populations of salmonids and other at-risk species.*

Natural Adult Summer Steelhead Counts at Prosser Dam

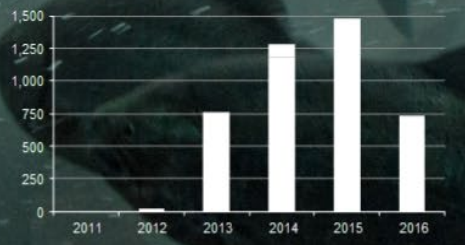


Source: YN (ykfp.org/docsindex.htm)

Steelhead

- **Returns**: Returns increased by 2,444 fish per year (annual average) 2008-2016 versus 1999-2007
- **Redd counts**: Increased somewhat through the Accord period
- **Wild smolt-to-adult index 2002-2013**: 4.67% (average, McNary-McNary)

Adult Summer Chinook Counts at Prosser Dam

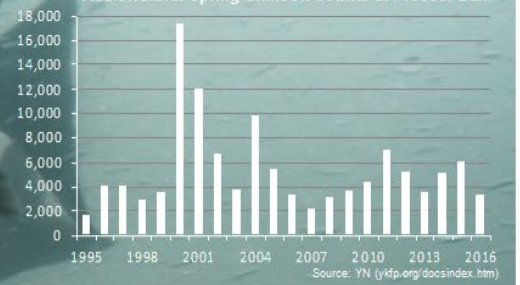


Source: Sampson, M., et al. 2017. Yakima-Klickitat Fisheries Project Monitoring and Evaluation - Yakima Subbasin. BPA Project # 1995-063-25 (available at cbfish.org)

Summer Chinook

- Extirpated from the Yakima Subbasin by 1970
- Reintroduced with Yakama Nation juvenile releases starting in 2009
- **Goal:** Self-sustaining locally-adapted population contributing to the fishery

Adult Natural Spring Chinook Counts at Prosser Dam

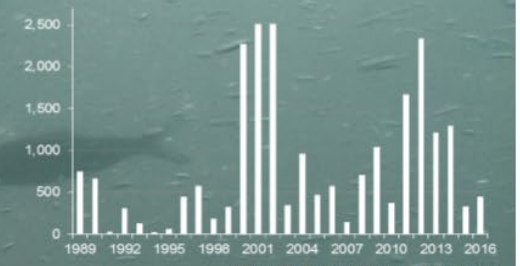


Source: YN (ykfp.org/docsindex.htm)

Spring Chinook

- **Returns**: Although not as high during the Accord period as in the early 2000s, annual increases have been observed
- **Redd counts**: Lower during the Accord period than in the early 2000s; however, spatial distribution increased in underutilized habitat: Wild smolt-to-adult Index 2002-2013 is 2.37% (average, McNary-McNary)
- **Harvest:** On average, significantly increased starting in 2000 compared to the 1990s.

Yakima River Spring Chinook Harvest (Tribal)

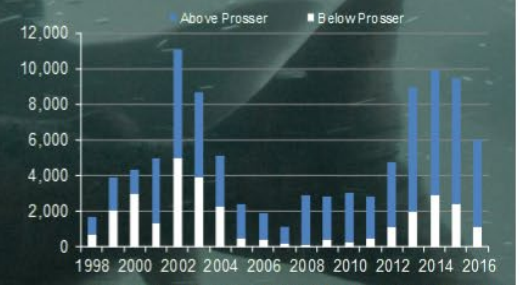


Source: YN (Roger Dick Jr, personal communication)

Fall Chinook

- **Escapement**: Greater in 2002, 2014, and 2015 than any previously recoded year (above Prosser Dam)
- **Spatial distribution**: Increasing for spawners throughout the Yakima Subbasin
- **Harvest**: Contributing substantially to Zone 6 Treaty fisheries as well as the ocean and lower Columbia River fisheries

Adult Fall Chinook Escapement Estimate



Source: Sampson, M., et al. 2017. Yakima-Klickitat Fisheries Project Monitoring and Evaluation - Yakima Subbasin. BPA Project # 1995-063-25 (available at cbfish.org)

*See page 16 for Yakima Subbasin sockeye and coho information.

(Photo Credit: Tony Grover, Flickr)

Topic-Based Summaries

ECOLOGICAL CONCERNS IN THE YAKIMA SUBBASIN

Ecological Concern	YN Addressing*
Predation**	◐
Temperature	◕
Decreased water quantity	◐
Altered primary productivity**	○
Floodplain condition	◕
Riparian vegetation	◕
Man-made barriers	◐
Large wood recruitment	◕
Bed and channel form	◔
Instream structural complexity	◐
Side channel/wetland conditions	◐
Altered flow timing	◔
Reduced genetic adaptiveness**	◐
Increased sediment quantity	◕
Competition	◔

Projects addressing: ◕ Numerous ◐ Many ◔ Some ○ Not directly
(Rankings relative within this subbasin only)

Taneum Creek Wood Replenishment (YN)

*Major ECs affecting listed salmonids, as identified in CRITFC PATS local expert evaluation (2015). ECs being addressed by Accord-funded projects as of 07/11/2017, as reported in cbfish.org. EC assignments from BPA, HWS reference, refined by STAR. Additional ECs possibly not listed.
**Predation and genetic adaptiveness being addressed by fisheries projects. Primary productivity indirectly addressed through vegetative restoration.

STREAM FUNCTIONS RESTORED*

Since 2008, the Yakama Nation has completed a number of projects that have restored stream functions to sustain salmon and steelhead in the Yakima Subbasin.

Fish Passage
- 4 barriers removed
- 4 barriers improved
- 122 miles of habitat now accessible

Instream Habitat
- 230 structures installed
- 2,550 logs installed (10,000 in progress)
- 40 miles of stream improved
- 1 mile of dike removed/modified
- 8 exclusion structures installed
- 1.75 miles of stream channel created

Wetland Habitat
- 1,330 acres protected
- 4,000 acres improved

Riparian Habitat
- 66 miles protected (33 miles by fence)
- 640 miles improved

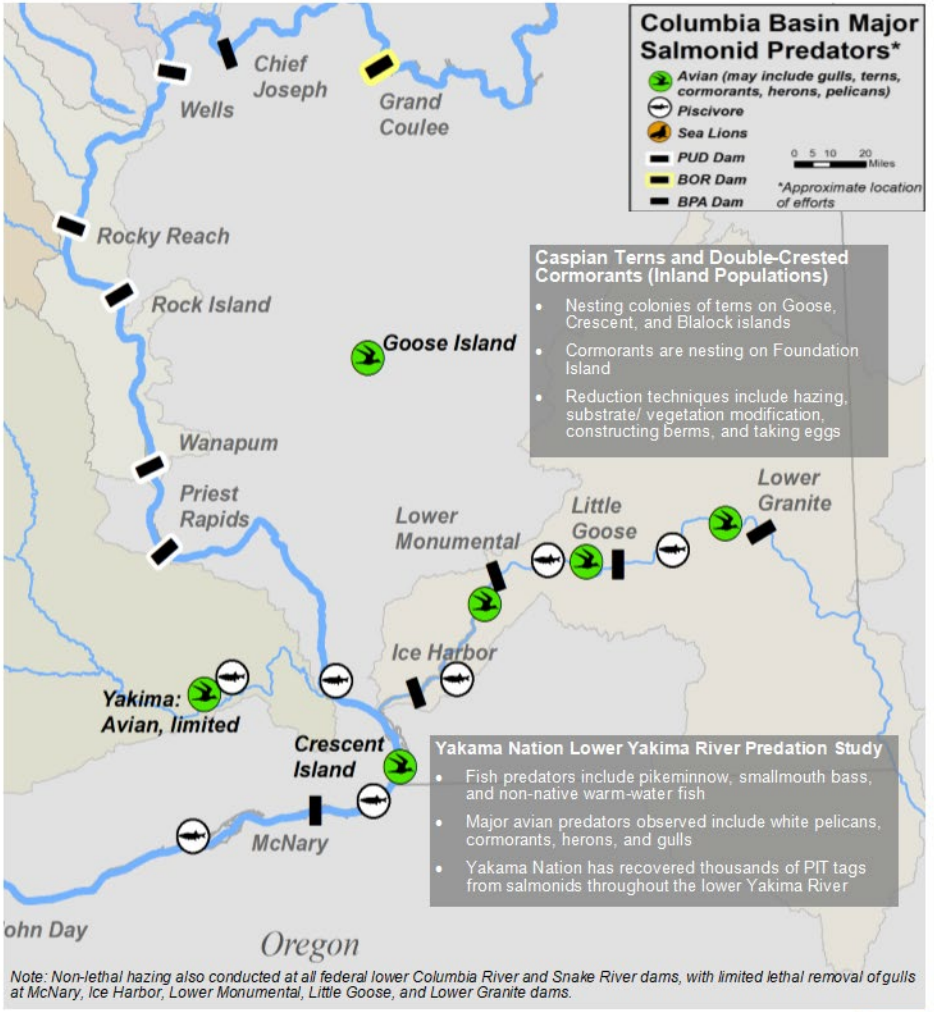
Upland Habitat
- 4 miles of road blocked/removed/improved
- 9,000+ acres treated/improved
- 74,500 acres protected

