

HABITAT IMPROVEMENT PROGRAM HIPIII 2017 ANNUAL MONITORING REPORT

Bonneville
POWER ADMINISTRATION



TABLE OF CONTENTS

TABLE OF CONTENTS	3
SUMMARY.....	1
HIPIII PROJECTS AUTHORIZED.....	2
TABLE 1: HIPIII PROJECT AUTHORIZATIONS (LOW RISK) 2017	2
TABLE 2: HIPIII PROJECT AUTHORIZATIONS (MEDIUM RISK) 2017	3
TABLE 3: HIPIII PROJECT AUTHORIZATIONS (HIGH RISK) 2017	4
FIGURE 1: 2017 HIPIII PROJECT LOCATIONS (NMFS)	5
FIGURE 2: 2017 HIPIII PROJECT LOCATIONS (USFWS)	6
PROJECT ACTIVITIES.....	7
TABLE 3: PROJECT ACTIVITIES	7
INCIDENTAL TAKE REPORTING.....	9
IMPACTS TO WATER QUALITY TRIGGER	9
TABLE 4a:Turbidity Exceedence (2017013)	9
TABLE 4b:Turbidity Exceedence (2017014)	11
TABLE 4c:Turbidity Exceedence (2017058)	13
TABLE 4d:Turbidity Exceedence (2017084)	14
TABLE 4e:Turbidity Exceedence (2017089)	16
DECREASE IN FUNCTION OF PHYSICAL HABITAT FEATURES TRIGGER	18
TABLE 5: No# HIPIII PROJECTS THAT INCLUDE NEAR OR IN_ WATER WORK	18
JUVENILE FISH HANDLING TRIGGER	18
TABLE 6: INCIDENTAL TAKE DUE TO FISH HANDLING.....	19
FISH MORTALITY	19
APPROVED VARIANCES.....	20
TABLE 7: NUMBER OF VARIANCES.....	21
TABLE 8: VARIANCE RATIONALE	21
INTERESTING ISSUES.....	24
NON COMPLIANCE.....	26
TABLE 9: Reported Non Compliance Events.....	26
HERBICIDE USE.....	26
FIGURE 3: HERBICIDE APPLICATION (NMFS).....	26

FIGURE 4: HERBICIDE APPLICATION (USFWS).....	27
CHEMICAL HERBICIDE APPLICATION TRIGGER	27
TABLE 10: ACRES TREATED WITH HERBICIDE	27
TABLE 11: PROJECTS WITH HERBICIDE USAGE	28
HIP REVIEW PROCESS (Refined).....	30
TABLE 12: HIP REVIEW WORKLOAD.....	30
FISH SCREENS.....	32
TABLE 13: FISH SCREENS	32
WILDLIFE AREAS.....	35
TABLE 14: WILDLIFE AREAS.....	35
FIGURE 5: BPA WILDLIFE AREAS	36
2017072(Desolation Creek) Large Woody Debris	37
DISCUSSION TOPICS	38
VARIANCE PROPOSAL	38
REFINEMENT OF HIP PROCESS.....	38
Section 4(d) Limit 3	38
PIT TAG ARRAYS	38
HIPIII HANDBOOK.....	38
SEDIMENT PLACEMENT	38

SUMMARY

This is the fourth annual monitoring report required under the Habitat Improvement Program III Biological Opinions (HIPIII) (NMFS No# 2013/9724, USFWS 01E0FWOO-2013-F-0199). This report summarizes activities completed in calendar year 2017 and reports on the incidental take resulting from those activities and compares them with previous years.

Annually, BPA and partners (sponsors) implement substantial habitat enhancement work in the Columbia River basin to improve tributary habitat as “offsite” mitigation for the impacts the federal hydrosystem. Actions funded by Bonneville (BPA) are implemented through BPA's Habitat Strategy, which seeks to facilitate watershed-scale prioritization and planning efforts to identify priority work for fish habitat restoration. The program is one of the largest and most complex of its kind in the world and includes collaborative work with states, tribes, federal agencies, local governments and non-profit organizations to implement the most biologically beneficial actions in the highest priority areas for ESA-listed salmonids. The HIP is the primary means by which this habitat enhancement work gets reviewed, refined, and then covered under the ESA.

With the exception of turbidity, BPA has been successful in meeting incidental take criteria. The nature the restoration work often requires extensive swathes of exposed earth coming into contact with water. As a result, turbidity does not go within background levels within 2 hours. There was nothing out of the ordinary with the exception of one instance of fish mortality being higher than expected (>5%). The number of BPA funded projects, scope and complexity remained consistent with previous years activities. In addition to a diverse portfolio of projects, project quality assurance and quality control remain a priority. BPA continues to improve internal capacity to deliver high quality projects through optimizing and refining the RRT process. After nearly 4 years of experience, the HIP Review process has become streamlined and standardized based upon receiving feedback, re-evaluating failures, and capitalizing upon successes.

BPA now has 2 dedicated full time hydraulic engineers who provide a thorough and detailed technical review of all medium and high risk RRT projects. BPA EC leads are well trained in performing a separate functional review. NMFS habitat biologists continue to provide comments when they feel compelled to. Through these multi layered detailed project reviews, BPA can now exercise a higher level of discretionary authority on the type and quality of projects that it funds and shape their outcome.

The HIPIII Handbook continues to be refined and has been used as a tool to provide much needed clarifications, guidance and strives to reflect the current state of science on restoration standards and practice. BPA's Fish and Wildlife Implementation group has adopted the HIPIII Handbook as official policy as to the types and methods of projects that shall receive BPA funding in the future and is well understood throughout the region.

HIPIII PROJECTS AUTHORIZED

During 2017, the HIPIII BOs authorized 88 individual projects (Table 1, 2, & 3) (FIGURE 1&2) each with multiple activity categories (Work Elements) Work Elements are most discrete unit of action that BPA may undertake, with a contract consisting of multiple work elements and a project consisting of multiple contracts over time. For the sake of the HIPIII projects are mainly on the contract level. Figures 1&2 are overlain with USFWS field office and NMFS branch jurisdictions. A majority were low risk (61), 21 were medium risk, and 6 were high risk. Each medium and high risk underwent the HIP Review process which included a thorough technical review by BPA Engineering Technical Services (ETS).

TABLE 1: HIPIII PROJECT AUTHORIZATIONS (LOW RISK) 2017

HIP3 NO#	Project Title	Habitat Branch	Field Office
2017001	Rock Creek Fish & Habitat Assessment	CRB	NA
2017003	Shillapoo Wildlife Area 2017	WA/LCR	Lacey
2017004	Yakima Phase II Fish Screens O&M with WDFW	CRB	Wenatchee
2017005	Sunnyside Wildlife Mitigation: O & M Enhancements	CRB	Wenatchee
2017006	Grande Ronde Supplementation M&E 2017	CRB	La Grande
2017007	YTHAP- Cherry Creek Tributaries - Park Creek (Nisbet)	CRB	Wenatchee
2017009	Umatilla Anadromous Fish Habitat with ODFW	CRB	NA
2017010	Asotin Creek Wildlife Mitigation	S Snake	Spokane
2017011	ODFW Fish Screens	CRB	La Grande
2017012	YTHAP- Caribou Creek -Cortese/Sorenson	CRB	Wenatchee
2017016	Entiat River 3-D Large Woody Material Revisited	CRB	Wenatchee
2017019	Big Valley South Fish Habitat Enhancement	CRB	Wenatchee
2017020	Natural Reproductive Success and Demographic Effects of Hatchery Origin Steelhead	WA/LCR	NA
2017024	Entiat River 3-D Large Woody Material Revisited	CRB	Wenatchee
2017025	Meacham Flats	CRB	Wenatchee
2017027	McCarthy Creek Restoration Project	WA/LCR	Portland
2017028	Fifteen Mile Creek Habitat Improvement	CRB	NA
2017029	O&M Oregon Fish Screens	CRB	Portland
2017031	Umatilla Anadromous Fish Habitat	CRB	La Grande
2017032	Hungry Horse Mitigation Habitat Restoration and RM&E	NA	Helena
2017033	Panther Creek PIT Array	N Snake	Boise
2017034	Stabler Bend Riparian Planting Project	WA/LCR	NA
2017037	Tucannon Habitat Programmatic PA-28 Phase II	N Snake	Spokane
2017038	ODFW Fish Screens	CRB	La Grande
2017039	Umatilla Fish Passage O&M	CRB	La Grande
2017040	BPA Action Effectiveness Monitoring I	CRB	Wenatchee
2017041	NE Oregon Precious Lands Wildlife Area	S Snake	La Grande
2017042	Klickitat Watershed Enhancement	CRB	Wenatchee
2017043	North Fork Habitat Improvement Hutton/Murphy and Dedmon/Kozacek	N Snake	Boise

