

# 2024 HATCHERIES AND LAND STRATEGIC ASSET MANAGEMENT PLAN

This Strategic Asset Management Plan for fish hatcheries and land acquisitions funded by the Bonneville Power Administration's Fish & Wildlife Program provides alignment between Agency strategy, stakeholder interests, and organizational objectives to ensure assets are managed to satisfy BPA's obligations to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System.

## Table of Contents

<b>1.0</b>	<b>EXECUTIVE SUMMARY – Hatchery</b> .....	<b>4</b>
<b>2.0</b>	<b>ACKNOWLEDGEMENTS</b> .....	<b>5</b>
2.1	Senior ownership .....	5
2.2	Strategy Development Approach .....	5
<b>3.0</b>	<b>STRATEGIC BUSINESS CONTEXT</b> .....	<b>6</b>
3.1	Alignment of SAMP with Agency Strategic Plan .....	6
3.2	Scope- Hatchery .....	6
3.3	Asset Description and Delivered Services.....	7
3.4	Demand Forecast for Services.....	11
3.5	Strategy Duration.....	11
<b>4.0</b>	<b>STAKEHOLDERS</b> .....	<b>12</b>
4.1	Asset Owner and Operators.....	12
4.2	Stakeholders and Expectations.....	12
<b>5.0</b>	<b>EXTERNAL AND INTERNAL INFLUENCES</b> .....	<b>14</b>
5.1	SWOT Analysis .....	16
<b>6.0</b>	<b>ASSET MANAGEMENT CAPABILITIES AND SYSTEM</b> .....	<b>18</b>
6.1	Current Maturity level.....	18
6.3	Current Strategies and Initiatives – Hatchery .....	25
6.4	Resource Requirements - Hatchery .....	26
<b>7.0</b>	<b>ASSET CRITICALITY</b> .....	<b>27</b>
7.1	Criteria - Hatchery.....	27
7.2	Usage of Criticality Model.....	28
<b>8.0</b>	<b>CURRENT STATE</b> .....	<b>28</b>
8.1	Historical Costs .....	28
8.2	Historical Asset Sustain Trends vs Forecast .....	31
8.3	Asset Condition and Trends .....	31
8.4	Asset Performance .....	26
8.5	Performance and Practices Benchmarking .....	27
<b>9.0</b>	<b>RISK ASSESSMENT</b> .....	<b>27</b>
9.1	Risk Identification .....	27
9.2	Risk Score .....	27
<b>10.0</b>	<b>STRATEGY AND FUTURE STATE - Hatchery</b> .....	<b>28</b>

10.1	Future State Asset Performance – Hatchery.....	29
10.2	Strategy .....	31
10.3	Planned Future Investments/Spend Levels.....	32
10.4	Implementation Risks .....	34
10.5	Asset Conditions and Trends .....	36
10.6	Performance and Risk Impact .....	37
<b>11.0</b>	<b><i>Addressing Barriers to Achieving Optimal Performance - Hatchery</i></b> .....	<b>38</b>
<b>12.0</b>	<b>DEFINITIONS</b> .....	<b>39</b>

This SAMP is the plan for both the hatchery and land programs. Each section will begin with hatchery content, and, when applicable, will be followed by content for land. The sections are labeled as required to distinguish the two programs.

## 1.0 EXECUTIVE SUMMARY – Hatcheries

This Strategic Asset Management Plan (SAMP) applies to hatcheries and associated facilities (e.g., weirs, traps, acclimation facilities, etc.) where BPA actively manages the hatchery assets through the provision of funding by BPA’s Fish & Wildlife (F&W) Direct Program. These hatchery programs help to satisfy BPA’s legal obligations under the Northwest Power Act, Endangered Species Act (ESA), and other laws to protect, mitigate, and enhance fish and wildlife affected by the construction and operation of the Federal Columbia River Power System (FCRPS).

This SAMP covers the assets associated with 16 safety net, conservation and supplementation hatchery facilities and related satellite facilities throughout the Columbia River Basin. While BPA does not have permanent ownership of these facilities nor operate them directly, BPA funds artificial production at Basin hatcheries to help preserve and rebuild genetic resources to reduce short-term extinction risk and promote ESA listed species.

BPA’s asset management program for hatcheries has continued to mature since the preparation of the previous SAMP. BPA has developed strategic objectives for the Hatchery Program for the next five years with a focus on improving programs, standards, systems and processes for obtaining and maintaining asset information. In addition, BPA has identified a need for additional information regarding current maintenance programs and their effect on the health of hatchery assets. With improved information on our assets, and an improved understanding of asset management principles with our partners, we can make formalized decisions for asset replacements that are risk based and data driven. Developing these programs will be the focus for the next five years. Currently, because we have just received updated health information in 2023, we are able to assess our risk from a reliability and a financial perspective.

In January of 2023, BPA allocated \$50 million dollars made available through the Reserves Distribution Clause (RDC) to address, on an accelerated, one-time basis, high priority maintenance needs of hatchery assets. Through this distribution of additional funds, BPA allocated \$25 million to Lower Snake River Compensation Plan hatcheries (which are outside the scope of this SAMP) and \$25 million to hatcheries funded by the F&W Direct Program. These funds will address many outstanding maintenance needs within both programs. The F&W Program is leveraging these funds with the goal of eliminating 100% of the mission critical non-recurring maintenance needs and addressing all essential maintenance improvements with less than 0 years of life expectancy by 2027. This effort is discussed further in Sections 8, 9 and 10.

With new hatchery commitments underway, future capital funding levels are expected to increase over the next 3-7 years. Future expense funding levels are expected to be above present levels of ~\$49M as new assets are built, and existing assets continue to age. One of the main risks that affect the strategy execution is the fact that labor and material construction costs continue to increase throughout the region, which may limit BPA’s ability to fund newly proposed hatchery projects at current funding levels. Other risks include delayed construction projects due to land and water availability, and permitting and supply chain issues may impact fiscal year execution of current projected capital budgets.

### [Executive Summary - Lands](#)

BPA’s F&W Lands Program helps satisfy the agency’s legal obligations under the Northwest Power Act, Endangered Species Act, and other laws to protect, mitigate, and enhance fish and wildlife affected by the construction and operation of the FCRPS. The scope of this SAMP includes lands acquired specifically for wildlife and fish habitat, which comprises approximately 344,000 acres of land throughout Oregon, Washington, Idaho, Montana, and Nevada. BPA secures its assets in this category by permanently protecting the property for fish and wildlife habitat, such as through conservation easements, and requiring partners to submit land management plans identifying how the property will be managed for

that purpose.

The BPA Lands Program is structured to facilitate fulfillment of all Memorandum of Agreements (MOA) signed by BPA, including the Columbia Basin Fish Accords, Willamette Wildlife Mitigation Agreement, and Southern Idaho Wildlife Mitigation Agreement. BPA’s asset management program for lands has continued to mature since the preparation of the previous SAMP. The Lands team is working to improve sponsors’ submission of new and updated land management plans and developing a system to measure the status of the program and progress relative to mitigation obligations.

BPA will complete its largest existing settlement agreement in 2028. Future capital levels are expected to reduce slightly in 2028 and beyond after the completion of a large existing settlement. Expense levels are expected to be in line with present levels until current obligations are met. Fiscal year execution of these budgets will depend on the availability of land parcels and the willingness of landowners. Population influx throughout the region has increased land costs, and market influences continue to affect the project partners’ ability to purchase mitigation property at the appraised, fair market value. These are some of the main risks that affect the strategy execution.

## 2.0 ACKNOWLEDGEMENTS

### 2.1 Senior ownership

The responsibility for operational ownership, coordination, and updating of this strategy is assigned by the Environment, Fish and Wildlife (EFW) Executive Manager.

Jason Sweet, Executive Manager, Fish and Wildlife		Date:
Dorie Welch, Deputy Vice President, Environment, Fish and Wildlife		Date:
Scott Armentrout, Executive Vice President, Environment, Fish and Wildlife		Date:

### 2.2 Strategy Development Approach

#### 2.2.1 Key Contributors

EFW’s asset management team facilitated the development of this plan, with primary input from policy and implementation staff (who also function as subject matter experts), and with support from Business Operations (EWB). EWB represents EFW within BPA’s Asset Management Council (AMC) and provides coordination support to the asset management effort, and analytical support to the hatchery sub-program.

## 2.2.2 Key Activities

Activity	Description
<b>Asset Management Maturity Assessment</b>	<ul style="list-style-type: none"> <li>Conduct Asset Management maturity assessment by surveying EFW employees of various disciplines</li> </ul>
<b>Develop SAMP</b>	<ul style="list-style-type: none"> <li>Update the new 2024 Hatcheries and Lands SAMP version with new program and process information</li> <li>Review and Update Goals, Objectives, and Initiatives with reviews by SMEs and leadership, incorporating results from the maturity assessment</li> <li>Update SWOT analysis</li> <li>Review criteria for asset criticality, and assess asset condition and trends</li> <li>Produce charts, tables and analysis describing historical and future program costs</li> <li>Perform risk assessment to Hatcheries program with program SME input</li> <li>Develop strategy and planned future investments and spend levels</li> </ul>
<b>Review SAMP</b>	<ul style="list-style-type: none"> <li>Review SAMP with SMEs, EFW front office and OGC</li> <li>Communicate SAMP updates to NPCC</li> </ul>
<b>Publish SAMP</b>	<ul style="list-style-type: none"> <li>Incorporate changes from peer reviews and finalize document</li> <li>Provide SAMP to Asset Planning team for input into Asset Plan</li> </ul>

## 3.0 STRATEGIC BUSINESS CONTEXT

### 3.1 Alignment of SAMP with Agency Strategic Plan

BPA intends this SAMP to help BPA fulfill its legal obligations under the Northwest Power Act to protect, mitigate, and enhance fish and wildlife affected by the development and operation of federal hydroelectric projects of the Columbia River and its tributaries in a manner consistent with the purposes of the Northwest Power Act, the Fish and Wildlife Program adopted by the Northwest Power and Conservation Council (Council) under subsection 4(h) of the Northwest Power Act, and other environmental laws, including the ESA. The EFW program, including this hatchery and land strategic asset management plan, establishes the framework used to align our next ten years of investments and strategies with two of the Agency strategic goals: 1) sustain financial health, 2) mature asset management. Specifically for hatcheries, the focus will be on improving programs, standards, systems and processes for obtaining and maintaining asset information which will assist us in making better decisions on asset replacements from both a financial and reliability standpoint. For Lands, the focus is on working to improve sponsor compliance for submitting new and updated land management plans and developing a system to measure the status of the program and progress relative to mitigation obligations.

### 3.2 Scope- Hatchery

BPA funds several different types of hatchery and artificial production programs. The only assets that are within the scope of this SAMP are those assets actively managed by BPA, which are generally those located at hatchery or artificial production facilities that BPA purchased or built or in which BPA otherwise made a capital investment with direct funding through BPA's F&W Program. BPA often purchased or built these facilities to fulfill commitments made in the Columbia Basin Fish Accords. These agreements often provided that the tribal or state Accord partner would have permanent ownership of the facility after purchase or construction was complete. This creates a unique situation where BPA is monitoring and managing assets that are owned and operated by other entities. Nevertheless, BPA intends to protect past investments, which, in turn, helps ensure mitigation obligations are met. The primary hatchery facilities where BPA is actively managing assets, which are within

the scope of this plan, are presented in Table 3.

There are some instances in which BPA funded the construction of a new facility but did not commit to fund the operations and maintenance (O&M) of the facility once construction was complete. In those cases, asset management responsibility falls to the long-term O&M funding source, so the assets are not within the scope of this SAMP. Similarly, in some cases, BPA funding plays a relatively minor role in a facility’s function and fish production. In these cases, BPA funds routine asset maintenance but does not manage the assets; therefore, those facilities are not within the scope of this SAMP.