Water Quality
- 4,000 pounds of trash collected

Water Quantity
- 2 alternative sources identified

Outreach
- 22,700 people contacted

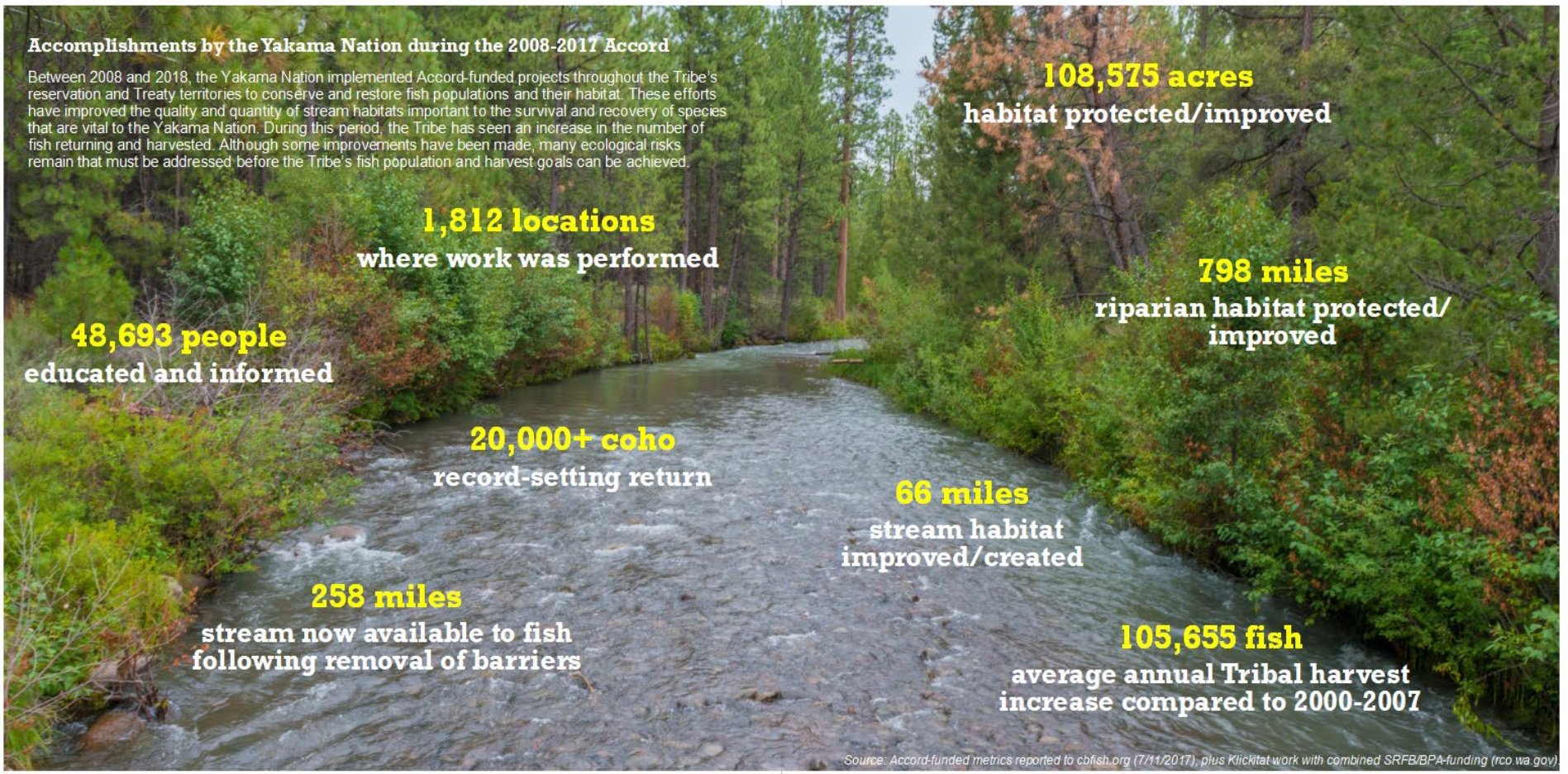
*BPA-funded metrics reported to cbfish.org 1/1/2008- 07/11/2017



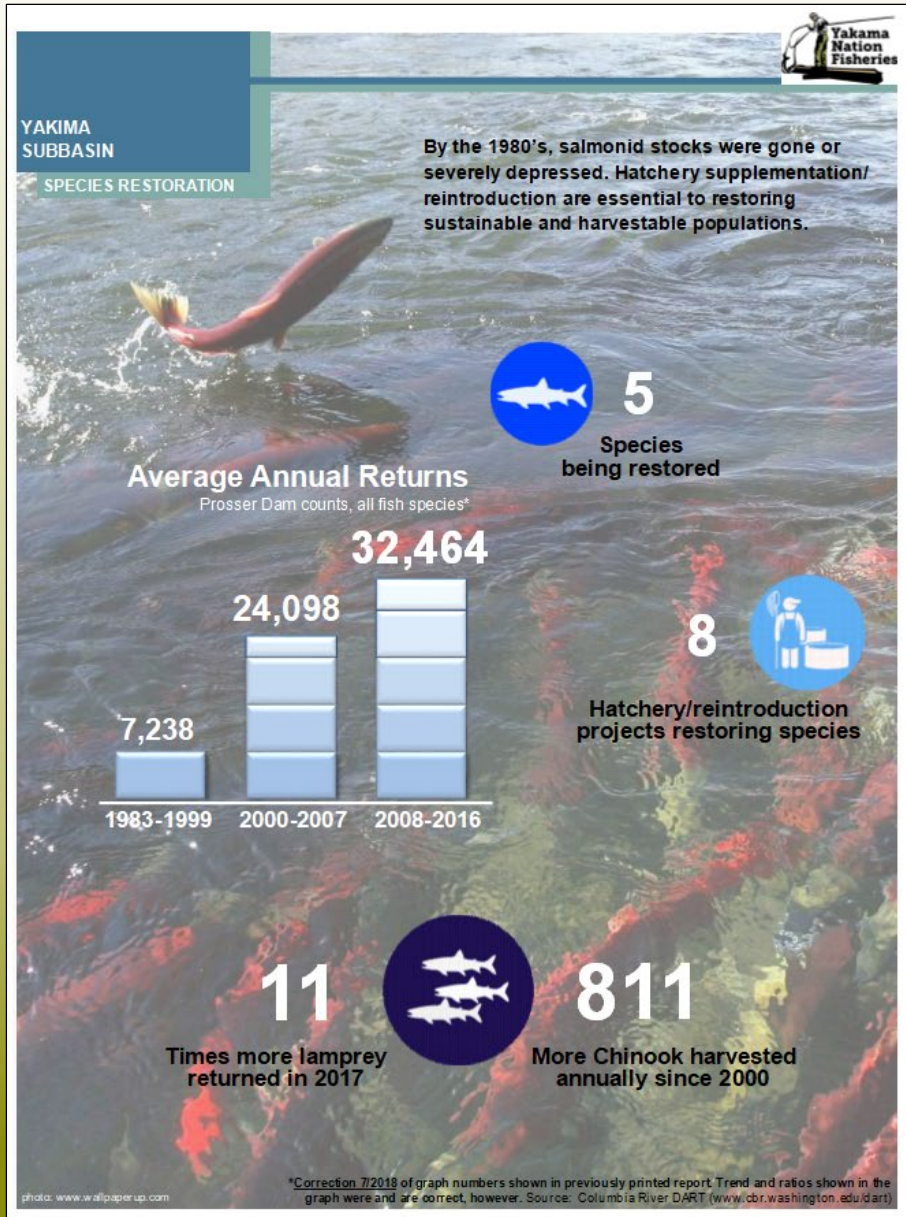
Note: Non-lethal hazing also conducted at all federal lower Columbia River and Snake River dams, with limited lethal removal of gulls at McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams.