HIP3 NO#	Project Title	Habitat Branch	Field Office
2017044	Crow Creek/EF Pine Creek Krebs	N Snake	La Grande
2017045	Pahsimeroi River Habitat	S Snake	Chubbock
2017046	Lemhi River Restoration	S Snake	Chubbock
2017047	Pine Creek Conservation Area	CRB	La Grande
2017050	Yakima Phase II Fish Screens O&M with WDFW	CRB	Wenatchee
2017051	Biomonitoring of Fish Habitat Enhancement	CRB	La Grand
2017052	John Day Tributary Passage and Flow	CRB	La Grand
2017053	Yakima Basin Side Channels	CRB	Wenatchee
2017054	Rainwater Wildlife Area	CRB	Spokane
2017055	OSHIP Land Management	CRB	NA
2017057	Grande Ronde Subbasin Restoration Invasive Weed Treatments -17	CRB	La Grande
2017061	Custer Soil and Water Conservation District	S Snake	Boise
2017062	YTAHP - Ahtanum Creek - Diversion 31	CRB	Wenatchee
2017064	Lapwai Creek Watershed Restoration	N Snake	NA
2017065	Pahsimeroi River Habitat	S Snake	Boise
2017069	Rock Creek Fish & Habitat Assessment	CRB	NA
2017074	PNNL Temperature and Water Elevation Monitoring at Ives Island	WA/LCR	Lacey
2017075	ODFW Fish Screens - Low Risk Projects I	CRB	La Grande
2017077	Oxbow Conservation Area - Weed Control	CRB	La Grande
2017078	Lemhi River Restoration	S Snake	Chubbock
2017082	Tualatin River National Wildlife Refuge Addition	Willamette	Portland
2017083	BPA Action Effectiveness Monitoring II	CRB	Wenatchee
2017085	ODFW Fish Screens - Low Risk Projects II	CRB	La Grande
2017086	Lemhi River Restoration	S Snake	Chubbock
2017087	Trout Creek Watershed Restoration	CRB	NA
2017088	Albeni Falls Wildlife Mitigation II	NA	Spokane
2017090	Pahsimeroi River Habitat - P-13 & Mulvaney Ditch	S Snake	Chubbock
2017096	Isquulktpa Watershed Project - 17	CRB	La Grande
2017099	John Day Habitat Enhancement 2017	CRB	La Grande
2017100	ODFW Operations and Maintenance	Willamette	Portland
2017101	ODFW Fish Screens - Low Risk Projects III	CRB	La Grande
2017102	Kerry Island Restoration - Weed Treatment	WA/LCR	Portland
2017103	Wallacut River Confluence - Weed Treatment	WA/LCR	Portland
2017104	Wenas Wildlife Area	CRB	Wenatchee

TABLE 2: HIPIII PROJECT AUTHORIZATIONS (MEDIUM RISK) 2017

HIP3 NO#	Project Title	Habitat Branch	Field Office
2017002	Wallowa Baker Habitat Restoration I	S Snake	La Grande
2017013	Lostine River - Tully Hill	S Snake	La Grande
2017014	Newby Narrows Habitat Enhancement Project - Phase 2	CRB	Wenatchee
2017015	Lemhi River Restoration	S Snake	Chubbock
2017017	Green Island Phase III	Willamette	Portland
2017035	Tucannon River Large Wood Restoration Project Area 6-9	CRB	Spokane
2017036	Tucannon River Programmatic Habitat Project - PA 18	N Snake	La Grande

HIP3 NO#	Project Title	Habitat Branch	Field Office
2017049	Cowiche Creek Siphon Fish Passage	CRB	Wenatchee
2017058	Dillon Dam Removal	CRB	La Grande
2017059	Vincent to Caribou Phase 1	CRB	La Grande
2017063	Snag Boat Bend Floodplain Restoration Phase 3	Willamette	Portland
2017067	Horseshoe Side Channel	CRB	Wenatchee
2017068	John Day Tributary Passage and Flow	CRB	La Grande
2017072	Enhance Habitat North Fork John Day River: Desolation Creek	CRB	La Grande
2017079	Harper Diversion Removal	CRB	Bend
2017080	Flight's End Restoration Project	WA/LCR	Portland
2017084	Pahsimeroi River Habitat - Page	S Snake	Chubbock
2017091	Asotin Creek - Thiessen Bridge Stream Crossing	S Snake	Spokane
2017092	Ninemile Creek Project	CRB	NA
2017093	Erickson Meadows Beaver Dam Analogues	N Snake	NA
2017098	Carmen 3 (SCC-03) Bridge Replacement	S Snake	Chubbock

TABLE 3: HIPIII PROJECT AUTHORIZATIONS (HIGH RISK) 2017

HIP3 NO#	Project Title	Habitat Branch	Field Office
2017026	Yankee Fork/West Fork Confluence Project 2017 (Phase III)	S Snake	Chubbock
2017048	Meacham - Bonifer Reach Project Areas 3 & 4	CRB	La Grande
2017066	Nora Creek Meadow Restoration	N Snake	NA
2017071	Lemhi Fayle Restoration	S Snake	Chubbock
2017089	Eighteenmile Creek Restoration Beyeler Phase I	S Snake	Chubbock
2017095	Big Springs Enhancement Project	S Snake	Chubbock