BPA also funds certain hatchery programs managed by partner federal agencies through a Direct Funding Agreement (DFA). DFAs are currently in place with the U.S. Army Corps of Engineers, the U. S. Bureau of Reclamation, and for the Lower Snake River Compensation Plan administered by the U.S. Fish and Wildlife Service. Because BPA does not actively manage assets for those programs, hatchery assets existing under those programs are not within the scope of this SAMP.

**Scope- Lands**

The scope of this SAMP extends to all lands acquired for fish and wildlife habitat with BPA funding under the Lands Program.

**3.3 Asset Description and Delivered Services - Hatcheries**

BPA-managed hatchery assets that are within the scope of this SAMP are presented in Table 3.3-1. Many of the hatcheries listed are associated with smaller adult fish traps or juvenile acclimation sites. Only the primary hatchery is listed as the smaller sites are considered satellite facilities under the larger hatchery complex. The hatchery operator in nearly all cases is also the facility owner. At a program-level scale, each hatchery complex is considered an asset. Within each hatchery complex, assets are further subdivided and tracked at the equipment level (e.g., a bank of raceways, diesel generator, and pollution abatement pond). In general, the hatchery assets provide services that continue to support BPA’s mitigation obligations under the Northwest Power Act and ESA.

*Table 3.3-1, BPA EFW Hatchery Assets*

Hatchery Complex	Operator	Focal Species	Hatchery Program Type
Nez Perce Tribal Hatchery	Nez Perce Tribe	Snake River Spring/Summer Chinook (not listed); Snake River Fall Chinook (Threatened)	Conservation/Supplementation and Safety Net hatchery programs
Colville Hatchery	Colville Tribe	Triploid Rainbow Trout	Supplementation
Parkdale Hatchery	Warm Springs Tribe	LCR Spring Chinook (Threatened); LCR Steelhead (Threatened)	Conservation/Supplementation
Kootenai Tribal Hatchery	Kootenai Tribe	White Sturgeon (Endangered)	Conservation

Twin Rivers Hatchery	Kootenai Tribe	White Sturgeon (Endangered); Burbot	Conservation
Umatilla Hatchery	ODFW	MCR Spring Chinook; Snake River Fall Chinook; MCR Steelhead (Threatened)	Conservation/Supplementation
Sekokini Springs Hatchery	MT Dept. FW & Parks	Westslope Cutthroat	Conservation/Supplementation
Sherman Creek Hatchery	WDFW	Triploid Rainbow Trout	Supplementation
Spokane Tribal Hatchery	Spokane Tribe	Triploid Rainbow Trout; Triploid Kokanee Salmon	Supplementation
Kalispel Tribal Hatchery	Kalispel Tribe	Triploid Rainbow Trout	Supplementation
<b>Hatchery Complex</b>	<b>Operator</b>	<b>Focal Species</b>	<b>Hatchery Program Type</b>
Cle Elum Hatchery	Yakama Tribe	MCR Spring Chinook	Conservation/Supplementation
Mel R Sampson (MRS) Coho	Yakama Tribe	Coho (unspecified population);	Conservation/Supplementation
Chief Joseph Hatchery	Colville Tribe	UCR Spring Chinook (Endangered); UCR Summer/Fall Chinook; Spring Chinook experimental population	Conservation/Supplementation
Springfield Hatchery	IDFG	Snake River Sockeye Salmon	Safety Net
Eagle Fish Hatchery	IDFG	Snake River Sockeye Salmon	Safety Net
Walla Walla Hatchery	Umatilla Tribe	MCR Spring Chinook	Conservation/Supplementation

### [Lands: Asset Description and Delivered Services](#)

The Lands Program funds the acquisition of lands that meet certain criteria to satisfy BPA's fish and wildlife mitigation obligations. This includes funding for fee-title acquisitions, leases, and purchases of conservation easements. BPA may also commit to provide stewardship funds in future timeframes to maintain or enhance the habitat values of specific properties. BPA typically does not take title to these properties, engage in direct management, or take on responsibilities or liabilities associated with ownership of the properties.

The acquisition of specific properties is generally accomplished through sponsors who identify the property in



question, recognize its habitat value, propose acquisition, complete all federal due diligence requirements, and take final ownership of the property or conservation easement. Sponsors include public agencies (e.g., Idaho Fish & Game), sovereigns (e.g., the Yakama Nation), or private entities (e.g., The Nature Conservancy).

Acquired lands for the purposes of this SAMP fall into one or more of the following mitigation program categories:

- wildlife habitat
- fish habitat

Table 3.3-1 provides a summary of the F&W Program’s land assets, and Figure 3.3-2 depicts the locations of these land assets.

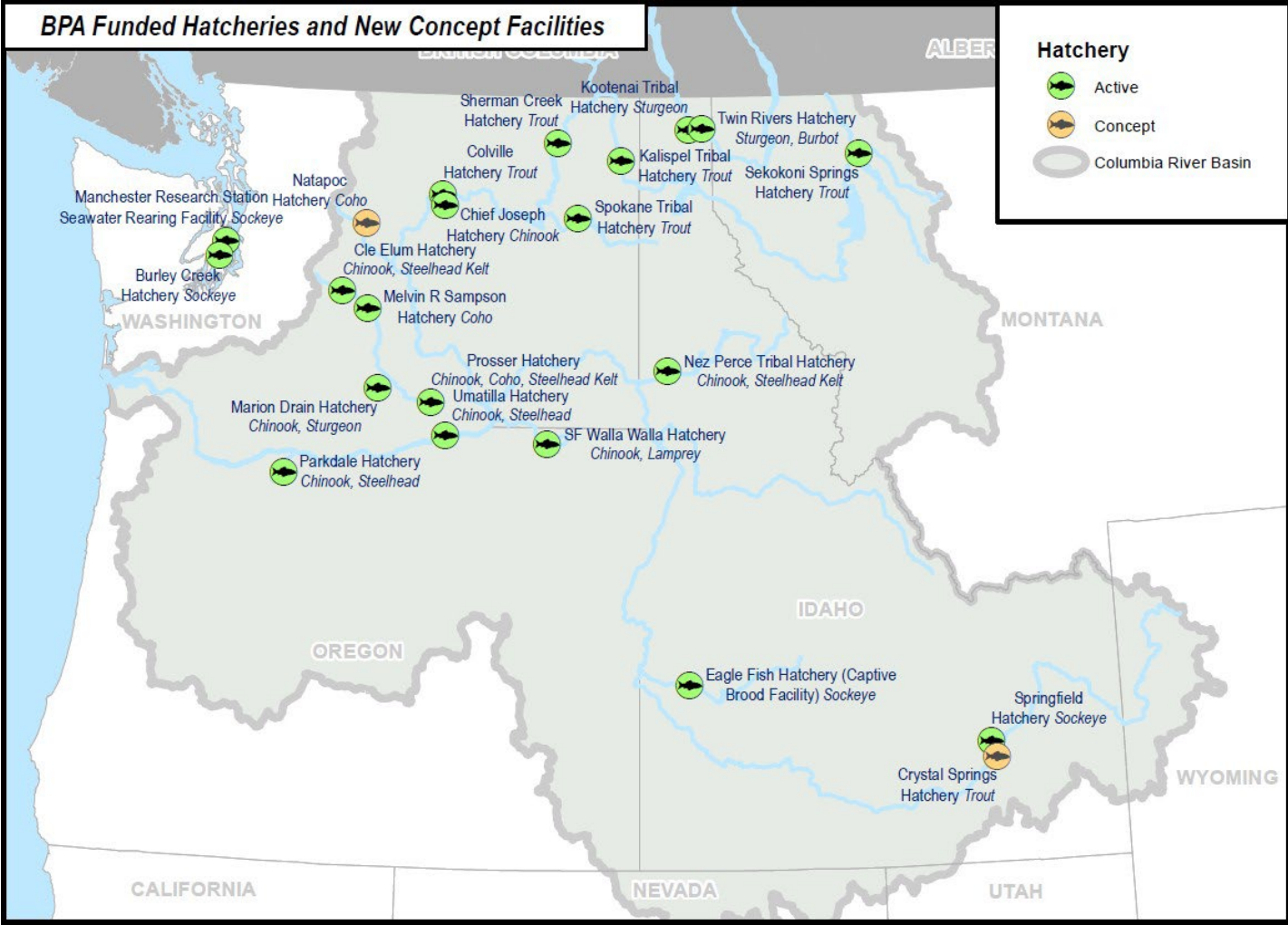
*Table 3.3-1 Summary of Land Assets*

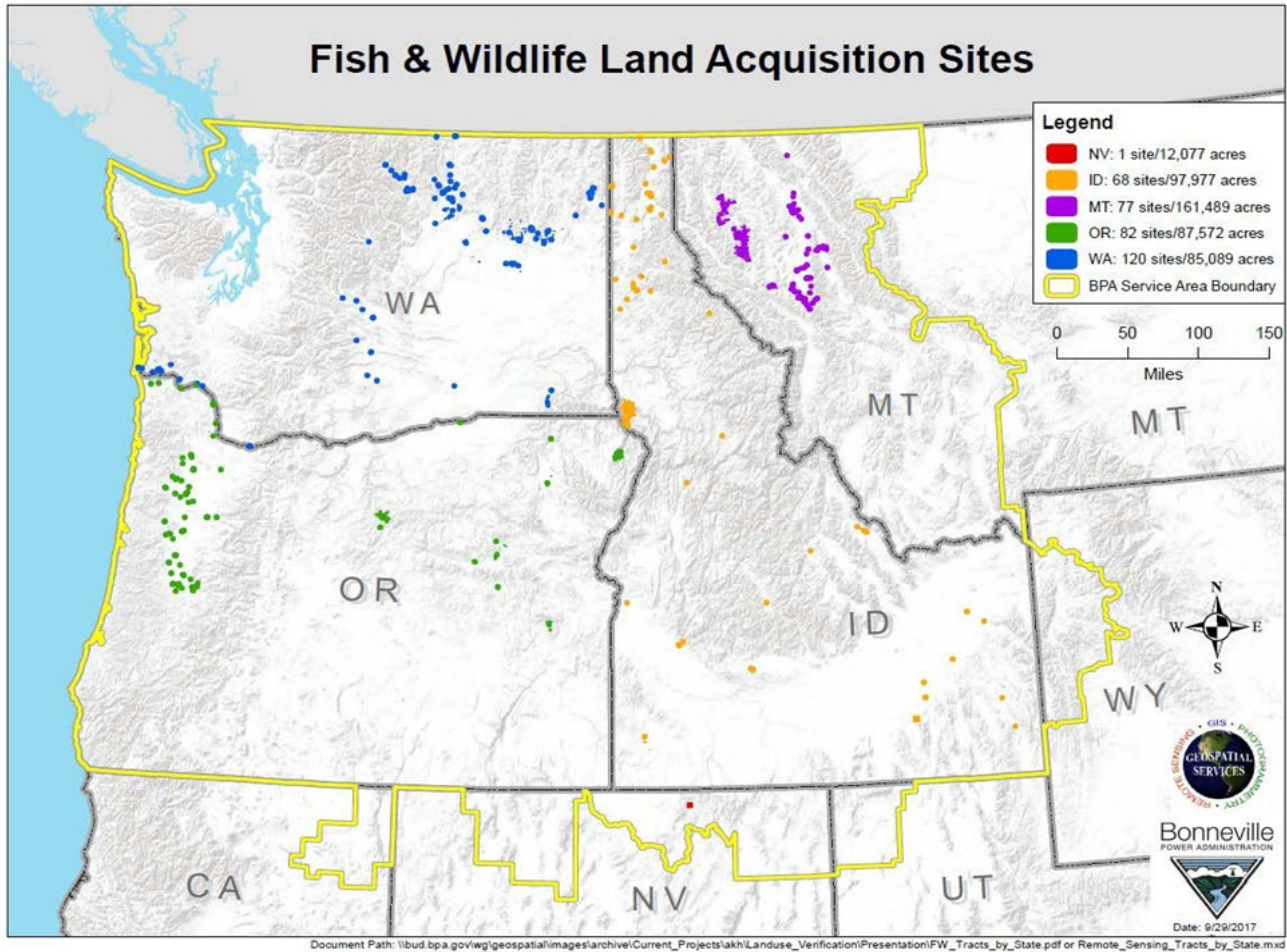
<b>State</b>	<b># sites</b>	<b>Acreage</b>
Nevada	1	938
Idaho	98	47,250
Montana	98	35,163
Oregon	137	133,717
Washington	229	127,167
<b>Total</b>	<b>563</b>	<b>344,234</b>

*Figure 3.3-2, Asset Locations – Hatchery and Land*

This figure includes BPA funded hatcheries receiving operations and maintenance funding. The placeholders for ‘concept’ facilities will be updated in a future map to adjust for changes and additions to current commitments. As an example, placeholders for new projects through BPA agreements with the Coeur d’Alene and Spokane Tribes will be added. Please note that Natapoc Hatchery will not be constructed, and capital dollars have been directed to the Trinity Acclimation site as outlined in the SAMP.