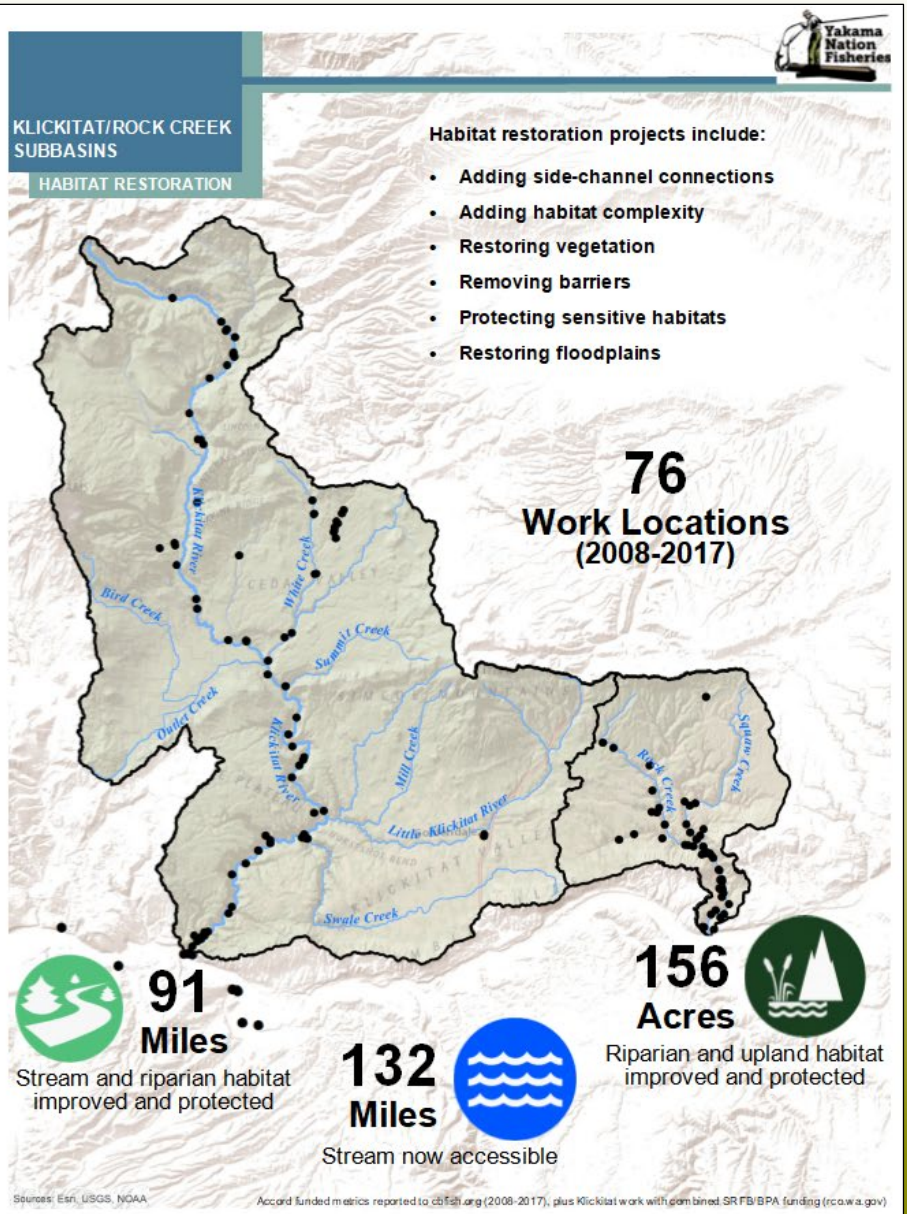
2008 – 2017 Accomplishments

EXECUTIVE SUMMARY

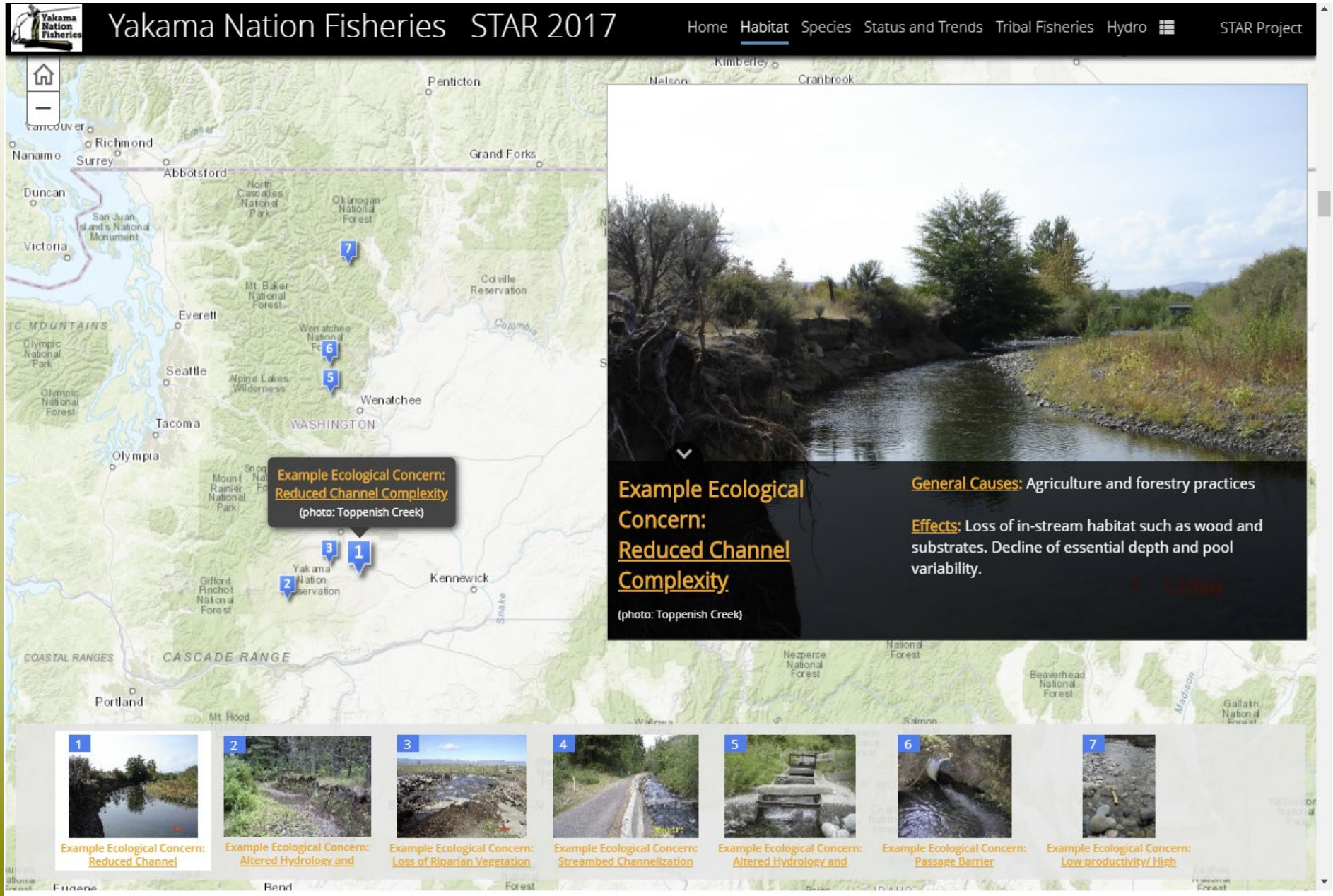


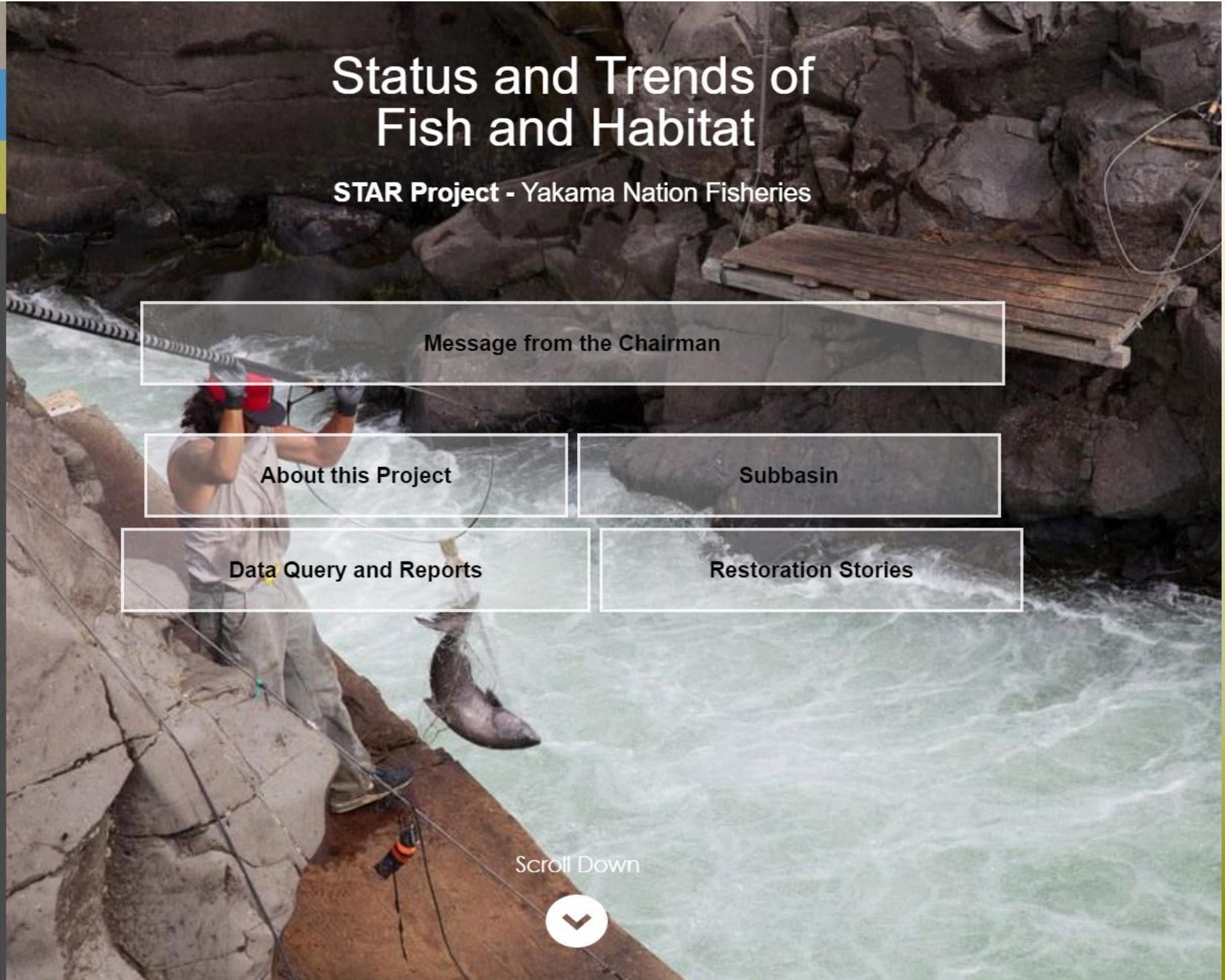
2008 – 2017 Accomplishments





Online Interactive




Status and Trends of Fish and Habitat
STAR Project - Yakama Nation Fisheries
Message from the Chairman
About this Project
Subbasin
Data Query and Reports
Restoration Stories
Scroll Down

Login

dashboard.yakamafish-star.net

stem@yakamafish-nsn.gov

Future:

Continue to support YN's and the region's needs.

- Consolidated **datasets** and **efficiencies**

  (project implementation, status and trend, RME)

- Comprehensive **summaries** (print & online)

Future (cont.)