2017071(Lemhi_Fayle_Restoration)Bleeder Jam Installation

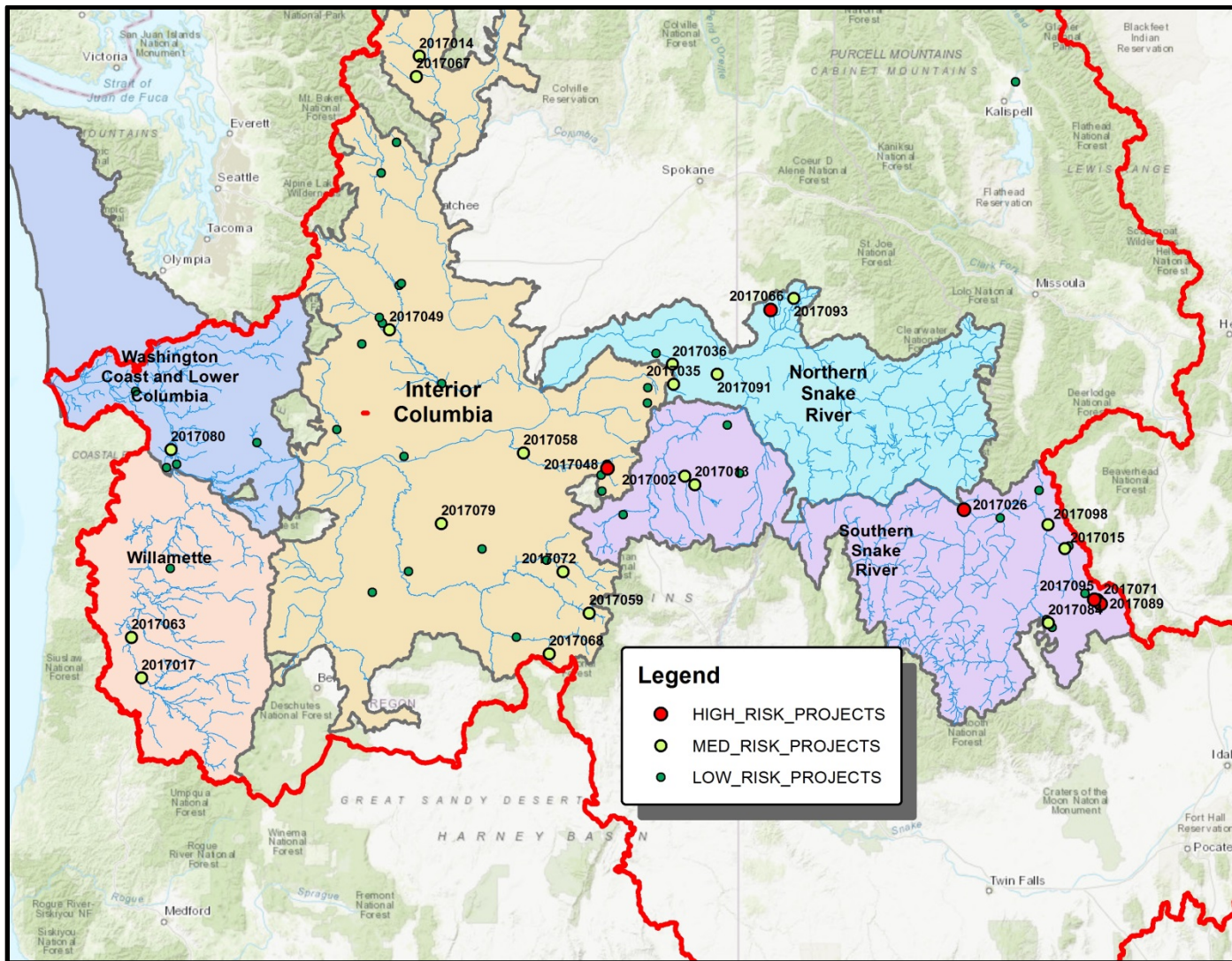


FIGURE 1: 2017 HIPIII PROJECT LOCATIONS (NMFS)

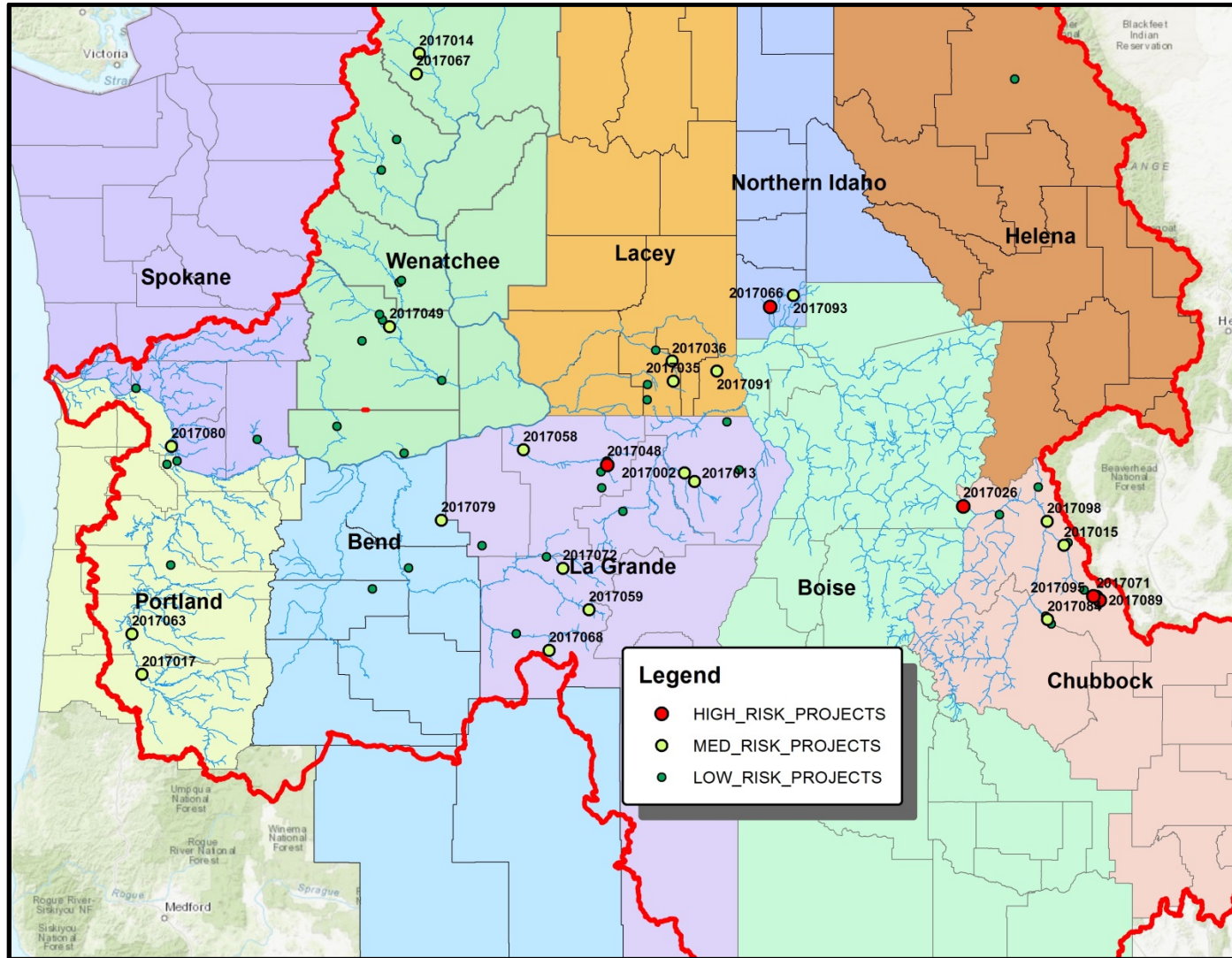


FIGURE 2: 2017 HIPIII PROJECT LOCATIONS (USFWS)

PROJECT ACTIVITIES

Within each individual project there could be few or many activity categories. BPA generally lumps each set of activity categories by location and project sponsor, with the exception of herbicides, surveys, and O&M activities which could have multiple locations lumped by program.

The project activity categories are typical from previous years, with the exception of Fish Screen installations in which the Oregon Department of Fish and Wildlife used the HIPIII for coverage instead of previously using the Mitchell Act Coverage.

TABLE 3: PROJECT ACTIVITIES

Category	Subcategory	ACTIVITIES	2013	2014	2015	2016	2017
1. Fish Passage Restoration							
Profile Discontinuities							
	a.	Dams, Water Control or Legacy Structure Removal.	1	2	3	2	5
	b.	Consolidate, or Replace Existing Irrigation	3	3	1	0	5
	c.	Headcut and Grade Stabilization.	3	6	9	9	8
	d.	Low Flow Consolidation.	0	0	0	0	0
	e.	Providing Fish Passage at an Existing Facility.	2	6	4	2	3
Transportation Infrastructure							
	f.	Bridge and Culvert Removal or Replacement.	8	11	9	11	6
	g.	Bridge and Culvert Maintenance.	0	0	1	0	1
	h.	Installation of Fords.	2	0	2	0	1
2. River, Stream, Floodplain, and Wetland Restoration.							
	a.	Improve Secondary Channel and Wetland Habitats.	6	11	8	12	17
	b.	Set-back or Removal of Existing, Berms, Dikes, and	2	7	10	5	7
	c.	Protect Streambanks Using Bioengineering Methods.	4	8	10	7	7
	d.	Install Habitat-Forming Natural Material Instream	11	20	15	20	24
	e.	Riparian Vegetation Planting.	19	30	32	33	38
	f.	Channel Reconstruction.	2	4	3	4	6
3. Invasive and Non-Native Plant Control.							
	a.	Manage Vegetation using Physical Controls.	18	32	26	25	27
	b.	Manage Vegetation using Herbicides.	39	45	39	28	30
4. Piling Removal.							
		Pile Removal	0	0	0	1	0
5. Road and Trail Erosion Control, Maintenance, and Decommissioning.							
	a.	Maintain Roads.	2	4	3	2	2
	b.	Decommission Roads.	0	3	0	0	2
6. In-channel Nutrient Enhancement.							
		Nutrient Enhancement.	0	0	0	0	0
7. Irrigation and Water Delivery/Management Actions.							

a. Convert Delivery System to Drip or Sprinkler	1	2	2	1	1
b. Convert Water Conveyance from Open Ditch to	1	5	1	1	3
c. Convert from Instream Diversions to Groundwater	0	0	0	0	0
d. Install or Replace Return Flow Cooling Systems.	1	0	0	1	0
e. Install Irrigation Water Siphon Beneath Waterway.	2	0	0	2	1
f. Livestock Watering Facilities.	4	8	5	1	4
g. Install New or Upgrade/Maintain Existing Fish	3	4	5	23	721
8. Fisheries, Hydrologic, and Geomorphologic Surveys.					
Surveys	18	25	24	23	16
9. Special Actions (for Terrestrial Species).					
a. Install/develop Wildlife Structures.	0	0	0	1	1
b. Fencing construction for Livestock Control	1	5	7	7	14
c. Implement Erosion Control Practices.	0	3	2	0	6
d. Plant Vegetation.	2	6	7	6	14
e. Tree Removal for LW Projects.	0	3	1	3	3



2017027(McCarthy Creek)Culvert Removal

INCIDENTAL TAKE REPORTING

The NMFS and USFWS BOs defined four categories of incidental take based on the likelihood of adverse effects to ESA-listed species.