Asset locations are provided below for both the Hatchery and Land Programs.





### 3.4 Demand Forecast for Services

Hatchery assets provide services that support BPA’s mitigation obligations arising from the construction and operation of federal dams in the Columbia River Basin.

For Land assets, over the next 5-10 years, BPA expects to maintain the program at its current levels.

### 3.5 Strategy Duration

The duration of this strategy is expected to be 10 years. The strategy will be reviewed annually and republished every 2 years unless there is a significant change in strategy at the annual review.

## 4.0 STAKEHOLDERS

### 4.1 Asset Owner and Operators - Hatchery

BPA generally does not permanently own or operate hatchery assets; they are typically owned by the entity that operates the facility. BPA coordinates and contracts with tribes, states, and other regional organizations, both public and private, for the operation and maintenance of hatchery facilities throughout the Columbia River Basin. BPA coordinates management, condition assessments, prioritization, and funding of asset maintenance or replacement, while the asset operators typically perform the required work at a facility. If large-scale asset replacement is required and the work exceeds the hatchery operator’s expertise or ability, BPA will solicit and hold the contract with private industry firms to complete the work.

#### Land Assets:

The legal title to most lands purchased with BPA funds through the Lands Program is held by entities referred to as “sponsors.” Sponsors typically initiate the proposal to identify and acquire specific properties and develop much of the site-specific documentation. The property title may also remain in the hands of a non-sponsor owner if BPA funds are only used to acquire a lease or conservation easement for the property in question. Rarely, however, is the property title held permanently by BPA. Instead, BPA generally holds a conservation easement over the property, or a third-party right of enforcement when only a conservation easement is purchased by a sponsor, in exchange for the provision of funding for the acquisition.

Sponsors generally fall into the following categories:

- state agencies, such as Oregon Department of Fish and Wildlife
- Indian tribes, such as the Confederated Tribes and Bands of the Yakama Nation
- private entities, such as Trout Unlimited

### 4.2 Stakeholders and Expectations

*Table 4.2-1, Stakeholders: Hatchery*

Stakeholders	Expectations	Current Data Sources	Measures
Sponsors (Tribes, States, other federal agencies)	Collaboration	BPA Tribal Affairs Organization Project Manager Contracting Officer’s Representative (COR)	Annual Reports
	Project/Contract Management	CB Fish Work Elements Project Documents	Milestones Status Reports
	Funding	CB Fish (web-based contract management tool) Asset Suite Contracts Module Line Item Budgets SOY Process	Invoices Due Diligence
	Communications	Project Manager COR	CB Fish WE Milestones WE Reports Project Manager
	Compliance Monitoring	On-site Visits	Periodic Reporting Annual Report

Northwest Power and Conservation Council	Collaboration	Council Meetings and Agendas Sub-Committees BPA Staff	F&W Program Reports Council Reports and Categorical Reviews of F&W Program Sub-committee Participation Analyses and Recommendations
	Program Implementation	Council Meetings, Agendas, and Reports BPA F&W Reports	Periodic Reports Program Metrics
	Funding	CB Fish, Council Financial Statements	Annual Financial Reports BPA Financial Reports (4h10c)
Regulators	Safety	Industry Regulations and Standards	Incident Report Statistics and Non-compliances
Staff	Safety	Public Safety Management System	Non-conformance Records
Public	Safety	Public Safety Management System	Non-conformance Records

*Table 4.2-1 Stakeholders: Land*

Stakeholders	Expectations	Current Data Sources	Measures
Tribes	Collaboration	BPA Tribal Affairs organization Power and Trans. Account executives Project manager	<ul style="list-style-type: none"> <li>Survey results</li> <li>Annual reports (engagements)</li> </ul>
	Project management	Pisces WE #5, Land Purchase and/or Conservation Easement Realty (LIS) documents	<ul style="list-style-type: none"> <li>Milestones</li> <li>Acquisition closing (Realty)</li> </ul>
	Funding	Pisces, Asset Suite contracts module	<ul style="list-style-type: none"> <li>Invoices</li> <li>Escrow payment</li> <li>Due diligence</li> </ul>
	Communications	initial intake call, project manager, site visits	<ul style="list-style-type: none"> <li>Pisces WE #5 milestones</li> <li>WE reports</li> <li>PM, land acquisition team communications</li> </ul>
	Compliance monitoring	remote sensing (aerial photos), and on-site visits	<ul style="list-style-type: none"> <li>Periodic reporting</li> <li>Sponsor's annual report</li> </ul>
Non-Tribal Partners	Project management	Pisces WE #5, Land Purchase and/or Conservation Easement Realty (LIS) documents	<ul style="list-style-type: none"> <li>Milestones</li> <li>Acquisition closing (Realty)</li> </ul>
	Funding	Pisces, Asset Suite contracts module (see Work Element 200, stewardship)	<ul style="list-style-type: none"> <li>Invoices</li> <li>Escrow payment</li> <li>Due diligence</li> </ul>
	Communications	initial intake call, project manager, site visits	<ul style="list-style-type: none"> <li>Pisces WE #5 milestones</li> <li>WE reports</li> <li>PM, land acquisition team communications</li> </ul>
	Compliance monitoring	remote sensing (aerial photos), and on-site visits	<ul style="list-style-type: none"> <li>Periodic reporting</li> <li>Sponsor's annual report</li> </ul>

Northwest Power and Conservation Council	Collaboration	Council meetings and agendas, sub-committees	<ul style="list-style-type: none"> <li>• F&amp;W Program reports</li> <li>• Council reports; NPCC categorical reviews of F&amp;W Program</li> <li>• Sub-committee participation</li> <li>• Analyses and recommendations</li> </ul>
	Program implementation	Council meetings, agendas, reports; BPA F&W reports, Pisces Council financial statements	<ul style="list-style-type: none"> <li>• Periodic reports</li> <li>• Program metrics</li> <li>• Annual financial reports</li> <li>• BPA financial reports</li> </ul>
State Agencies (+ Sponsors role)	Collaboration	Project manager Power and Trans. Account executives	<ul style="list-style-type: none"> <li>• Survey results</li> <li>• Annual reports (engagements)</li> </ul>
Local Governments	Collaboration	Project manager Power and Trans. Account executives	<ul style="list-style-type: none"> <li>• Survey results</li> <li>• Annual reports (engagements)</li> </ul>
Other Federal Agencies (+ Sponsors role)	Collaboration	Project manager	<ul style="list-style-type: none"> <li>• Survey results</li> <li>• Annual reports (engagements)</li> </ul>

## 5.0 EXTERNAL AND INTERNAL INFLUENCES

Increased costs for operations and maintenance of the existing and aging fleet of hatcheries are further impacted by supply chain impacts in recent years. In addition, BPA has committed to the construction of new hatchery facilities, which will contribute to increased expense budget requirements for O&M of the new facilities once construction is completed. Having the right resources available for BPA and partners will be crucial to the execution of the plan.

*Table 5.0-1, External and Internal Influences - Hatchery*

External Influences	Affects and Actions
Federal laws/regulations specific to BPA	BPA has legal obligations under the Northwest Power Act to protect, mitigate, and enhance fish and wildlife affected by the development and operation of federal hydroelectric projects of the Columbia River and its tributaries in a manner consistent with the purposes of the Northwest Power Act, the Fish and Wildlife Program adopted by the Council under subsection 4(h) of the Northwest Power Act, and other environmental laws, including the ESA.
Federal environmental laws	BPA's actions are subject to the procedural and substantive requirements of federal environmental laws (e.g., the ESA, Clean Water Act (CWA), National Environmental Policy Act (NEPA), etc.). BPA's Environmental Planning and Analysis (EC) organization will continue to provide regulatory expertise and site analysis for the hatchery program.

Climate change	<p>Climate change effects are uncertain, particularly at specific localities. In general, it is anticipated that environmental changes will result in changes to existing habitats and will stress the ability of fish and wildlife to adapt. Hatchery infrastructure and operations will likely need to adapt in order to continue to raise fish successfully. For example, hatchery water supplies may continue to warm as rivers, lakes and reservoirs rise in temperature. In order to achieve sufficient water quality standards necessary for raising salmonids, hatcheries across the region may require additional water chilling infrastructure in the future. Or, if chilling infrastructure is already in place, climactic change may necessitate operating that infrastructure for longer time periods.</p> <p>Actions to address the impacts of climate change may include changes to the strategic plan for constructing hatcheries throughout the region or redirection of hatchery development to support newly threatened species, etc. Such actions might be considered, as necessary, in attempting to maintain the mitigation value of the hatchery program.</p>
Construction and project delivery costs	<p>As land and construction costs continue to increase throughout the region, this may limit BPA’s ability to fund newly proposed hatchery projects. Identifying cost efficiencies and savings will become more critical to ensure BPA can continue to fund the construction and O&amp;M of new and existing hatcheries.</p>
Operations and maintenance costs	<p>It is critical that annual operation and maintenance budgets for hatchery projects continue to receive an appropriate level of funding to ensure that important maintenance activities are completed on schedule to reduce the likelihood of emergency maintenance needs in the future.</p> <p>Scheduled preventative maintenance programs for hatcheries reduce unexpected operating and maintenance costs and provide greater reliability of hatchery assets and predictability of program costs. Fish and Wildlife will continue to work with the Council and hatchery operators to strategize and plan for future O&amp;M funding needs. As proposed facilities become operational, O&amp;M costs will increase.</p>

*Table 5.0-1, External and Internal Influences: Land*

External Influences	Affects and Actions
Federal laws/regulations specific to BPA	<p>BPA has legal obligations under the Northwest Power Act to protect, mitigate, and enhance fish and wildlife affected by the development and operation of federal hydroelectric projects of the Columbia River and its tributaries in a manner consistent with the purposes of the Northwest Power Act, the Fish and Wildlife Program adopted by the Council under subsection 4(h) of the Northwest Power Act, and other environmental laws, including the ESA. BPA has the authority pursuant to the Northwest Power Act, the Federal Columbia River Transmission System Act, or the Bonneville Project Act to acquire real estate, assist in the acquisition and transfer of real property interests, and dispose of real property.</p>
Federal laws	<p>BPA’s actions are subject to the procedural and substantive requirements of federal environmental laws (e.g., the ESA, CWA, NEPA, etc.). The EC organization will continue to provide regulatory expertise and site analysis for the land acquisition process.</p> <p>BPA’s acquisition of real property is also subject to federal due diligence requirements, including, but not limited to, compliance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act, federal appraisal standards, and federal title review regulations.</p>

Land use patterns	<p>Land use patterns and history affect current and future land acquisition decisions by (1) increasing costs due to remediation of negative features (e.g., dikes or hazardous waste), and/or (2) limiting the habitat value of the parcel in question (sometimes, simply by proximity to a compromised property).</p> <p>Actions to address land use issues will primarily consist of site-specific determinations of the net value and benefit of a property – evaluating the habitat benefits (both at the site and as a contribution to the larger program) versus the limitations or costs imposed by past or current land use.</p>
Population growth	<p>Expected population growth in the region, with increased resource demands, is likely to negatively impact natural ecosystems and thus increase the need for protecting fish and wildlife habitat. In some locales, population increase may also spur significant increases in property values and the cost of acquiring new parcels and limit the parcels available.</p> <p>Determination of strategic priorities will be informed by evaluations of risk, availability of suitable properties, and best use of available funding.</p>

### 5.1 SWOT Analysis

The following tables outline current strengths, weaknesses, opportunities and threats for the hatchery and land asset management programs. Although asset management for both are still developing, many favorable conditions exist which position future efforts to gain a more comprehensive and proactive approach to asset management.