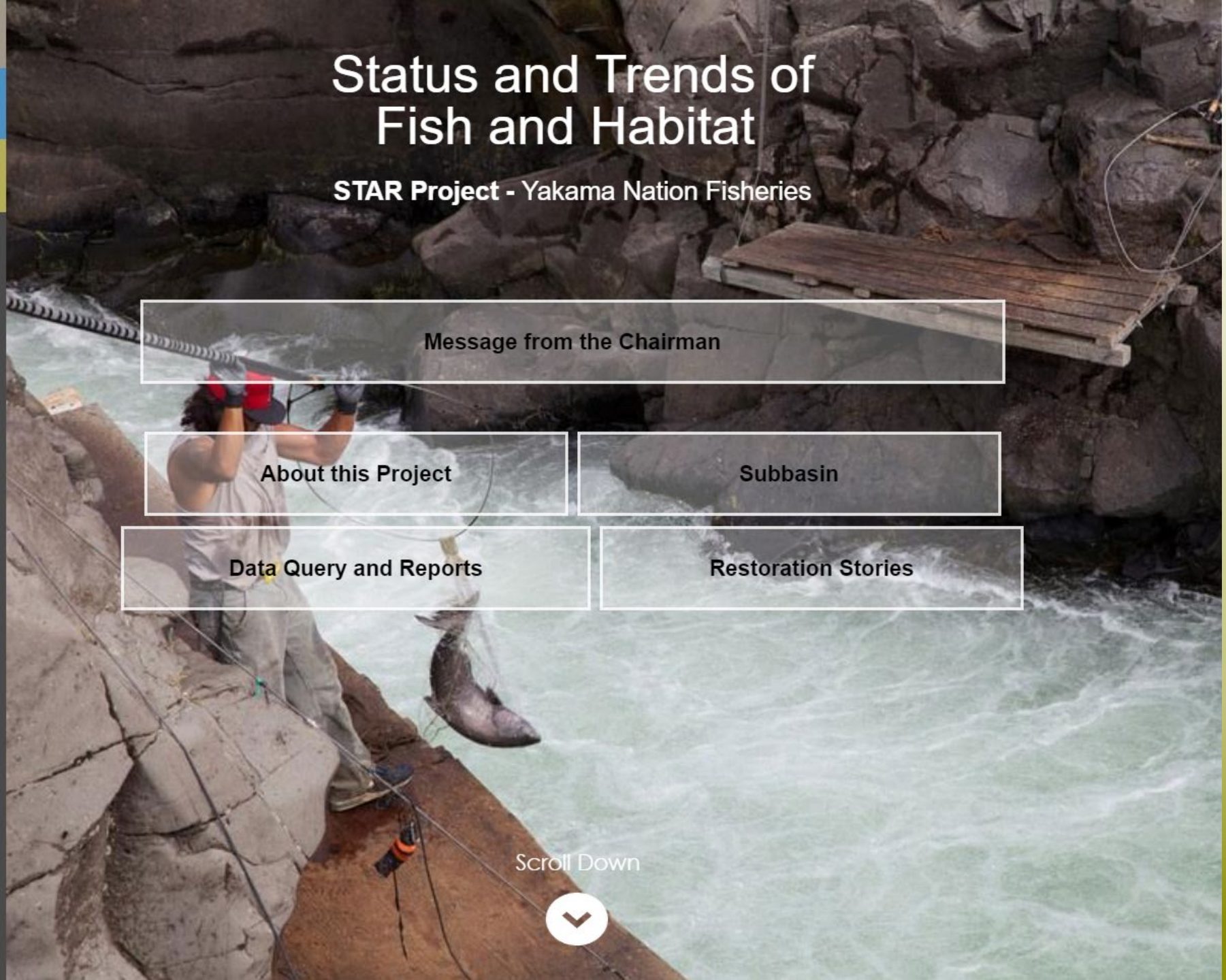
Continue to Develop:

- Interactive **online resources** (maps, queries, spotlights)
- Regional **reporting needs** and sharing

➢ **Habitat** interactive resource (Upper Columbia)

dashboard.yakamafish-star.net

stem@yakamafish-nsn.gov


Status and Trends of
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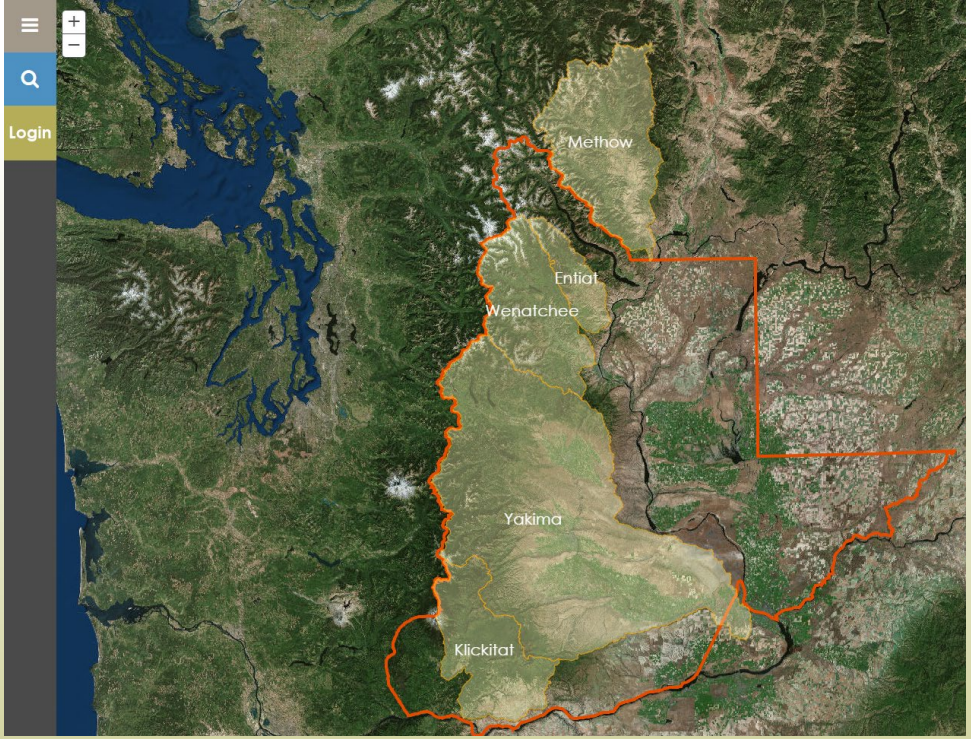
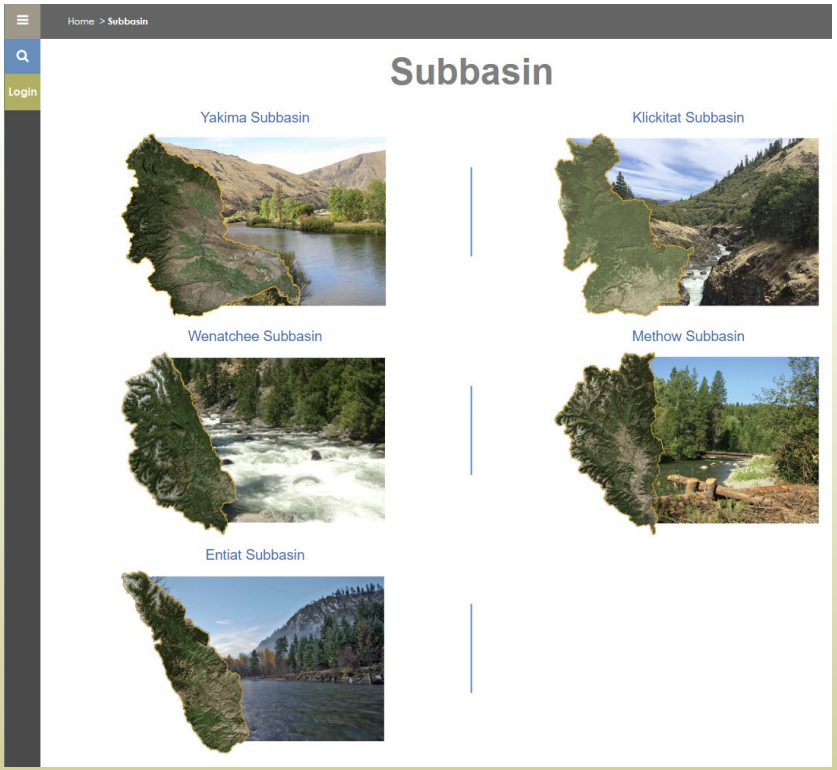