1. Short-term impacts to water quality (e.g., suspended sediment, temperature, dissolved oxygen demand and contaminants).
2. Short-term impacts to water quality (e.g., due to application of chemical herbicides).
3. Short-term decreases in function of physical habitat features (e.g. floodplain connectivity, Natural cover, riparian vegetation, instream flow, stream substrate, space, and safe passage conditions).
4. Juvenile fish handling and dewatering during work area isolation.

IMPACTS TO WATER QUALITY TRIGGER

A further threshold for reinitiating consultation is a visible increase in suspended sediment. In 2017 there were **5 reported instances** where turbidity was elevated above background for more than 2 monitoring intervals.

TABLE 4a: Turbidity Exceedence (2017013)

HIPIII NO#	PROJECT
2017013	Lostine River Tully Hill
EXPLANATION	This project removed a channel spanning instream structure from 1996 that was a velocity barrier to adults and jump barrier to juveniles. This project involved a large amount of instream work to correct a stream gradient and install boulders and LWD in a manner to replicate natural stream conditions along 500 feet of the Lostine River. There were three turbidity exceedences greater than two 2 hour intervals, in each instance the contractor stopped working and waited for the turbidity to clear to background conditions before resuming work. The reason for the first turbidity exceedence on 8/5/17 was due to the installation of Eco blocks in order to dewater and isolate the main channel. The second and third exceedence noted on both 8/16/17 and 8/17/17 was due to installing grade control structures and excavation of pool habitat. While the turbidity plume lasted longer than 4 hours, it was not channel spanning.



2017013: Placement of EcoBlocks caused 1st turbidity Exceedance.



2017013: Tully Hill Velocity and Jump Height Barriers (Before)



2017013: Tully Hill Grade Control Structures (After)



2017013: Tully Hill Channel Spanning Barriers (Before)



2017013: Tully Hill Barrier Removal and Grade Stabilization (After)

TABLE 4b: Turbidity Exceedence (2017014)

HIPIII NO#	PROJECT
<p>2017014 EXPLANATION</p>	<p>Newbry Meadows (Phase II)</p> <p>This project involved significant excavation of a 1200' side channel along the Twisp River which mobilized a large amount of fine sediment. The worksite was isolated from flowing water using sheetpile cofferdams near the upstream connection and sandbags with plastic sheets on the downstream end. The sheetpile was extremely effective at eliminating surface and sub-surface flow into the side channel which resulted in no turbidity releases during construction. The contractor used three different pumps to remove turbid water from the work area that were disposed of in upland areas away from the stream and allowed ample time filter back into the soil. While the contractor was successful in eliminating turbidity during construction,</p>

upon rewatering procedures and final removal of the sheetpile walls there were several turbidity releases that exceeded HIP Turbidity standards and lasted for more than 4 hours. This is attributed to the sediment profile and the newly exposed surface of large 2ndary channel.



2017014: Newbry Meadows, Test pits dug showed a substrate profile consisting of sandy loam, sandy gravel, and clay.



2017014: Newbry Meadows, Wetland replacement area excavated to subgrade before revegetation.

TABLE 4c: Turbidity Exceedence (2017058)

HIPIII NO#	PROJECT
<p>2017058 EXPLANATION</p>	<p>Dillon Dam Removal</p> <p>Dillon Dam was a full spanning river dam, approximately 193 feet wide and 5 feet high. During the construction phase of the dam removal turbidity levels were elevated due to the high amount of digging that occurred to remove the dam from the river. Turbidity levels were checked every two hours, in compliance with both the HIP III protocol and the DEQ 401 water quality permit. Once turbidity levels were elevated, ODFW employed BMP's to dissipate sediment loads within the stream. Techniques included wattles; sediment curtains; pumping water into settling basins; silt fence. These techniques did not adequately dissipate sediment loads to background due to non-flowing water. When levels continued to be exceeded after 4 hours of monitoring, work was shut down and was not started again until the next day. This occurred over the course of nine days. It took this long because of the requirement to stop work after only 4 hours.</p>



2017058- Dillon Dam Removal (Preproject):



2017058- Dillon Dam Removal (During Construction)



2017058- Dillon Dam Removal (After)

TABLE 4d: Turbidity Exceedence (2017084)

HIPIII NO#	PROJECT
<p>2017084 EXPLANATION</p>	<p>Pahsimeroi River Restoration - Page The Page property restoration project was designed to enhance instream habitat, promote floodplain connectivity through berm removal, activate historic side channels, construct engineered riffles, large wood placement, and improve riparian vegetation on 1.2 miles of river. The worksite was dewatered through an old ditch network. However, the ditch was undersized to accommodate the amount of water</p>

flowing through the Pahsimeroi River at that time, which was higher this year than usual. Instead of releasing the water, the bypass was redesigned with a larger bottom width, a softer margin angle with compacted soil, and a downstream settling pond. NMFS was contacted (Chad Fealko) and he worked with the contractor to ensure that turbidity plume, once released down river would not impact salmon redds approximately 5.5 miles downstream. The turbidity was elevated over 10% of base but under 50 NTUs and was not visually distinct from background. Chad Fealko came and inspected the site and was satisfied with modifications and outcomes. The turbidity was monitored and settled out within a mile downstream, well before the redds 5.5 miles downstream. After the bypass channel was thoroughly washed there were no more turbidity exceedances.



2017084 (Pahsimeroi Page): A 90 foot long 8 foot deep settling pond at the downstream end of the bypass channel. Two sediment curtains were also installed in order to reduce fines in the river.



2017084 (Pahsimeroi Page) Installation of engineered log jam.

TABLE 4e: Turbidity Exceedence (2017089)

HIPIII NO#	PROJECT
2017089	Eighteenmile Creek Restoration Beyeler - Phase I
EXPLANATION	<p>Instream habitat work included relocating 1,820 feet of Eighteenmile Creek to its historic channel, which has maintained a healthy riparian zone. Approximately 1,600 feet of the old channel, which was straightened, devoid of vegetation and impacted by cattle, was abandoned and filled in with excavated material from the downstream portion of the new channel. This project occurred in the winter and had a variety of problems that resulted in turbidity exceedances. Completing projects in near frozen conditions resulted in a changing and difficult environment. For one, a culvert that was installed in the wet in the bypass channel ended up floating because there was not enough material to weigh it down, this displaced a large amount of material and was a contractor error as he could have used his excavator to weigh down the culvert until more materials arrived onsite. This resulted in turbidity levels 10% over background for 15.5 hours.</p> <p>Next, when the process for rewatering the newly constructed channel began, the first 2/3rd s of water was introduced without incident. Turbidity went to background within an hour. However, upon the last input of water the downstream coffer dam started to become undermined. Nobody knew why it started undermining. The</p>

sponsor speculated that the pump might have sucked enough material out at the base of the dam to weaken it enough that flow started under it, and/or the ice build-up could have had some kind of negative affect. Repairing the cofferdam would have introduced a large amount of sediment, and allowing the cofferdam to undermine might have created a headcut. So the decision was made to remove the cofferdam and allow the rest of the water to flow downstream. This resulted in turbidity levels above 10% over background for 22.5 hours.

Most of these problems may have been avoided if it occurred in the summer low flows, however it was discussed and agreed upon by NMFS that this project had to occur at this time because the ground needed to be frozen in order for the equipment not to get stuck or cause major damage to the riparian area due to the soil saturation of this particular site.