*Table 5.1-1: Strengths, Weaknesses, Opportunities and Threats for the Hatchery Asset Management Program*

Favorable	Unfavorable
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• The program maintains solid, collaborative relationships with hatchery operators</li> <li>• Regular communication to Council on strategic asset management plans</li> <li>• Coordination on project prioritization with Council</li> <li>• Completed health assessment for all assets in FY23</li> <li>• Data base which contains health info, criticality of assets and cost</li> <li>• BPA EFW program maintains a Hatchery Sub-Program which includes a team lead position for Policy, Construction and O&amp;M. The team actively leads work with BPA project managers, hatchery operators, Council and BPA leadership.</li> <li>• Dedicated project manager for hatchery asset management</li> </ul>	<ul style="list-style-type: none"> <li>• BPA is the funding entity and lacks ownership and direct maintenance responsibility over many of the physical assets</li> <li>• Inability to directly develop or manage asset maintenance programs</li> <li>• No agreement or formalized process with our partners to provide updated health information, or to provide a plan for maintenance of assets</li> <li>• No formal process internally for updating asset data base</li> </ul>



Opportunities	Threats
<ul style="list-style-type: none"> <li>• Structured process for out-year planning of sustain and O&amp;M funding and forecasting</li> <li>• Quantification and better understanding of deferred maintenance</li> <li>• Develop standards for preventative maintenance or programs for assets – use AM software to populate standards and timing</li> <li>• Improved coordination with the Council, hatchery operators, and stakeholders in developing an asset management strategy for hatcheries</li> <li>• Increased focus on strategic staffing</li> <li>• Develop a robust list of vendors/competitive environment</li> <li>• Develop a reliable system for estimates</li> </ul>	<ul style="list-style-type: none"> <li>• External influences e.g. climate change, political decisions, regulatory oversight</li> <li>• Increased costs due to inflation</li> <li>• Aging infrastructure of facilities</li> <li>• Litigation</li> <li>• Lagging execution for construction projects due to water quality, permitting, supply chain and/or any other contributing factors that impact single fiscal year or IPR budget period capital availability</li> </ul>

*Table 5.1-1: Strengths, Weaknesses, Opportunities and Threats for the Land Asset Management Program*

Favorable	Unfavorable
<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Engaged and collaborative regional stakeholders, partners, and sponsors</li> <li>• Established processes to facilitate land purchases</li> <li>• Long history as a program and progress toward completing negotiated settlements</li> </ul>	<ul style="list-style-type: none"> <li>• BPA is working with sponsors to improve timely submittal of land management plans and annual reports, as necessary.</li> <li>• BPA’s O&amp;M responsibility for properties varies across the Program</li> <li>• Staff turnover in EFW, realty and legal presents challenges with implementing a consistent, sustainable strategy</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Improved coordination with sponsors and stakeholders in developing better asset data (annual reporting) and land management plans</li> </ul>	<ul style="list-style-type: none"> <li>• Population influx throughout the region may also drive-up land costs.</li> <li>• Limited financial resources to support ongoing management of existing land acquisitions.</li> <li>• Market influences continue to affect sponsors ability to purchase mitigation property at the allowable appraised value.</li> <li>• Government land purchase processes slow and cumbersome</li> </ul>

## 6.0 ASSET MANAGEMENT CAPABILITIES AND SYSTEM

Using the Institute of Asset Management maturity model, EFW staff evaluated the maturity of the Hatchery Asset Management Program in six different categories. On average, the maturity level across all categories (Strategy and Planning, Decision Making, Life Cycle Delivery, Asset Information, Organization and People and Risk and Review) is 1.5 on a scale of 0 – 4. For the most part the program has identified the means of systematically and consistently achieving competency in these subjects and can demonstrate progression with credible and resourced plans. Asset management is a fairly new discipline for EFW and currently processes are often done in a reactive mode although we are still able to achieve the expected results on a repeatable basis. Moreover, processes are insufficiently integrated, with limited consistency or coordination across the organization.

As part of the maturation of the Hatchery Asset Management Program, EFW recruited an Asset Management Program Manager to assist with furthering the program and to facilitate related communications within EFW and the agency at large. Also in 2023, EFW updated the 2017 health assessments on all hatchery assets. The BP-22 EFW SAMP and its complementary 2017 hatchery health assessment was used to support an allocation by the Administrator of \$50M made available through the FY22 Reserves Distribution Clause (RDC) to address non-recurring hatchery maintenance needs. This unanticipated but opportune allocation required cross-organizational effort to ensure the prioritized work had environmental compliance and the appropriate contracting vehicle in place. EFW’s asset program continues to mature through quarterly tracking of execution on capital projects and a better and more proactive understanding of asset maintenance needs.

While hatchery operators share involvement in the asset management of hatcheries, this maturity survey was completed from a BPA perspective. The following section identifies strengths and weaknesses of the program.

### 6.1 Current Maturity Level-Hatchery

Based on the results of the maturity model and the associated survey, the current maturity level of the Hatchery Asset Management Program is still in the development phase. While there are weaknesses in the areas analyzed, staff have identified areas of improvement.

*Table 6.1-1 Maturity Level - Hatchery*

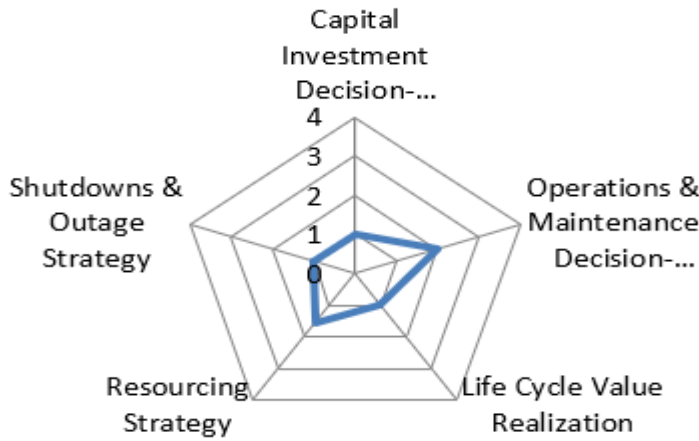


**Strength:** BPA staff has worked collaboratively with Council and hatchery operators to develop and implement a hatchery O&M strategy. SAMP objectives are developed, and the Asset Plan sets action plans for completion. EF&W follows the Agency level policies on Asset Management.

**Weakness:** While we follow policies at the Agency level, we do not have policies specific to EF&W except for the EF&W capitalization policy. SAMP objectives and action plans are not well understood in the organization.

Decision Making

**Decision Making**

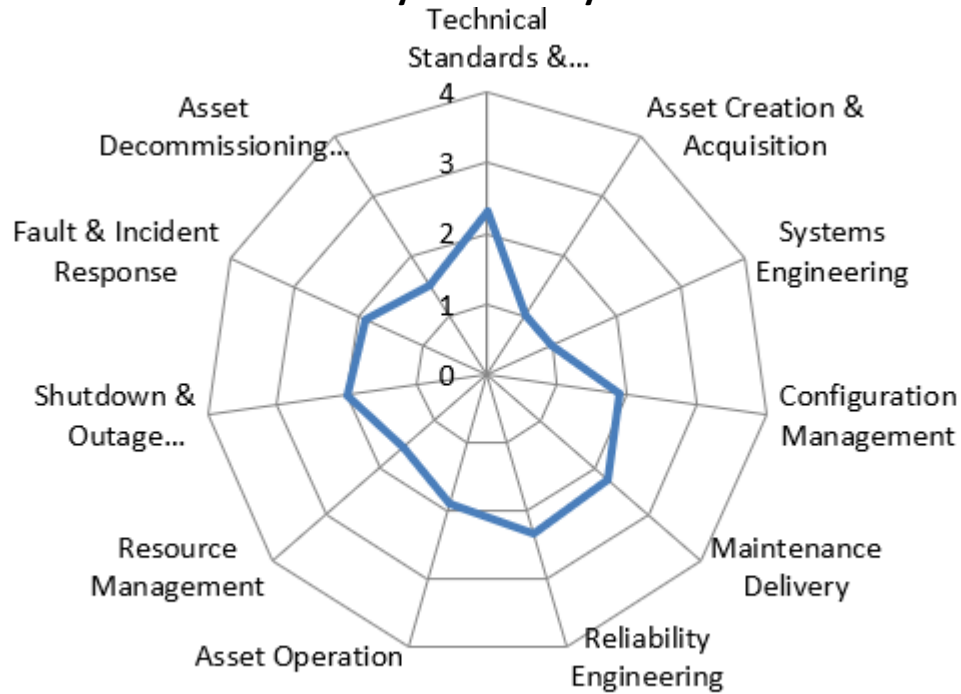


**Strength:** Decisions regarding strategy and planning are made with consideration for consistency with the Council’s Fish and Wildlife Program and in compliance with the requirements of federal environmental laws (i.e., ESA, NEPA, etc.).

To cover existing capital and O&M portfolio work, resource forecasting is coordinated across multiple departments and staffing needs updated.

**Weakness:** O&M funded contracts include specific work elements, milestones, and deliverables for hatchery maintenance. However, prioritization of critical maintenance needs is done by operators of the hatchery and the Northwest Power and Conservation Council Asset Management Sub-committee with review and final decision by EF&W. Initial capital investment decisions are made at the executive level of the Agency based on long term funding agreements and other situational priorities. The source of new O&M funding may or may not be identified when the initial capital investment decision is made. Changes in the capital portfolio causes resourcing needs to be assessed across multiple organizations.