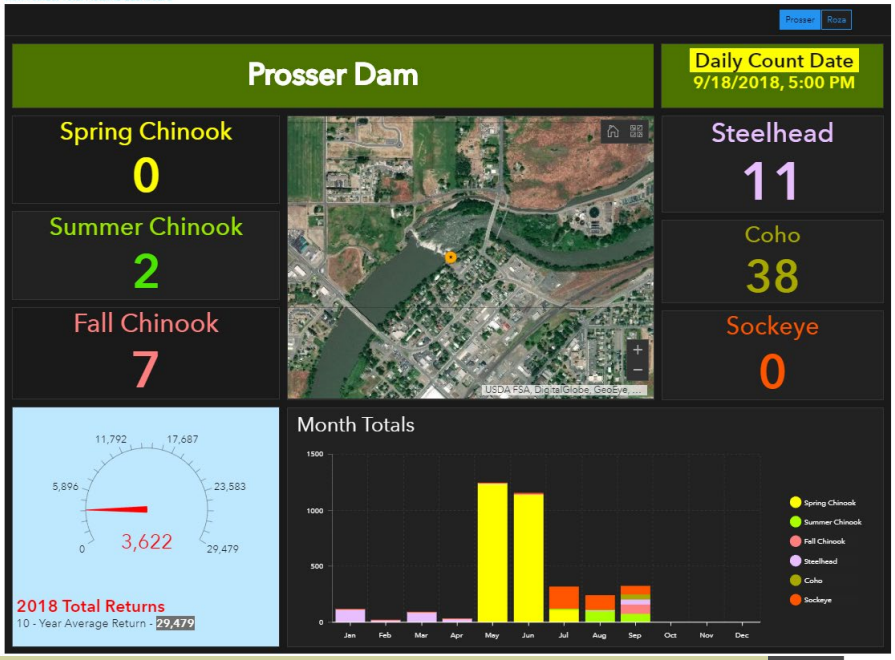


Status and Trends

Login

Daily Passage Counts

view Annual Total Returns dashboard



ılt Chinook

ınook

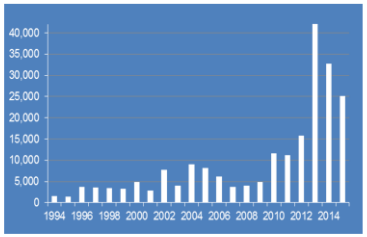
pawning occurs in the upper middle Klickitat River

ɔnization slow above Castile Falls

lion smolts (570,248/year average) released since 2008

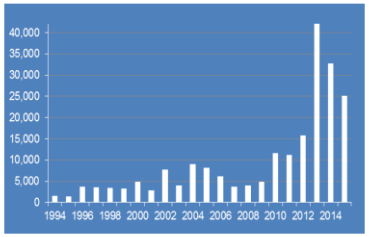
ɔok

- Population sustained by hatchery production with most spawning occurring from the Klickitat Hatchery downstream to Twin Bridges
- Returns in recent years have been strong
- 30.8 million smolts (3.4 million/year average) released since 2008
- On average, 12,655 more fall Chinook harvested annually 2008-2015 versus 2000-2007



Adult Steelhead

- Spatially diverse population spawning throughout the lower and middle sections of the Klickitat Subbasin
- Majority of adult Skamania Hatchery fish returning from Klickitat River smolt releases do not appear to spawn in the wild
- Research into species status and needs, as well as priority habitat restoration for Rock Creek steelhead, is currently underway
- 94,500 smolts released in 2015 by WDFW (Non-Accord funded)



Klickitat Fish Restoration Stories
View all Klickitat stories

Klickitat Population Monitoring
Monitoring project assessing the status and trends of fish populations .
View Story

Status and Trends - Habitat

Yakima Subbasin

Salmon and steelhead populations are impaired in the Yakima Subbasin due to a number of limiting factors. Primary limiting factors include riparian vegetation, streambed and channel form, and in-channel complexity. Secondary limiting factors affecting fish include altered primary productivity and food competition, altered hydrology, side channel/wetland connection, and water quantity. Since 2008, we have completed a number of projects that have restored stream functions needed to sustain salmon and steelhead in the subbasin.

232
Work Locations (2008-2017)

748 miles
Stream and riparian habitat improved and protected

122 miles
Stream now accessible

88,830 acres
Wetland and upland habitat improved and protected

Habitat Accor

Since 2006, we have completed the following work to restore h

Fish Passage	• 4 barriers remove • 4 barriers improve • 122 miles of habit
Instream Habitat	• 230 structures ins • 2,550 logs installe • 40 miles of strean • 1 mile of dike rem • 8 exclusion struct • 1.75 miles of stre
Wetland Habitat	• 1,330 acres prote • 4,000 acres impro

Our Restoration Stories

Yakama Reservation Watershed Project - Toppenish Creek Restoration River 37: Degraded fish habitat in Toppenish Creek, resulting from past land use practices, has been improved by the Yakama Nation. Learn more . . .

Learn more

Prosser Tribal Hatchery – Fall Chinook Production: To increase harvest levels, natural spawning abundance, and distribution of fall Chinook, the Tribe employs hatchery releases. Learn more . . .

Learn more

Pacific Lamprey Restoration: Restoration of Pacific lamprey populations is important to us as they are of significant cultural and ecological value. Learn more . . .

Learn more

View all Spotlights

To explore the project spotlights that describe what we are doing to improve fish populations and their habitat, click on the "View all Spotlights" button

Yakama Nation Fisheries STAR 2017

Home Habitat Species Status and Trends Tribal Fisheries Hydro STAR Project

Panther Creek barrier removal, Toppenish Creek, improving passage, fish habitat access and protection (YN 2011)

Goodfellow sidechannel, Wenatchee Subbasin, improving habitat quantity and quality, floodplain and side channel connections (YN 2012)

Restoration by Type 2004-2017

2004-2017

- channel complexity, floodplain
- enhance nutrients
- habitat complexity/ stability
- habitat protection
- passage improvement
- pre-work (design/construct) (habitat)
- pre-work (protection)
- reporting/ planning/ administration (habitat)
- revegetate
- road improvement
- water quantity
- passage O&M
- O&M (habitat)

(1 of 6)

BPA Funded YN Efforts

Category:
Effort Type: habitat complexity/ stability
Work Element: Increase Instream Habitat Complexity and Stabilization
Work Element Title: R: Indian Creek Floodplain Restoration
Work Start: 4/30/2014
Work End: 2/28/2016
Project Name: Yakima Basin Side Channels Land Acquisition
Project # 1997-051-00
Contract # 56662 REL 61
Subbasin: Yakima
Assessment Unit: Teanaway River, Swauk Creek
Latitude: 47.3021
Longitude: -120.8050
Description: Indian Creek Habitat Enhancement

Zoom to

January 30th, 2004 - January 30th, 2018

CHS, Esri, GEBCO, DeLorme, NaturalVue | CHS, Esri

Yakama Nation Fisheries STAR 2017

Home Habitat Species Status and Trends Tribal Fisheries Hydro STAR Project

Species Restoration by Type 2004-2017

Kelt reconditioning, Prosser Hatchery, improving survival of multi-year spawners (CRITFC, YN 2015)

White sturgeon restoration, Marion Drain Hatchery (Partial

2004-2017

- O&M (species)
- acclimation
- fish health
- kelt reconditioning
- produce hatchery fish
- reintroduction
- supplementation
- trap/ transport
- trap/ transport, acclimate
- trap/ transport, rear
- pre-work (design/construct) (species)
- reporting/ planning/ administration (species)
- RME (fish)

Winthrop Office
Twisp Office
Wells Hatchery
Cle Elum Facility
Prosser Facility
Kennewick

(22 of 30)

BPA Funded YN Efforts

Category:
Effort Type: O&M (species)
Work Element: Maintain Artificial Production Facility/Infrastructure
Work Element Title: T: Operate and maintain the Cle Elum and acclimation sites.
Work Start: June 30, 2010
Work End: June 27, 2011
Project Name: Yakima River Operations and Maintenance (O&M) for Hatcheries and Acclimation Sites-Yakima/Klickitat Fisheries Project (YKFP)
Project # 1997-013-25
Contract # 43293
Subbasin: Yakima
Assessment Unit: Wilson, Reecer, Currier Creeks

Zoom to

January 30th, 2004 - January 30

Stop Exploring

CHS, Esri, GEBCO, DeLorme, NaturalVue | YN, CRITFC | Yakama Nation Fisheries, BPA (cb...

esri

Hi test_ns!