2017089 (Eighteenmile Creek Channel Reconstruction)



2017089 (Eighteenmile Creek Channel Reconstruction)

DECREASE IN FUNCTION OF PHYSICAL HABITAT FEATURES TRIGGER

This was defined as the total length of stream reach that is modified by construction each year. 90 projects per year that include near or in-water construction is a threshold for reinitiating consultation. This has been met with 43 projects that required near or in-water construction in 2015. These sites are represented as the red dots on Figures 1 & 3.

TABLE 5: No# HIPIII PROJECTS THAT INCLUDE NEAR OR IN WATER WORK

2013	2014	2015	2016	2017
35	45	41	40	43

JUVENILE FISH HANDLING TRIGGER

Capture and/or mortality of ESA-listed salmonids during work area isolation is limited to 7500 captured and 375 injured or killed per calendar year. This is further broken down by recovery domain.

BPA has taken less fish than last year during work area isolation activities. It is worth noting that scope and complexity of BPA funded projects has been steadily increasing over the years thus requiring greater efforts at work area isolation (dewatering reaches for channel reconstruction).

TABLE 6: INCIDENTAL TAKE DUE TO FISH HANDLING

SPECIES	TAKE CATEGORY	ALLOWABLE LIMITS	2013 ACTUAL TAKE	2014 ACTUAL TAKE	2015 ACTUAL TAKE	2016 ACTUAL TAKE	2017 ACTUAL TAKE
Interior Columbia Willamette	Capture	5925	841	3593	3541	2435	2446
	Mortality	296	12	8	59	130	78
Bull Trout	Capture	1200	0	0	0	0	0
	Mortality	60	0	0	0	0	0
Bull Trout	Capture	250	0	14	29	5	0
	Mortality	13	0	0	0	0	0



Mykiss in Bucket

FISH MORTALITY

In just one instance, fish mortality was higher than expected (7%).

HIPIII NO#	PROJECT
2017071	Lemhi Fayle Restoration
EXPLANATION	The Lemhi Regional Land Trust (LRLT) implemented a project on the Lemhi River within this project area to address loss of riparian shade, and over widened channel characteristics. This involved excavation of new channels and bypass and required work area isolation.

When the PCF was received the high mortality was noted. BPA requested the fish salvage forms of which there were 4 completed. The ones that had high mortality all took place in the afternoon, when temperatures were higher, 17 degrees C. When asked why the project sponsor conducted salvage operations in the afternoon, the sponsor responded that they were working within NMFS criteria. This is true but it is clear that some mortality could have been avoided if they worked in the morning than afternoon. I do not presume to know the logistics or the construction schedule enough so that would have been possible but the BPA EC lead shall encourage the sponsor to take extra steps to avoid stressing fish.



2016077(Dovenburg)Floodplain roughness features

APPROVED VARIANCES

In reviewing variance requests from 2014, 2015, 2016 and 2017. BPA requested an average of 18 variances a year which typically represented 50% of all proposed projects that required near in in water work. The nature of these variances are common across the years, typically associated with the methodology and timing of work area isolation as well as staging areas.

The HIPIII and versions of the HIPIII Handbook became more and more prescriptive in work area isolation techniques which did not account for flexibility needed to account for the site specific variability, weather and other factors. The HIP4 allows for more flexibility as to the methodology of work area isolation techniques which shall drastically eliminate variance requests in the upcoming years.

BPA requested 16 variances with the most common being inwater work window extensions and modifications. Most of the variances types are consistent with the variances requested for previous years.

TABLE 7: NUMBER OF VARIANCES

	2013	2014	2015	2016	2017
Variances	NA	19	20	18	16

TABLE 8: VARIANCE RATIONALE

HIPIII NO#	PROJECT	RATIONALE
2017012	YTHAP- Caribou Creek - Cortese/Sorenson	Riparian Buffer Strip < 35 Feet
2017013	Lostine River - Tully Hill	IWWW Mod
2017015	Lemhi River Restoration	IWWW Mod
2017020	Natural Reproductive Success and Demographic Effects of Hatchery Origin Steelhead	IWWW Mod
2017026	Yankee Fork/West Fork Confluence Project 2017 (Phase III)	IWWW Mod, Work Area Isolation Mod
2017033	Panther Creek PIT Array	IWWW Mod
2017058	Dillon Dam Removal	IWWW Mod, Electrofishing Guidelines Mod
2017063	Snag Boat Bend Floodplain Restoration Phase 3	IWWW Mod, Imported Gravel Placement
2017066	Nora Creek Meadow Restoration	Culvert <1.5 BFW
2017074	PNNL Temperature and Water Elevation Monitoring at Ives Island	IWWW Mod
2017078	Lemhi River Restoration	Temporary Fish Passage Blockage
2017080	Flight's End Restoration Project	Bridge <1.5 BFW

2017084	Pahsimeroi River Habitat - Page	Fish Screen Mod
2017086	Lemhi River Restoration	Temporary Fish Passage Blockage
2017089	Eighteenmile Creek Restoration Beyeler Phase I	IWWW Mod
2017095	Big Springs Enhancement Project	IWWW Mod



2017015 (Lemhi River Restoration) Bridge Replacement Before.



2017015 (Lemhi River Restoration) Bridge Replacement During.



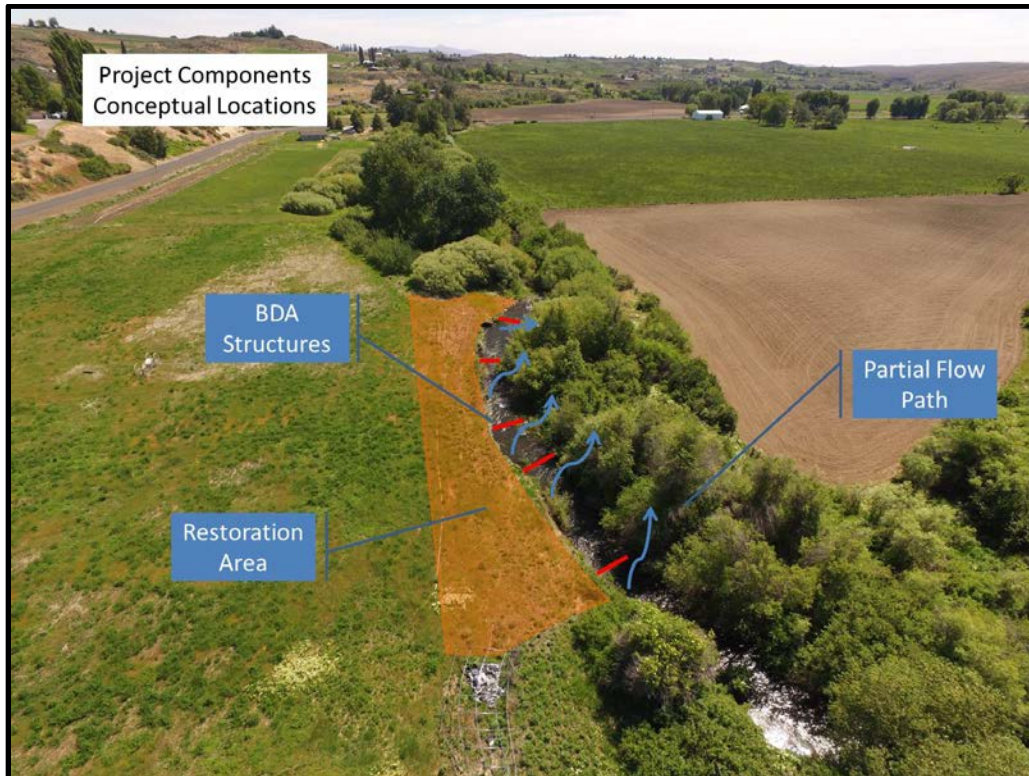
2017015 (Lemhi River Restoration) Bridge Replacement After.



2018080 (Flight's End) Levee Removal

INTERESTING ISSUES

Under HIP No# 2016068, Cowiche-Nedrow Instream Habitat Complexity and Stabilization, six (6) full spanning cross channel BDA structures were installed. Three of the six structures included an extension on the left bank downstream parallel to the bank to deflect/intercept flow and capture bank sluffing .