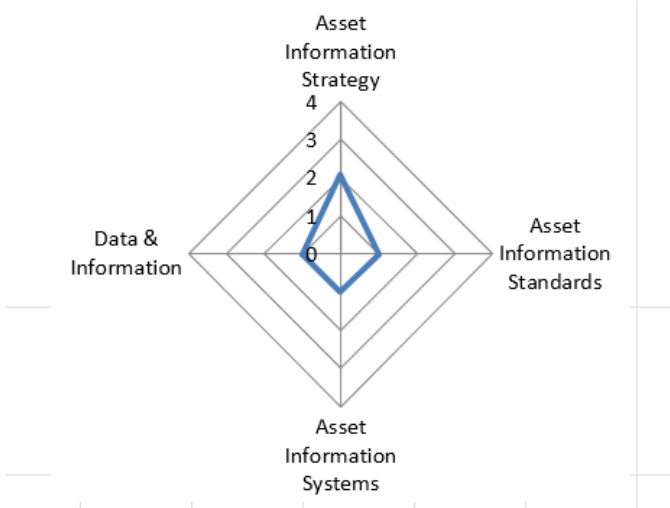
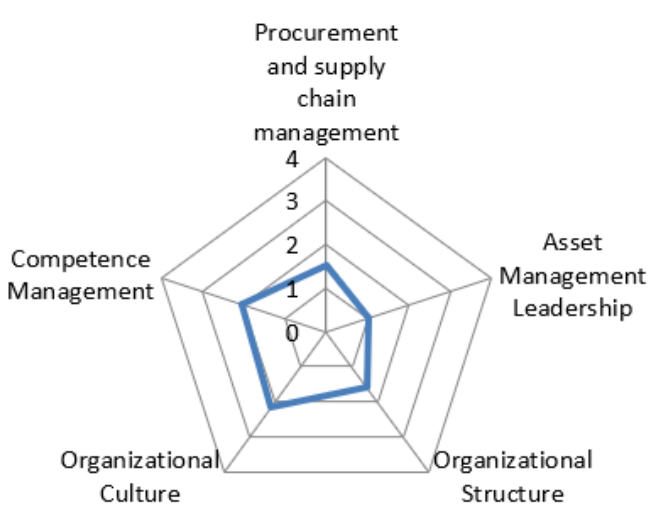
### Life Cycle Delivery




**Strength:** Building codes are followed, and some standards are set with technical work.

**Weakness:** Processes are not written down regarding asset management standards and risks. Lifecycle costs are not understood as most information is maintained by partners.

Much of this section is not applicable to EF&W as it deals with power related subjects.

Subject Area	Maturity Level
<p>Asset Information</p>	<p style="text-align: center;"><b>Asset Information</b></p>  <p><b>Strength:</b> BPA has an inventory of our assets, updated health information and asset cost data. In addition, we have assigned criticality levels and set expiration dates for each asset.</p> <p><b>Weakness:</b> Ongoing asset data is captured and maintained by hatchery operators, limiting access to data contained within a single centralized system. Processes for maintaining health information and for ensuring new assets are captured needs to be developed.</p>
<p>Organization &amp; People</p>	<p style="text-align: center;"><b>Organization and People</b></p>  <p><b>Strength:</b> Roles and responsibilities are defined in MOAs, contracts, or cooperative agreements with the hatchery operators. Cost standards are defined and followed for government projects. AM objectives are defined and documented. Communication on AM is improving, and there is support for this as an Agency strategic goal.</p> <p><b>Weakness:</b> There is a basic understanding of AM in the organization, but it is not yet fully integrated into the business processes.</p>

Subject Area	Maturity Level
Risk & Review	<p style="text-align: center;"><b>Risk and Review</b></p>  <p><b>Strength:</b> Standards for key personnel in the SOW for construction are set, and when funding is above capitalization thresholds for asset replacements, it is documented. Health data is available, and standards are set for life expectancy. Contact and communication with partners is a priority and conducted through various channels.</p> <p><b>Weakness:</b> SAMP and AP only documents for auditing asset management program objectives and progress, updates are on a 5-year interval for health information, only understand initial asset cost, but not lifecycle costs. With the information that is available, BPA can only measure financial and reliability risks.</p>

### Current Maturity Level – Lands

As land is a unique asset, most of the AM maturity model does not apply to the Lands Program. However, there are some principles that apply:

- **Strategy and Planning:**
  - **Strength:** Land AM has a SAMP and an Asset Plan which are very well aligned. The SAMP contains 5-year strategic goals for the improvement of the program.
  - **Weakness:** The connecting thread from regional strategy to individual acquisitions represented is that the process is based on availability and opportunity within the current structure and criteria, rather than strategy.
- **Asset Information:**
  - **Strength:** Individual stakeholders (such as Realty) have clear accountability for specific records and standardized processes for managing those records; the Fish & Wildlife Lands Deskbook lists key steps and records in the acquisition process.
  - **Weakness:** Records are in formats, systems, and locations that do not easily generate metadata, summaries, or status reports. However, comprehensive lists and information about the lands inventory have been developed in the last seven years, and EFW regularly updates summary reports on resident fish and wildlife mitigation progress compared to the end state. Asset information is not easily retrieved or duplicated.
- **Organization and People:**
  - **Strength:** Roles and responsibilities are well defined internally, and externally through MOAs. Action is being taken to brief management on the results of the program and resolve issues proactively.

- **Weakness:** Staff tends to be spread thin and have limited bandwidth for addressing long-term program needs. There is frequent turnover, and it is difficult to maintain institutional knowledge. Responsibilities for the program are spread across multiple organizations.

## 6.2 Long Term Objectives – Hatchery

The following long-term objectives are meant to improve the transparency, responsiveness, and accountability of the Hatchery program so it can strategically manage its assets, effectively and efficiently mitigate for the federal hydro system, and provide biological benefits to fish and wildlife throughout the region. Through this plan, the goal is to ensure the longevity and integrity of past investments made for the benefit of fish and wildlife by BPA’s Fish and Wildlife Program.

### **Asset Performance/Asset Data**

- Improve asset data to include standardization of definitions for health grades and asset maintenance program requirements by 2028.
- Develop and improve processes for maintaining, updating, and sharing asset health information and acquire a Structured Electronic Information Systems (SEIS) for real-time sharing of asset data between entities by 2028.

### **Asset Management Training**

- Develop and implement a basic asset management education program for our partners by 2028.

## Long Term Objectives - Land

### **Asset Management:**

- Improve sponsor compliance to 100% for submitting new and updated land management plans post-acquisition or expiration by FY 2028.

### **Asset Condition:**

- Develop a system to provide regular reporting on the condition of acquired lands with comprehensive characteristics and ability to measure the status of the program and progress relative to mitigation obligations by 2028.

## 6.3 Current Strategies and Initiatives – Hatchery

### **Asset Performance /Data/Training**

In 2017, BPA contracted with an engineering firm to conduct condition assessments at facilities where BPA is actively managing assets. Prior to this assessment, sparse and discontinuous data was available for asset condition. The engineering firm delivered reports for each hatchery asset, which included a list of all major equipment and infrastructure. Each individual asset was assigned a criticality category, and the reports document installation date, life expectancy, remaining useful life estimates and replacement cost. This information allows for future year planning and prioritization among all hatchery assets within the program. This assessment was formally updated in 2023 with the assistance of a different engineering firm to track asset condition and function. Two new hatchery assets that were recently constructed were included in this assessment, and updates to formally assessed facilities were completed. The 5-year condition assessments will continue to provide critical data needed for decision making and prioritization of available funding.

Although the hatchery team has updated health information, there is not a process in place for updating and maintaining the information on a more frequent basis. In addition, we want to ensure our partners understand what assets are, how criticality is defined, how health scores are determined and how we calculate risk. The hatchery program would also like to understand what maintenance plans there are, and how maintenance is performed and prioritized. It would also be beneficial to understand risks better in the areas of safety and environmental compliance.

To begin this, BPA needs to ascertain if partners are fulfilling existing contract requirements, particularly for maintenance requirements. If maintenance plans or guidelines are not sufficient, it will require EF&W to include additional information in the contracts.

The EF&W Hatchery sub-program needs to develop a holistic education program that provides basic information and guidance on asset management and its tenets, an understanding of criticality, and why health updates are important. In addition, the hatchery program needs to find a SEIS where data can be shared with partners and updated by them. A better understanding of asset management and access to partners' data will help them to develop/improve their maintenance programs and give the hatchery program real-time information in order to understand priorities based on the condition of the asset.

## **Current Strategies and Initiatives - Land**

### **Inventory & Land Management Plans**

The inventory of acquired lands is officially held with the Realty Services group. The F&W group has incorporated the majority of the inventory into Pisces web. Land Management Plans for individual properties, or groups of related properties, provide a reference standard to identify goals and objectives related to the management of the property for the purpose for which the property or easement was purchased, to validate that common concerns have been identified, and that a plan is in place to address them. In addition, these plans ensure that the conditions to be monitored are customized and specific for a given property. The Fish & Wildlife Lands Deskbook describes the purpose of, and recommended structure and components for, Management Plans Site Assessment Cycle.

There is an on-going effort to track land management plans, annual reporting, and monitoring activities in Pisces Web. The goal is to develop a system to provide regular reporting on the condition of acquired lands with comprehensive characteristics and the ability to measure progress and status of the program relative to mitigation obligations by 2028.

### **Remote Monitoring**

Properties are examined via remote sensing tools (e.g., aerial photos) on a cycle of every 5 years and scheduled for on-site visits if conditions warrant. The current processes and procedures for assessments are standardized in the Fish & Wildlife Lands Deskbook. The Lands program assessed opportunities for improvement of these processes. Documentation and improvement of the workflow will be required so the process is repeatable. Once that is complete, automation of the new workflow will be required to increase annual reporting compliance rates.

## **6.4 Resource Requirements - Hatchery**

The hatcheries sub-program will need the following BPA resource requirements:



- Lead Manager Sponsor and BPA EFW Asset Management Committee Lead
- Policy Lead, O&M Lead, Design & Construction Lead, and EC Lead
- Engineering and Technical Services Lead
- Safety Office
- SharePoint, IT, and administrative and meeting coordination support

### Resource Requirements - Land

To complete the Land long term objectives, the EFW Lands Program currently operates and requires utilization of the following BPA resource functions:

- Lead Manager Sponsor
- EFW Lands Lead (EWM)
- Fish and Wildlife Project Administrators (EWM, EWL, EWU)
- Legal Counsel (LN)
- Realty Specialist and Realty Tech (TERR)
- Cartographer for Remote Analysis (TERG)
- [www.cbfish.org](http://www.cbfish.org)

Additional time and human resources are needed in order to focus on the strategy and complete the objectives. In addition, management support of the importance of completion of these objectives is required.

## 7.0 ASSET CRITICALITY

### 7.1 Criteria - Hatchery

Hatchery programs can be subdivided into program types. Program types often overlap, and many hatcheries serve multiple purposes with their programs. Although all hatchery program types serve important purposes, the following program types are listed in the generally accepted criticality order:

1. **Safety Net** – A program that prevents extinction and preserves the unique genetics of a population using captive broodstock to increase the abundance of the species at risk.
2. **Conservation** – A program that rebuilds and enhances the naturally reproducing fish population in their native habitats using locally adapted broodstock, while maintaining genetic and ecological integrity and supporting harvest where and when consistent with conservation objectives.
3. **Supplementation**- Artificial propagation to maintain or increase natural abundance while maintaining the long-term productivity of the target population. Supplementation program objectives may include rearing fish for conservation and/or harvest purposes.

**Note:** Many programs inherently have multiple purposes. Some programs may shift, depending upon demographics (e.g., a Safety Net action may be triggered by low returns in a conservation program).

In addition, to better understand criticality at the program level and how we might spend dollars on assets in a way that improves hatchery effectiveness, performance metrics have been developed to better understand the current effectiveness of BPA-managed hatchery programs. These metrics are:

- Operational costs per smolt released
- In hatchery survival rates
- Number of juvenile fish released vs. plan

These metrics will be studied over the next few years to ascertain if there are patterns or areas where we could prioritize investments in a way that would meet our asset management objectives while still improving the efficacy of the program.