My account | Log out

Yakama Nation Fisheries

HOME | ABOUT | FISH DATA | HABITAT DATA | REPORTS | DASHBOARD

HOME / DASHBOARD

DASHBOARD

User	Modules	Quick Links

Name test_ns

- Fish Counts
- Quality Assurance
- Field Data Entry
- Habitat Monitoring
- Technical Reports
- STAR Reports

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Yakama Nation Fisheries

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HOME / DASHBOARD / FISH COUNTS / FC - SMOLTPERREDDSPAWNER

Steelhead Smolt Per Redd/Spawner

Location: Toppenish

Year	Smolt Number at trap	Age 1	Age 2	Age 3	Year Class	Juveniles per Year Class	Redds	Spawner	Smolt per Redd	Smolt per Spawner
2005	36513	25960.743	10442.718	109.539	2004	35658	56	140	636.7428214	254.6971286
2006	33624	23873.04	9616.464	100.872	2005	31604	99	247.5	319.2320404	127.6928162
2007	26797	19025.87	7663.942	80.391	2006	25499	21	52.5	1214.256429	485.7025714
2008	22330	15854.3	6386.38	66.99	2007	24296	42	105	578.478881	231.3915524
2009	29045	20621.95	8306.87	87.135	2008	33588	68	170	493.9408235	197.5763294
2010	44981	31936.51	12864.566	134.943	2009	41729	79	197.5	528.2213418	211.2885367
2011	33820	24012.2	9672.52	101.46	2010	35557	105	262.5	338.6401333	135.4560533
2012	40152	28507.92	11483.472	120.456	2011	34514	100	250	345.14334	138.057336
2013	20514	14564.94	5867.004	61.542	2012	27958	46	115	607.7779565	243.1111826
2014	46470	32993.7	13290.42	139.41	2013	42816	78	195	548.9171795	219.5668718
2015	34142	24240.82	9764.612	102.426	2014	29728	134	335	221.8503582	88.74014328
2016	19076	13543.96	5455.736	57.228	2015	16537	112	280	147.6487857	59.05951429
2017	10464	7429.44	2992.704	31.392	2016	7429	43	107.5	172.7776744	69.11106977
2018										

1) These years include long periods when the screw trap was not operating due to high water and estimates are based on a large number of interpolated daily catches

2) Year class 2015 and 2016 juvenile estimates are incomplete

Yakama Nation Fisheries

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Reports

Filter by report type and subbasin, and/or type in key words for reach/AU or title to find reports.

Type: Annual Report (for BPA) | Subbasin: - Any - | Project | Title

Filter | Reset

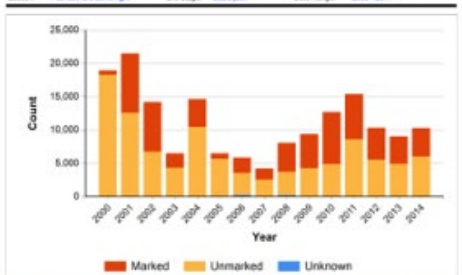
TYPE	SUBBASIN	PROJECT	TITLE	REPORT DATE	REPORT SUMMARY
Annual Report (for BPA)	Klickitat	Klickitat Watershed Enhancement Project (1997-056-00)	2000 Klickitat Watershed Enhancement Project Annual Report	2000	Annual report for BPA for the Klickitat Watershed Enhancement Project (1997-056-00). Covers August 1999 through June 2000.
Annual Report (for BPA)	Klickitat	Klickitat Watershed Enhancement Project (1997-056-00)	2001 Klickitat Watershed Enhancement Project Annual Report	2001	Annual report for BPA for the Klickitat Watershed Enhancement Project (1997-056-00). Covers September 1, 2000 through August 31, 2001.

Annual Count

Report generation date: 12/12/2014

Location: Prosser | Species: Spring Chinook | Origin: marked, unmarked, unknown

Ladder: center, left, dirnl, right | Life Stage: adult, jack | Date Range: 2000 - 2014



Year	Marked	Unmarked	Unknown	Count	Marked %
2014	4,229	6,035	0	10,264	41
2013	4,124	4,929	0	9,053	45
2012	4,778	5,528	0	10,306	46
2011	6,798	8,581	0	15,379	44
2010	7,782	4,893	0	12,675	61
2009	5,122	4,276	0	9,398	54
2008	4,333	3,545	180	8,058	53
2007	1,655	2,537	0	4,192	39
2006	2,318	3,312	229	5,859	39
2005	808	5,684	0	6,492	12
2004	4,209	10,445	1	14,655	28
2003	2,160	4,331	3	6,494	33
2002	7,469	6,741	0	14,210	52
2001	8,888	12,575	2	21,465	41
2000	670	18,272	0	18,942	3
	65,343	101,684	415	167,442	

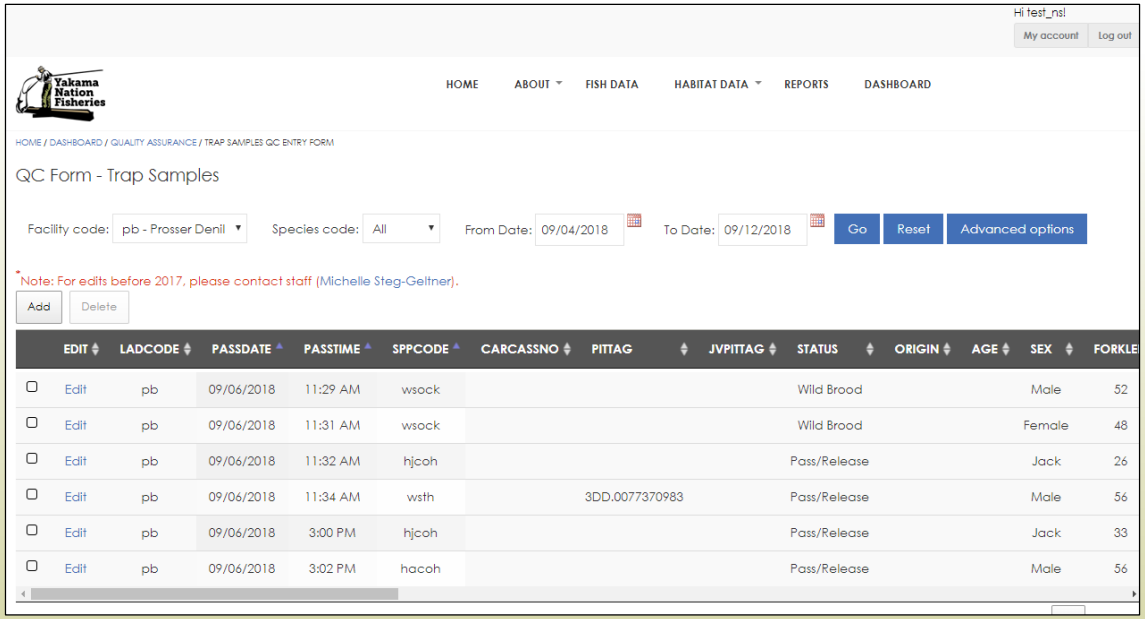
Prosser Provisions

+/- % of actual passage recorded: 95%

Video: All ladders equipped with video cameras. Equipment removed during periods of high river flow

Adult Traps: Traps used on a seasonal basis

PIT Detector: All ladders equipped with detectors. Equipment removed during periods of high river flow