2016068 (Cowiche Nedrow) BDA Structures

Monitoring observations were made throughout the year. The PCF, submitted 2/28/17, states BDAs were observed to be functioning during the first winter e.g. they were beginning to push up water onto the right bank floodplain taking pressure off and slowing velocities on the eroding left bank, which was desired by the landowner.

However, by March 2017 all but one channel spanning BDA had been washed out/failed after an usually high spring flow. The remaining channel spanning BDA had been pushed down to lay flat on the streambed. The landowner and sponsor observed that though the BDA was laying flat, it had still aggraded sediment upstream, which was an anticipated outcome. Three of the structures retained the extension that paralleled the bank, the sponsor observed that the extensions were still functioning to capture sediment and bank sluffing. In November 2017, planting crews discovered human remains exposed in the cutbank near the failed BDA. Work was stopped and the Inadvertent Discovery process was activated.

Despite the popularity and low cost of BDAs they have failed more than this instance. There are several more occasions upon which they were installed and then failed. In this case due to the discovery of human remains and the continued erosion of the bank BPA had to partially remove the structures.

There are ongoing negotiations with the State, the tribes, and the private landowners. Although not a restoration action, at the time the action agencies agreed that use of the HIP was the most appropriate consultation pathway to conduct the in water work. There are likely to be further actions at this site that may be to stabilize the bank and remove the structures.



2017002(Wallowa Baker) Before



2017002(Wallowa Baker) During



2017002(Wallowa Baker) After

NON COMPLIANCE

There were no known cases of non-compliance this year. We attribute this to the numerous HIPIII trainings given across the basin in previous years, stressing use of the HIPIII Handbook and the in-depth technical reviews.

TABLE 9: Reported Non Compliance Events

2013	2014	2015	2016	2017
NA	6	2	1	0

HERBICIDE USE

Herbicide use continues to be the most widely used project activity category under the HIPIII. This is due to the numerous wildlife mitigation areas that BPA purchases and are managed under contract by various entities. There has been an increased interest in using herbicides not covered under the HIPIII due to herbicide resistant weeds (upland use of Vista) and expanded applications within the estuary.

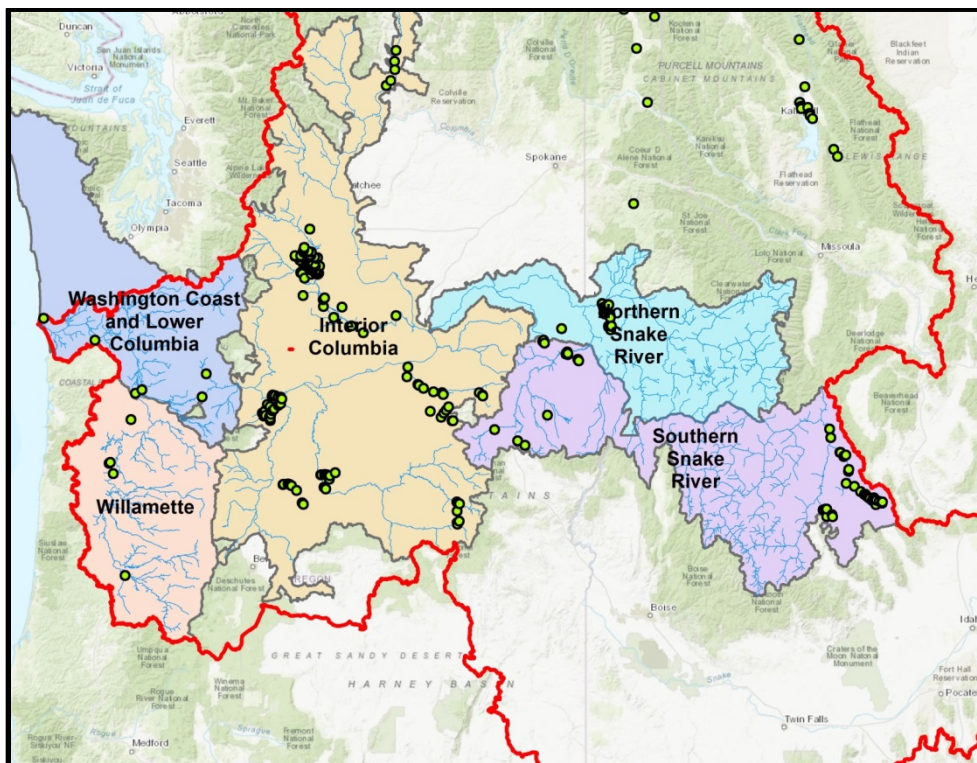


FIGURE 3: HERBICIDE APPLICATION (NMFS)

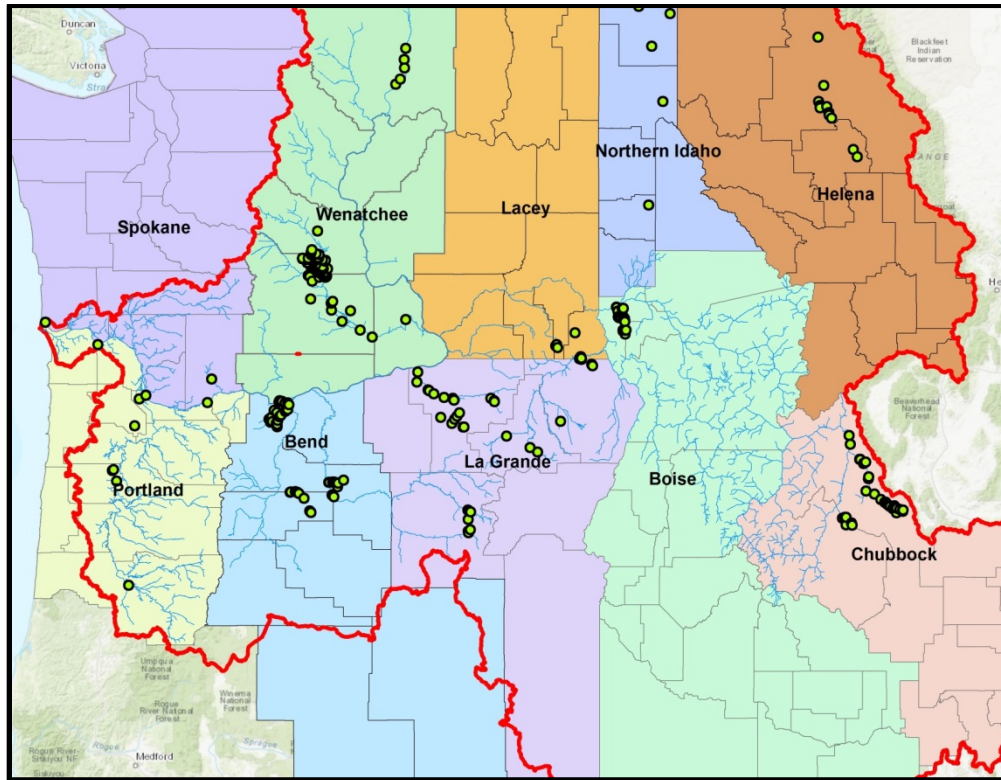


FIGURE 4: HERBICIDE APPLICATION (USFWS)

CHEMICAL HERBICIDE APPLICATION TRIGGER

The analysis in the BOs affirm that application of chemical herbicides will result in short-term degradation of water quality which will cause injury to fish in the form of sublethal adverse physiological effects. Up to 1,000 total riparian acres may be treated in a calendar year under this programmatic consultation.

In 2017, the amount of riparian acres treated has declined. We hope that this trend continues as wildlife managers find effective alternatives to herbicide treatments.