At the asset level, the process to evaluate conditions of critical hatchery assets is outsourced to an external contractor in collaboration with the Council and hatchery operators, and defined into the following criticality:

1. **Mission Critical:** These asset elements are vital to facility operations. Failure of these assets would have direct, negative impacts to fish production (partial or complete loss of adults, juveniles, or eggs). Repair and timely replacement of these assets is critical to maintain facility operations.
2. **Mission Essential:** These asset elements are required for the facility to operate as intended. Failure of these assets may negatively affect fish production (partial loss, early release, increased susceptibility to disease). These assets should be repaired or replaced at regular intervals to prevent operational inefficiencies and limit disruption of fish production.
3. **Beneficial:** These asset elements are not required for the facility to operate as intended. However, these assets generally improve conditions at the facility and can provide operational efficiencies.

#### Criticality – Land

Criticality does not apply to the land program. Land purchases are made as land becomes available that meets the criteria. Maintenance costs are generally defined in the stewardship agreements between BPA and the sponsor. There is no further prioritization for funds which needs to be done after acquisition; therefore, criticality does not apply.

## 7.2 Usage of Criticality Model

The asset inventory for the Hatchery Program includes the condition and criticality of the component and associated O&M costs. Examples of components include tanks, pumps, generators, screens, compressors, and hoses. The hatchery program uses asset criticality definitions to prioritize replacements of assets and to measure reliability and financial risk.

Criticality does not apply to the Lands Program.

## 8.0 CURRENT STATE

### 8.1 Historical Costs

*Table 8.1-1 Historical Spend - Hatchery*

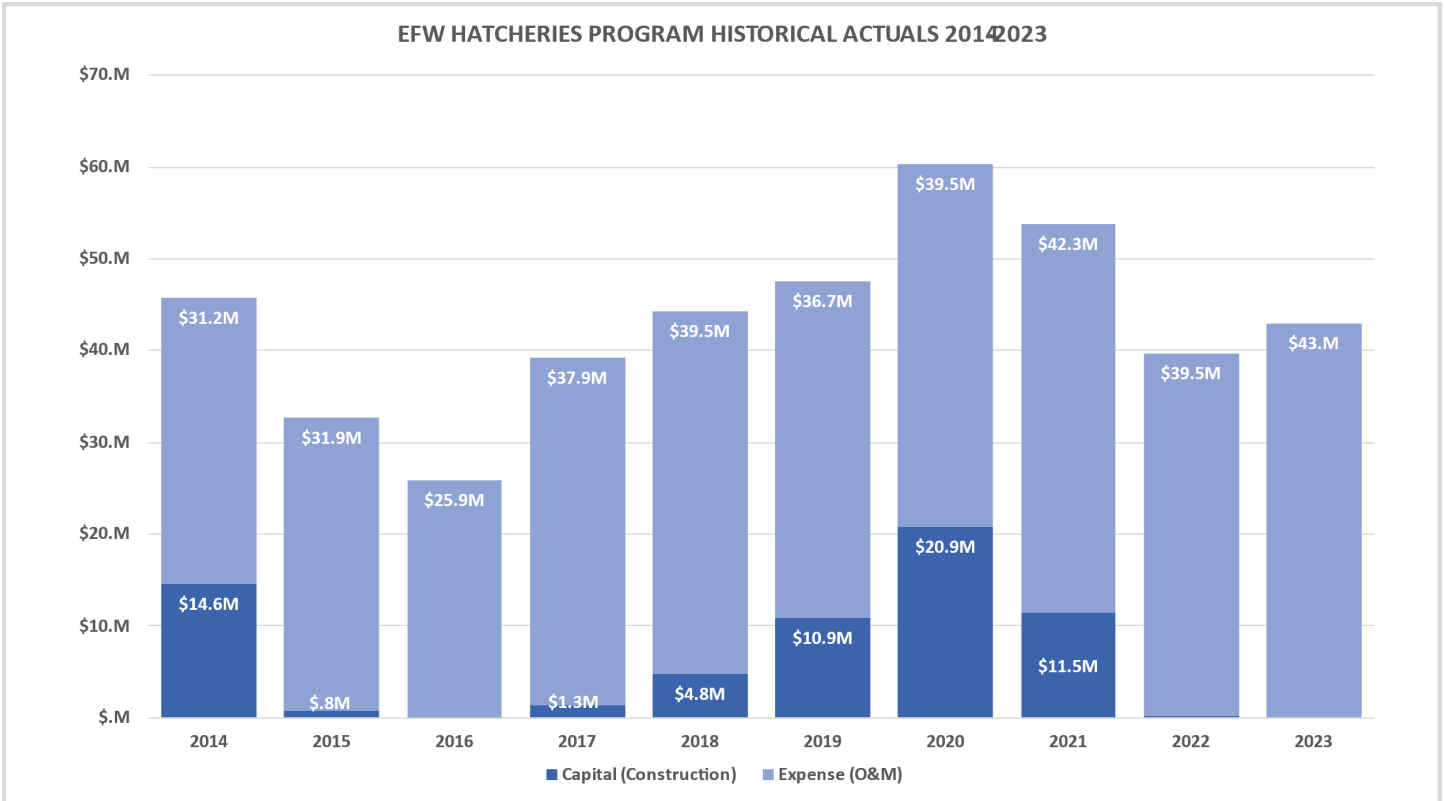
	Historical Spend (in thousands) With Current Rate Case						
Capital Expand (CapEx)	2019	2020	2021	2022	2023	Current Forecast or Rate Case	
						2024	2025
	\$10,900	\$20,900	\$11,500	\$0	\$0	\$21,485	\$22,600
<b>Total Capital Expand</b>	<b>\$10,900</b>	<b>\$20,900</b>	<b>\$11,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$21,485</b>	<b>\$22,600</b>
Capital Sustain (CapEx)	2019	2020	2021	2022	2023	2024	2025
	\$0	\$0	\$0	\$0	\$0	\$0	\$4,354
<b>Total Capital Expand + Sustain</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$28,442</b>
Expense (OpEx)	2019	2020	2021	2022	2023	2024	2025
O&M	\$36,743	\$39,500	\$42,300	\$39,500	\$43,367	\$49,436	\$49,949
<b>Total Expense</b>	<b>\$36,743</b>	<b>\$39,500</b>	<b>\$42,300</b>	<b>\$39,500</b>	<b>\$43,367</b>	<b>\$49,436</b>	<b>\$49,949</b>

Table 8.1-1 Historical Expenditures shows how Fish and Wildlife asset capital and expense funds were spent over the last 5 years. The increase in capital expenditure for the next 2 years is a result of new hatchery construction agreements.

*Table 8.1-1 Historical Spend - Land*

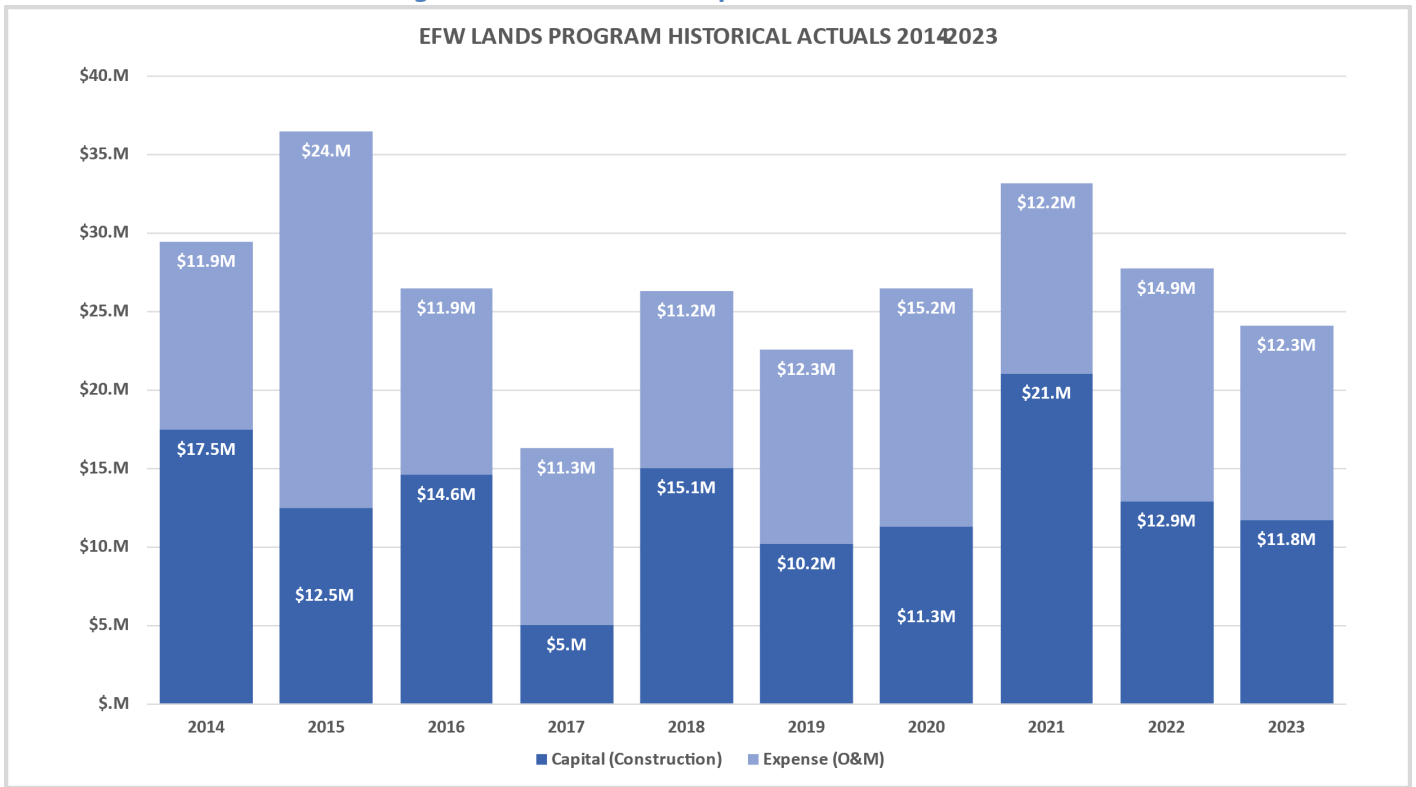
	Historical Spend (in thousands) With Current Rate Case						
Capital Expand (CapEx)	2019	2020	2021	2022	2023	Current Forecast or Rate Case	
						2024	2025
Lands	\$10,200	\$11,300	\$21,000	\$12,900	\$11,800	\$14,357	\$12,361
<b>Total Capital Expand</b>	<b>\$10,200</b>	<b>\$11,300</b>	<b>\$21,000</b>	<b>\$12,900</b>	<b>\$11,800</b>	<b>\$14,357</b>	<b>\$12,361</b>
Expense (OpEx)	2019	2020	2021	2022	2023	2024	2025
Lands	\$2,526	\$908	\$525	\$4,200	\$4,200	\$4,200	\$4,200
O&M	\$12,343	\$15,185	\$12,180	\$14,900	\$12,300	\$12,500	\$12,500
<b>Total Expense</b>	<b>\$14,869</b>	<b>\$16,093</b>	<b>\$12,705</b>	<b>\$19,100</b>	<b>\$16,500</b>	<b>\$16,700</b>	<b>\$16,700</b>

**Figure 8.1-2 Historical Expenditures - Hatchery**



- Capital funding increases in the 2018-2021 period were primarily due to the design and construction of Walla Walla Hatchery and MRS Coho Hatchery, both of which fulfill Columbia Basin Fish Accord commitments. There are currently 6 hatcheries in planning and design which are not being charged to capital at this time but are slated to go into construction in FY24-25 and will become part of the capital expenditures.
- Expenditures for the Hatcheries expense program have also increased in the last 7 years, as many of the hatcheries were built in the same time frame and assets are aging and in need of replacement or increased maintenance. We expect this trend to continue as more hatcheries are constructed, which will increase O&M costs in subsequent years.