Hi test_ns!
My account
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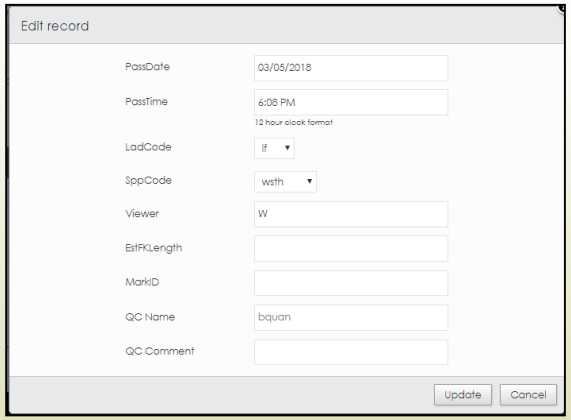
Yakama Nation Fisheries
HOME
ABOUT
FISH DATA
HABITAT DATA
REPORTS
DASHBOARD
HOME / DASHBOARD / QUALITY ASSURANCE / TRAP SAMPLES QC ENTRY FORM
QC Form - Trap Samples
Facility code: pb - Prosser Denil
Species code: All
From Date: 09/04/2018
To Date: 09/12/2018
Go
Reset
Advanced options
*Note: For edits before 2017, please contact staff (Michelle Steg-Geltner).
Add
Delete
EDIT
LADCODE
PASSDATE
PASSTIME
SPPCODE
CARCASSNO
PITTAG
JVPITTAG
STATUS
ORIGIN
AGE
SEX
FORKLE
Edit pb 09/06/2018 11:29 AM wsock Wild Brood Male 52
Edit pb 09/06/2018 11:31 AM wsock Wild Brood Female 48
Edit pb 09/06/2018 11:32 AM hjcoh Pass/Release Jack 26
Edit pb 09/06/2018 11:34 AM wsth 3DD.0077370983 Pass/Release Male 56
Edit pb 09/06/2018 3:00 PM hjcoh Pass/Release Jack 33
Edit pb 09/06/2018 3:02 PM hacoh Pass/Release Male 56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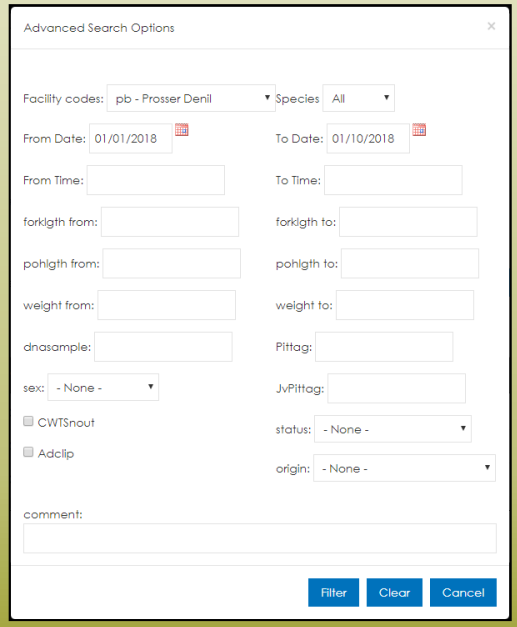
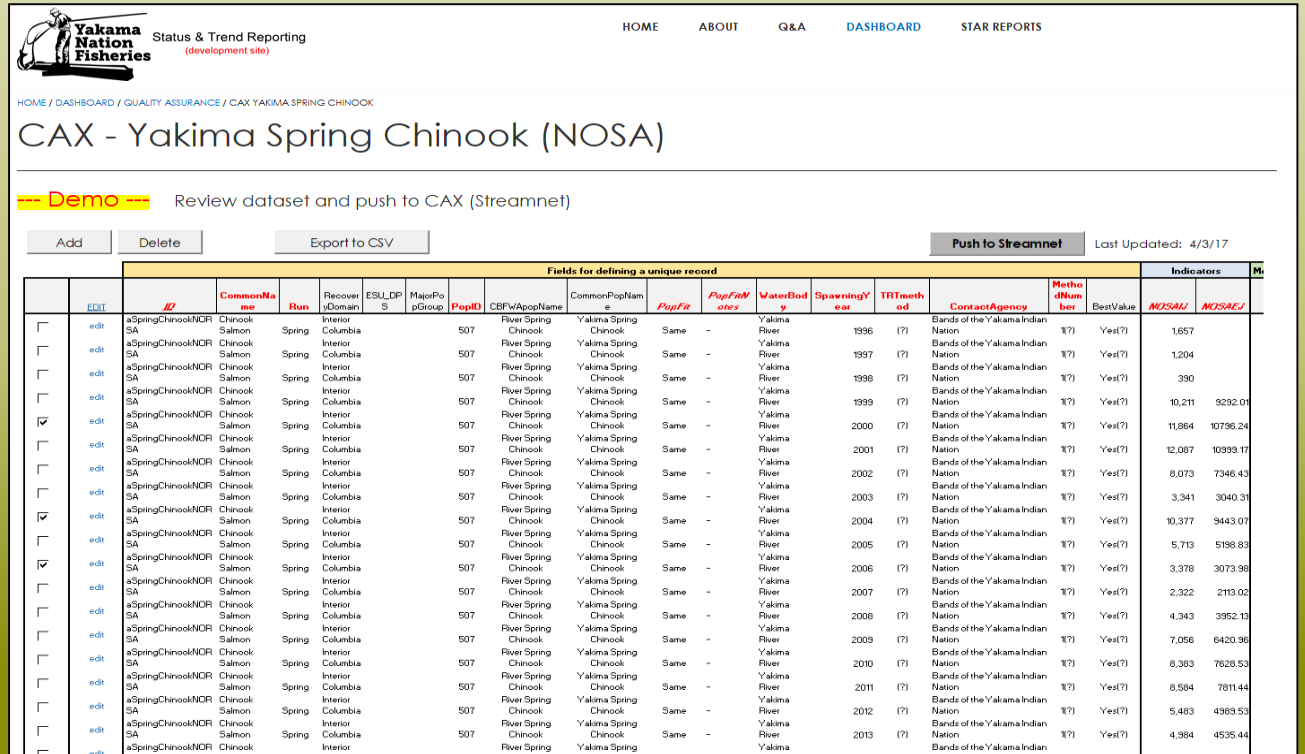
PassDate 03/05/2018
PassTime 6:08 PM
12 hour clock format
LadCode lf
SppCode wsth
Viewer W
EstFKLength
MarkID
QC Name bquan
QC Comment
Update
Cancel


Advanced Search Options
Facility codes: pb - Prosser Denil
Species All
From Date: 01/01/2018
To Date: 01/10/2018
From Time:
To Time:
forklgth from:
forklgth to:
pohlgth from:
pohlgth to:
weight from:
weight to:
dnasample:
Pittag:
sex: - None -
JvPittag:
CWTSnout
status: - None -
Adclip
origin: - None -
comment:
Filter
Clear
Cancel


Yakama Nation Fisheries
Status & Trend Reporting
(development site)
HOME
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Q&A
DASHBOARD
STAR REPORTS
HOME / DASHBOARD / QUALITY ASSURANCE / CAX YAKIMA SPRING CHINOOK
CAX - Yakima Spring Chinook (NOSA)
--- Demo ---
Review dataset and push to CAX (Streamnet)
Add
Delete
Export to CSV
Push to Streamnet
Last Updated: 4/3/17
Fields for defining a unique record
Indicators
EDIT
ID
CommonName
Run
RecoveryDomain
ESU_DPS
MajorPopGroup
PopID
CBFWApopName
CommonPopName
PopFit
PopFitNotes
WaterBody
SpawningYear
TRTmethod
ContactAgency
MethodNumber
BestValue
NOSAIJ
NOSAEJ
edit aSpringChinookNOR SA Chinook Salmon Spring Interior Columbia 507 River Spring Chinook Yakima Spring Chinook Same - Yakima River 1996 (?) Bands of the Yakama Indian Nation 1(?) Yes(?) 1,657
edit aSpringChinookNOR SA Chinook Salmon Spring Interior Columbia 507 River Spring Chinook Yakima Spring Chinook Same - Yakima River 1997 (?) Bands of the Yakama Indian Nation 1(?) Yes(?) 1,204
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