TABLE 10: ACRES TREATED WITH HERBICIDE

	RIPARIAN	UPLAND
2013	409	2482
2014	449	8282
2015	715	7399
2016	836	8940
2017	831	5561

TABLE 11: PROJECTS WITH HERBICIDE USAGE

HIPIII NO#	PROJECT	RIPARIAN	UPLAND
2017003	Shillapoo Wildlife Area 2017	30	865
2017004	Yakima Phase II Fish Screens O&M with WDFW	0.28	0
2017005	Sunnyside Wildlife Mitigation: O & M Enhancements	20.5	439
2017009	Umatilla Anadromous Fish Habitat with ODFW	81.6	20.4
2017010	Asotin Creek Wildlife Mitigation	0	250
2017028	Fifteen Mile Creek Habitat Improvement	52.58	13.16
2017031	Umatilla Anadromous Fish Habitat	21.71	50.61
2017032	Hungry Horse Mitigation Habitat Restoration and RM&E	2.65	16.1
2017034	Stabler Bend Riparian Planting Project	0.84	0
2017039	Umatilla Fish Passage O&M	4.5	4.5
2017041	NE Oregon Precious Lands Wildlife Area	85	437
2017045	Pahsimeroi River Habitat	8.806	38.832
2017046	Lemhi River Restoration	0.201	9.607
2017047	Pine Creek Conservation Area	26	1334
2017053	Yakima Basin Side Channels	115.5	100
2017054	Rainwater Wildlife Area	18	515
2017055	OSHIP Land Management	0	126.5
2017057	Grande Ronde Subbasin Restoration Invasive Weed Treatments -17	51	61.9
2017059	Vincent to Caribou Phase 1	5	70
2017064	Lapwai Creek Watershed Restoration	5.1556	43.323
2017077	Oxbow Conservation Area - Weed Control	9	22
2017078	Lemhi River Restoration	0.53	0.67
2017082	Tualatin River National Wildlife Refuge Addition	87	198
2017087	Trout Creek Watershed Restoration	5.4	19.6
2017088	Albeni Falls Wildlife Mitigation II	153	348
2017096	Isquultpe Watershed Project - 17	0	48.5
2017100	ODFW Operations and Maintenance	16.78	131.43
2017102	Kerry Island Restoration - Weed Treatment	6	0
2017103	Wallacut River Confluence - Weed Treatment	10	0
2017104	Wenas Wildlife Area	14.2	398.2



2017012(Caribou Creek)Diversion Removal Before



2017012(Caribou Creek)Diversion Removal After

HIP REVIEW PROCESS (Refined)

Through the HIP Review process, BPA has been conducting thorough technical reviews of all medium and high risk projects. These technical reviews are conducted by a licensed PE and sometimes involve several iterations of back and forth review junctures between the project sponsors. Functional review is done by BPA staff (EC Lead) who review the project for adherence to HIP III criteria and coordinate information sharing and collaboration amongst project partners. Both of these reviews together constitute the HIP Review Process.

Calling these reviews the HIP Review Process as opposed to the RRT is a more accurate representation of reality. The RRT alludes to a team of reviewers who make decisions on the merit and fate of a particular project. This has caused consternation amongst our project sponsors and interagency partners alike, who see another review team as duplicative and onerous. The HIP review process is a refined process that BPA undergoes to determine HIP suitability and technical sufficiency of a project through transparent steps and documentation. A process is more manageable than a team in terms of standardization and workload.

Project sponsors and other federal partners have begun to embrace the HIP Review process and fold it in their existing processes. We continuously affirm that the process is there to help not hinder project development and early involvement is the key.

TABLE 12: HIP REVIEW WORKLOAD

	FY13	FY14	FY15	FY16	FY17	Currently Under Review
Medium Risk	4	14	24	24	23	31
High Risk	2	6	2	3	5	15

Note the large amount of projects currently in the RRT queue. Project sponsors are submitting the projects earlier and earlier which gives BPA more opportunity to work with them on an effective design. Some of the projects are slated for 2019 and 2020. The scope and complexity of projects continue to increase. Most projects make it through the process, a few projects are found to not fit the HIP III and some are found to possess little fish benefit. In those cases a decision is made with the implementation managers to continue or not continue with the project.



2017067(Horseshoe)Logjam Excavation During



2017067(Horseshoe)Logjam Excavation After

FISH SCREENS

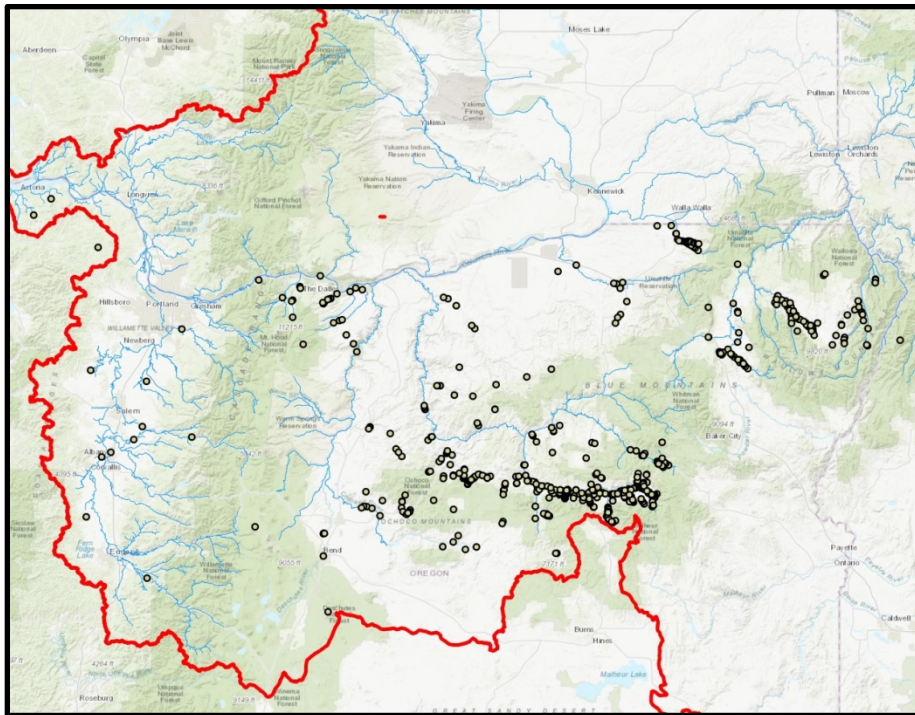
BPA funds two ODFW fish screen programs: one for O&M actions within the Columbia River Basin in Oregon; and another for construction of fish screens within the John Day River Basin. BPA collected PNFs and PCFs with the following number of actions (Table 11) for both ODFW fish screen contracts.

TABLE 13: FISH SCREENS

HIP3 NO#	Project Title	No# of Actions
2017101	ODFW Fish Screens – Low Risk Projects IV	6
2017029	O&M Oregon Fish Screens	692
2017038	ODFW Fish Screens – Low Risk Projects I	18
2017075	ODFW Fish Screens - Low Risk Projects II	4
2017085	ODFW Fish Screens - Low Risk ProjectsIII	3

2017 was the first full year that the HIPIII was used to cover all actions associated with the ODFW O&M contract. BPA worked closely with ODFW to explore how they track the O&M actions throughout the basin. Initially, it was difficult to project what specific actions were being taken and the potential impacts to listed species as a result; however, BPA established reporting requirements that included a list of typical actions taken, a list of specific action locations (Figure 5 below) where maintenance was anticipated to occur, and a field form for specific actions that caused reportable impacts (turbidity exceedances and take of listed species).

FIGURE 5: 2017 HIPIII FISH SCREEN O&M LOCATIONS



The O&M Oregon Fish Screens (HIPIII No# 2017029) project reported 692 actions. These actions consisted of minor O&M activities associated with fish screens that occurred year-round across the state of Oregon within the Grande Ronde, Umatilla, John Day, Deschutes, Willamette, and Hood river subbasins. These included activities performed by ODFW screen tenders such as the following: debris and sediment removal, check screen seals, inspect screens for damage, inspect gear boxes and drive lines, inspect solar units, inspect fish bypass, inspect fishways, and other O&M actions. These activities were easily isolated from the water with no impacts to the stream. No turbidity exceedances or take were reported to BPA.

The John Day ODFW fish screen construction contract (HIPIII No#s 2017011, 2017038, 2017075, 2017085, 2017101) involves actions that are more complex in nature as they typically represent new construction or replacement of head gates, water measuring devices, siphons, or NMFS criteria pump or gravity fish screens. Installation of headgates have the most potential to cause take because these can be the closest components to a fish-bearing stream; however they are commonly constructed during the dry. Installation of gravity fish screens causes ground disturbance but these projects generally occur during the dry season and behind a headgate, limiting interaction with the fish bearing stream. Pump screens are typically attached to the irrigation pump intake line with couplings, adaptors and hose which is then attached to the existing irrigation pump. This does not cause any ground disturbance or any in water work. For 2017, turbidity exceedances or take were not reported for any of these project actions.