• **Figure 8.1-2 Historical Expenditures – Land**



In the Lands Program, the total amount expended to fulfill BPA’s commitments is mostly stable, although individual costs are affected by inflation and market conditions. This chart reflects that stability, and the Lands Program expects it to continue in the future.

## 8.2 Historical Asset Sustain Trends vs Forecast

Historically, the hatchery program has expensed the cost of asset replacements, and the program did not have a sustain program. However, there are several asset replacements in 2025 which are costly enough to be capitalized and considered part of the sustain program. Due to this, the hatchery program does not have any history or trends to draw from.

The lands program does not have sustain expenses.

## 8.3 Asset Condition and Trends

The average age of the hatchery facilities portfolio is 22 years old, with the first ones being built as far back as the 1980’s. In 2016, an engineering firm hired by BPA performed condition assessments on 14 Fish and Wildlife Program Hatcheries included in the scope of this SAMP. These assessments were then used to develop an estimate of costs to address outstanding mission critical elements from FY 2017 and essential non-recurring maintenance needs and improvements for FY 2018, 2019, 2020 for 9 of the 14 hatcheries.

An updated health assessment for all hatcheries was completed in FY23 to update asset data and inform prioritization and planning associated with the facilities, program, and future year budgets. Prior to FY 23, the asset age data showed that over 25% of the assets had expired, meaning they were past their calculated failure date. The updated health information supported this data and added condition assessment information for assets that were not expired. In FY23, the Administrator allocated funds made available

through the Reserves Distribution Clause to the Hatchery Program to assist in funding backlogged mission critical and mission essential asset replacements.

**Figure 8.3-1, Current Hatchery Age**

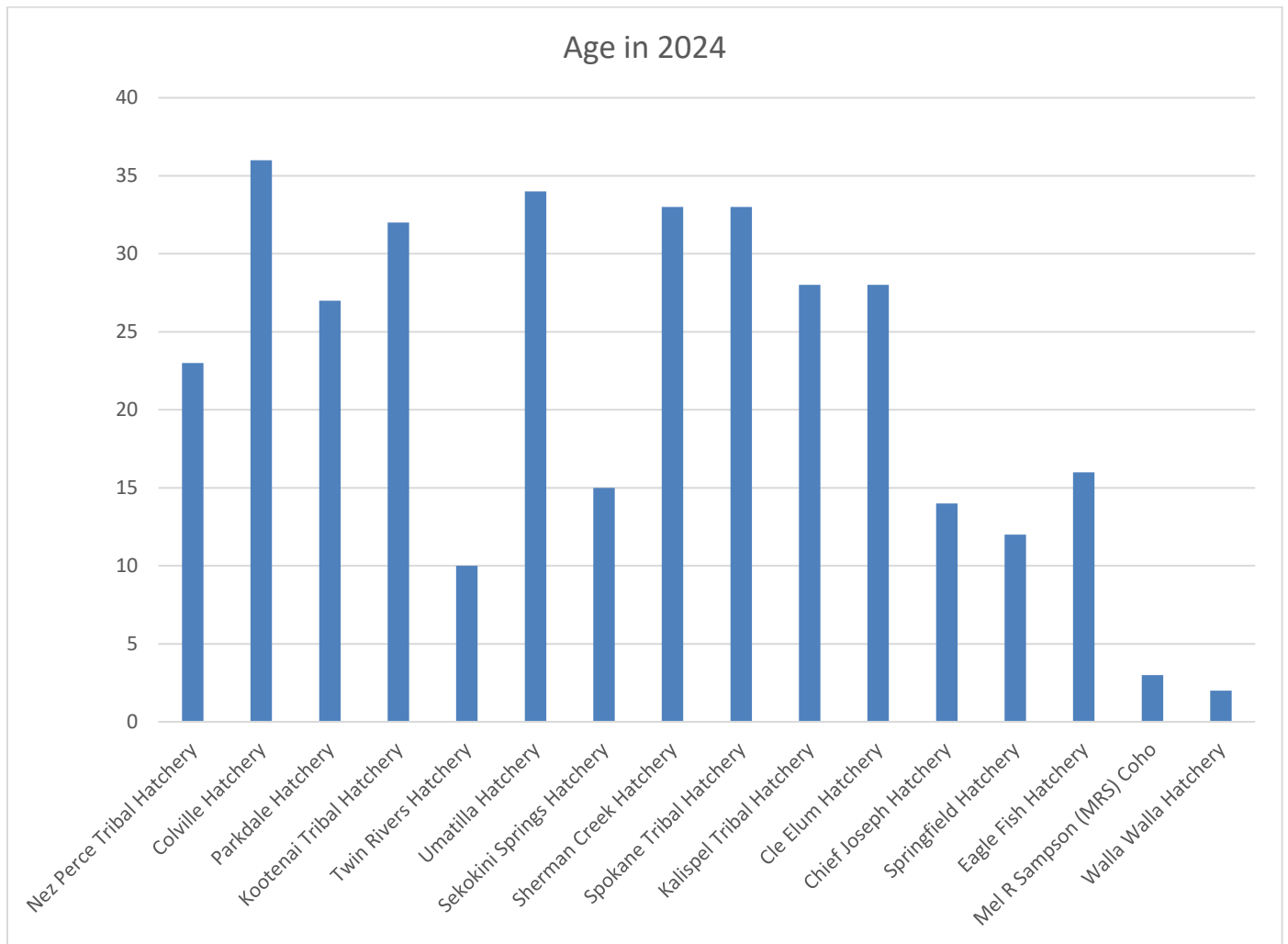


Figure 8.3-2, Hatchery Asset Expiration Range

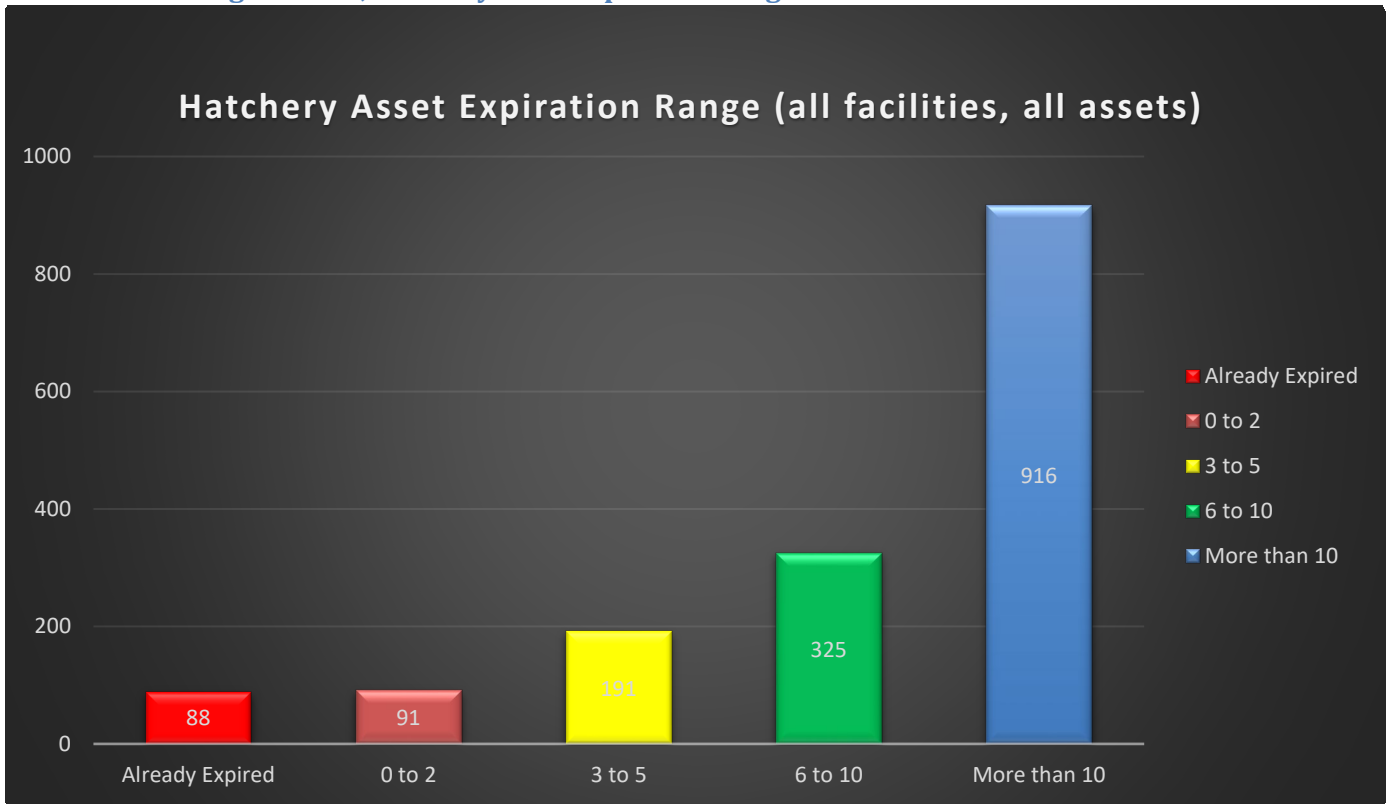
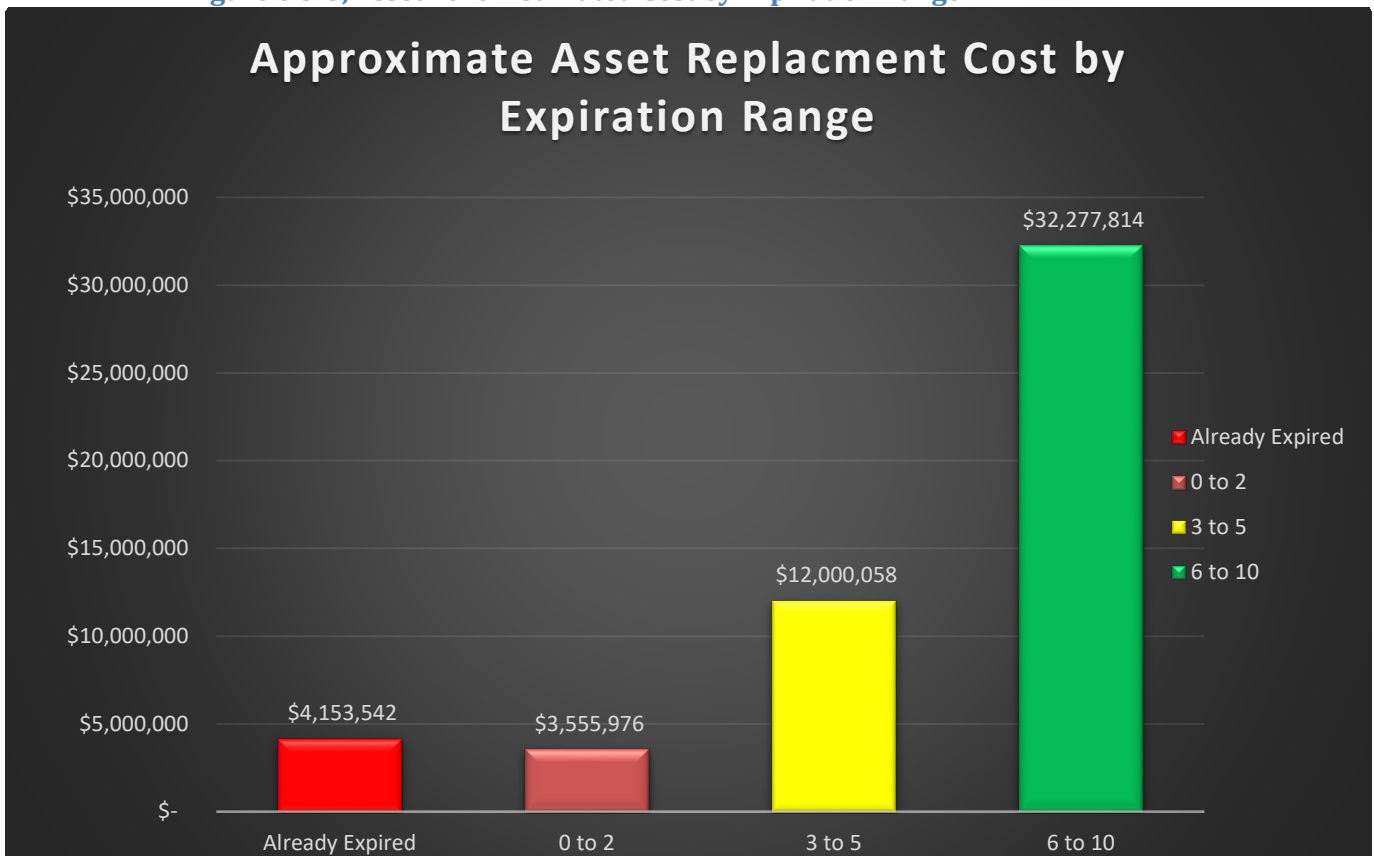
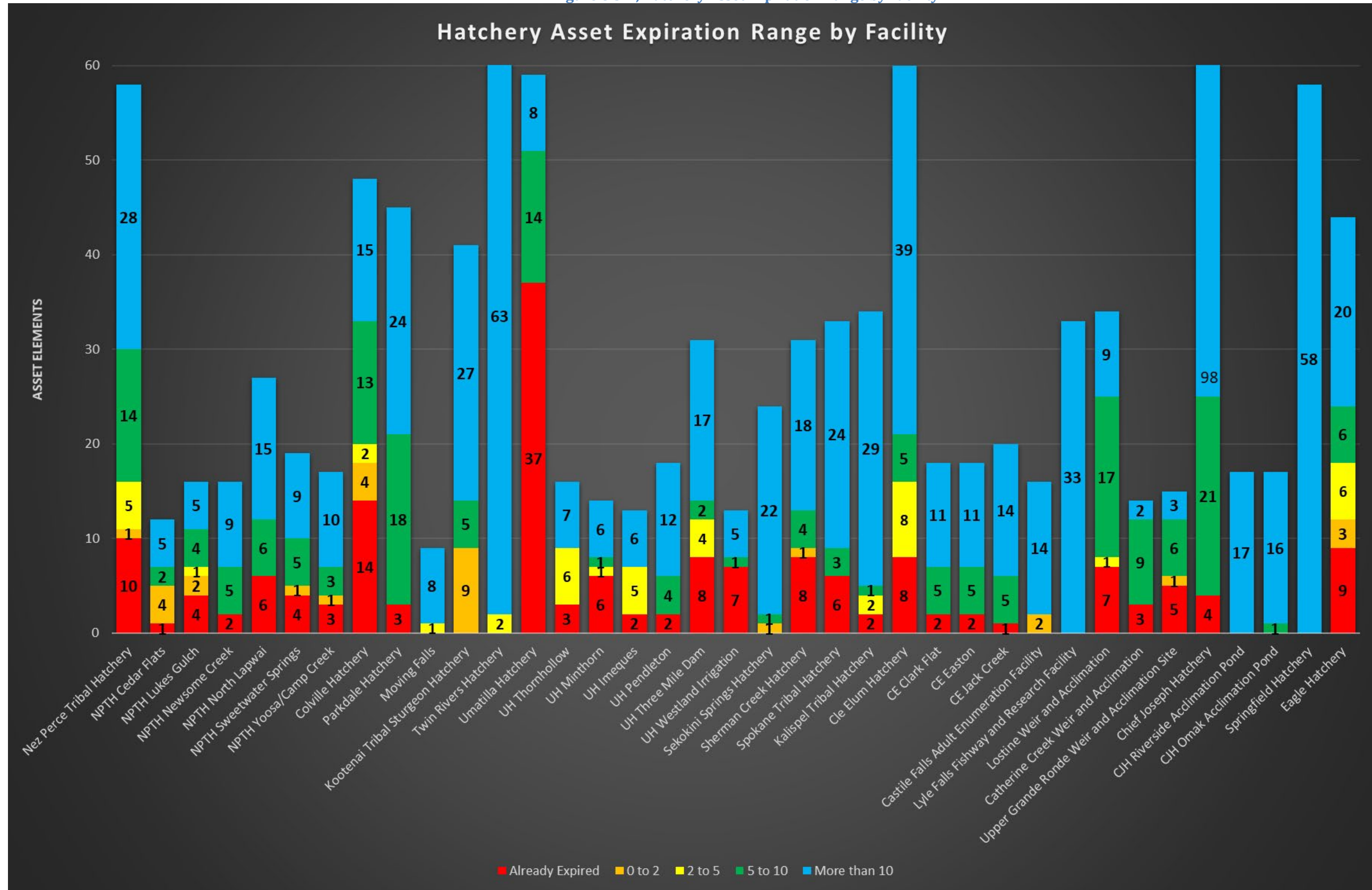