ODFW FISH SCREENS



WILDLIFE AREAS

When the dams were constructed, over 376,000 wildlife (birds and wildlife) habitat acres were estimated to be affected by inundation. This was quantified into a certain number of “habitat units” that were lost to each dam.

Therefore BPA funds wildlife projects to get credit through, fee-title acquisitions, conservation easements, leases and enhancement on protected lands (O&M) and has 30 active wildlife projects. These wildlife projects may have activities that affect fish and upland activities that may affect terrestrial species. These are the areas that carry the bulk of the herbicide reporting.

TABLE 14: WILDLIFE AREAS

Title
Wanaket Wildlife Area
Swanson Lake Wildlife Mitigation
Albeni Falls Wildlife Mitigation Capital Land Acquisitions
Sagebrush Flat Wildlife Mitigation
Southern Idaho Wildlife Mitigation
Shoshone-Bannock Wildlife Mitigation Projects
Southern Idaho Wildlife Mitigation--Shoshone-Paiute Tribes
Isq’u’lktpe Watershed Project
Northeast Oregon Wildlife Project
Scotch Creek Wildlife Mitigation
Wildlife Mitigation/Operations and Maintenance (O&M) for Spokane Tribe
Pine Creek Conservation Area
Logan Valley Wildlife Mitigation
Tualatin River National Wildlife Refuge Additions
Ladd Marsh Wildlife Mitigation
Rainwater Wildlife Area Operations
Malheur River Wildlife Mitigation
Kootenai River Operational Loss Assessment
Sunnyside Wildlife Mitigation
Shillapoo Wildlife Mitigation
Hellsgate Big Game Winter Range
Desert Wildlife Mitigation
Wenas Wildlife Mitigation
Asotin Creek Wildlife Mitigation
Albeni Falls Wildlife Mitigation-Kalispel Tribe
Albeni Falls Wildlife Mitigation-Idaho Department of Fish and Game (IDFG)
Albeni Falls Wildlife Mitigation-Kootenai Tribe

Albeni Falls Wildlife Mitigation-Coeur D'Alene Tribe

Upper Columbia United Tribes (UCUT) Monitoring and Evaluation (M&E)
--

Willamette Wildlife Fund (WWF)

The total acreage for these wildlife projects is nearly 700,000 acres. The acreage is not contiguous but are typically spatially constrained by watershed. BPA is not going to expand their portfolio however some additional parcels of land may be purchased to expand existing holdings. Of this group, the Willamette Wildlife Fund and the Southern Idaho Wildlife Mitigation project may have the most interspersed holdings and may have additional parcels. Figure 7 shows the locations of Wildlife Area activities since 2004 and are not likely to increase in scope beyond what is shown in the figure.

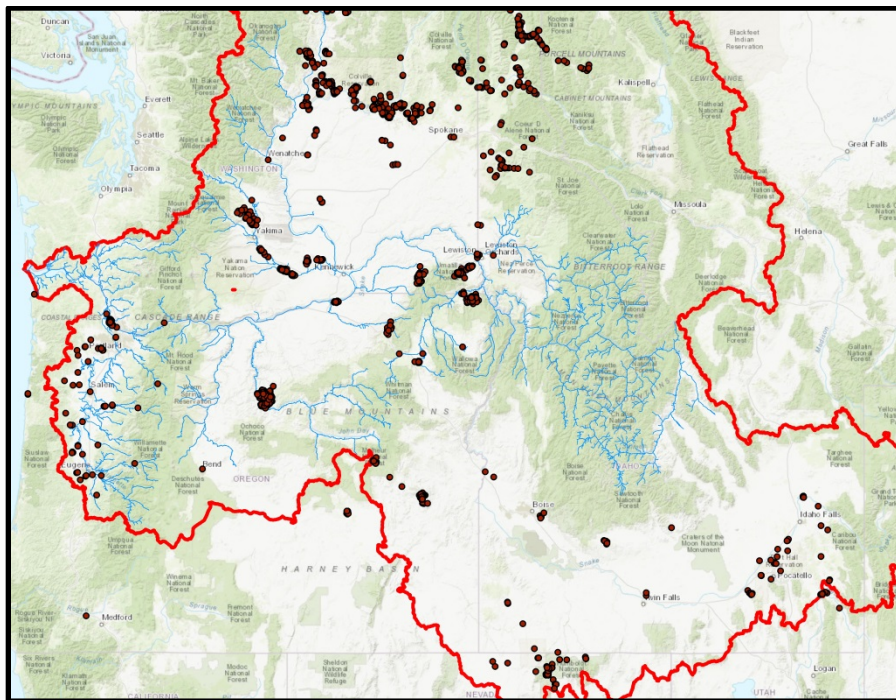


FIGURE 5: BPA WILDLIFE AREAS

BPA also provides stewardship funding for certain properties which are essentially a long term funding stream from an interest bearing account (annuity) that is used for O&M activities. As discretionary authority flows from BPA to the land manager, all ESA obligations become their responsibility.



2017072(Desolation Creek) Large Woody Debris



2017072(Desolation Creek)Large Woody Debris

DISCUSSION TOPICS

VARIANCE PROPOSAL

BPA will solicit variance approval via email. If a response is not received within 2 weeks, BPA shall make a second request. If a response is not received within 1 week after the second request (3 weeks total) BPA shall proceed as if the variance was approved.

REFINEMENT OF HIP PROCESS

- Continuing to refine and improve on the RRT and the process based on project sponsor feedback, workload optimization and personnel availability.
- Over time, the RRT has become more of a process than an actual team
- Flexibility to optimize and restructure what the concept of the RRT is and the process itself.
- In all cases, each medium to high risk project receives a thorough technical review in order to maximize fish benefit and minimize risk to the resource.
- Process is manifesting in better projects on the ground.

Section 4(d) Limit 3

Shall the rescue and salvage of distressed or injured fish trapped in canals and ditches could be handled under the Section 4(d) of the Endangered Species Act, Limit 3, Rescue and Salvage Actions or through the HIP?

PIT TAG ARRAYS

Appropriate under the HIP?

HIPIII HANDBOOK

- Annual updates by Sept Oct, instead of piecemeal updates.
- Engineers are going to meet more regularly, quarterly. To collect the latest science on restoration activities such as BDAs and Ditch Plugs.
- The handbook shall be updated accordingly. Clarifications and criteria that are more stringent.

SEDIMENT PLACEMENT

The project, South Bachelor Island Fish Habitat Restoration HIP NO# 2018047, is on a site is located on dredge spoils. The project seeks to create a meandering channel and place the excavated material along the Columbia River Shoreline. The HIP does not have a specific category for the creation of shallow-water habitat. Category 2d specifically refers to materials such as large wood, boulders, and

spawning gravel. However, the placement of sand would not result in effects greater than that of placing wood, boulders, or gravel, especially given that the project sponsor has committed to incorporating all of the relevant conservation measures for category 2d. This determination was reached in consultation with Josh Ashline, who instructed BPA to proceed with a variance for the proposed action. Sponsors have affirmed that similar projects are likely in the future so BPA is crafting criteria for doing so to be integrated into the HIP4.

Conservation Measures (Sediment)

- 1) Augmentation will only occur in areas where the natural supply has been eliminated, significantly reduced through anthropogenic disruptions, or used to initiate gravel accumulations or habitat forming processes in conjunction with other projects, such as simulated log jams and debris flows. Placement of materials for any other purposes besides habitat restoration or enhancement is excluded from this consultation
- 2) Sediment must be sized appropriately for the action area based on information gathered from a reference reach and must be free of invasive species and non-native seeds.
- 3) Designs (or basis of design report) must demonstrate that shallow-water habitat is a limiting factor to salmonid production in the action area for placement of finer materials.
- 4) Sediment source shall be from previously dredged material. However, HIP does not cover dredging that specifically takes place to source the material.
- 5) After placement of gravel or sediment in areas accessible to higher streamflow, allow the stream to naturally sort and distribute the material.