Figure 8.3-3, Asset Level Estimated Cost by Expiration Range



In this context, “cost” is for the cost of the asset only. Replacements costs such as design (if needed), installation, and de-commissioning costs are not included.

Figure 8.3-4, Hatchery Asset Expiration Range by Facility





### Asset Conditions and Trends - Land

Characterization of acquired lands by their effective age, as typically applied to structural assets, is generally neither appropriate nor feasible given the intended purpose of the properties. Land assets are difficult to characterize in terms of condition. Under Fish and Wildlife Program criteria, properties need to provide either fish or wildlife habitat but do not need to be in a certain condition (degraded, functioning, or restored). Some geographical areas and agreements base the purchase of a property interest in its potential connection to restoration if the conditions are less than ideal for the resource, but this is not a requirement.

In order to ensure that the conservation values for which properties were purchased are protected in perpetuity, the Fish and Wildlife Program has the following requirements:

**Baseline Reports** – At the time of closing, each property has a Baseline Report acknowledged by the sponsor and Bonneville that describes all existing conditions on the property. The sponsor is generally required to manage the property to protect the conservation values as described in the Baseline Report. If significant restoration occurs to benefit fish or wildlife habitat, the Baseline Report may be updated.

**Annual Reporting** – Most properties require an annual report. These describe activities that have occurred on the property, any changes in the real property, and any changes to the conservation values.

**Remote Monitoring** – All properties in which Bonneville has a legal interest go through a conditions assessment every five years, starting five years after acquisition. The analysis reviews any changes on the property that have occurred that may have an effect on the conservation values.

However, EW monitors properties for condition relative to habitat value and other factors. When EW observes sub-standard or negative conditions, they develop a response and/or correction per the terms of the conservation easement, management plan, and/or MOA.

## 8.4 Asset Performance

It is a goal of the hatchery program, through the RDC funding, to improve asset condition by eliminating 100% of the mission critical non-recurring maintenance needs and addressing all essential maintenance improvements with less than 0 years of life expectancy by 2027. These assets have already been identified, and the contract work is in process. EFW tracks expenditure rates on its expense programs relative to Start of Year (SOY) budgets. The goal is to use at least 90% of the SOY budget. Performance for the last 10 years is shown below:

**Table 8.4-1, Historical Asset Financial Performance Summary - Hatchery**

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
89%	96%	89%	97%	99%	90%	80%	92%	79%	87%

### Asset Performance – Land

The Lands program does not monitor the performance of their assets in the same manner as other programs. A property is evaluated for its ability to meet mitigation obligations, and once it is ascertained that it does and is acquired, the responsibility for appropriate maintenance of the land reverts to the sponsor. EFW developed a system for monitoring compliance with conservation objectives and management plans around 2009. Working with Realty Services and OGC, EFW improved its inventory, and piloted its current approach. However, metrics are a recent addition. As there are no trends to report on, the metrics currently being used and followed are reported in section 10.1, Future Asset Performance.

## 8.5 Performance and Practices Benchmarking

Due to the unique nature of hatcheries, it is difficult to benchmark against other hatchery programs in the industry. Hatchery programs are operated to meet performance and compliance guidelines established in applicable biological opinions. One of the objectives of the performance metrics that have been established is to understand best practices among our current hatcheries.

The Lands program, by its nature, is not appropriate for performance and practices benchmarking.

## 9.0 RISK ASSESSMENT

The risk section is for the hatchery program only. None of the Agency identified risks pertain to the Lands Program. Environmental risks are assessed pre-acquisition and are either mitigated or the property is not purchased. Once the property is acquired, and the Land Management Plan developed, safety, financial, and environmental or compliance risks no longer apply and are the responsibility of the sponsor. There is no reliability risk with land.

### 9.1 Risk Identification

Risk Category	Risk Name, Description and Assessment	Likelihood	Impact
Safety	As BPA typically does not permanently own and operate hatcheries, the hatchery owner and operator, not BPA, is generally responsible and liable for risks associated with personal safety.	N/A	N/A
Reliability	<b>Asset Health:</b> The health or condition of assets is essential to understanding and ensuring that appropriate maintenance is being conducted to ensure the life of the asset is maintained and that replacements are done as needed to ensure the reliability of the system. Currently BPA receives health information on a 5-year basis. Reliability is defined by current health score, level of criticality and expiration range.	Moderate	High
Financial	<b>Costs:</b> Cost is defined as the replacement cost of the asset should there be a failure. Currently we do not understand life cycle, implementation, or decommissioning costs. Financial risks are defined by health and range of cost.	Likely	Major
Environment/ Stewardship	As BPA typically does not permanently own and operate hatcheries, the hatchery owner and operator, not BPA, is generally responsible and liable for risks associated with the environment/stewardship.	N/A	N/A
Compliance	As BPA typically does not permanently own and operate hatcheries, the hatchery owner and operator, not BPA, is generally responsible and liable for risks associated with compliance requirements.	N/A	N/A

## 9.2 Risk Score

Reliability risks are assessed for Mission Critical and Mission Essential assets. The risk heat map is based on criticality level, health, and number of years until the asset is due to expire. The number of assets that fall into each category is recorded below.

### *Risk Assessment: Reliability*

Likelihood	Almost Certain				8	4
	Likely		8	3	5	8
	Possible	59	65	19	12	3
	Unlikely	837				
	Rare	422				
		Insignificant	Minor	Moderate	Major	Extreme
Consequence						

Approximately 90% of all assets in the high-risk section (orange or red) are being managed through RDC funds and will be replaced by the end of FY27. Several assets in these categories are being managed through alternate funding but will also be replaced.

Approximately 50% of all assets in the possible range are being replaced for different reasons, with asset replacement projects declining after that point as is commensurate with the level of risk.

### *Risk Assessment: Financial*

Financial risks are for Mission Critical and Mission Essential assets and are based on criticality, health and cost of the asset. Currently, lifecycle costs are not well understood, so the cost does not include design (if needed), installation, or decommissioning costs when gauging the cost of an asset replacement.

Likelihood	Almost Certain	8	1	3	1	1
	Likely	21	6	2	1	1
	Possible	111	28	32	5	3
	Unlikely	295	107	58	6	4
	Rare	468	170	206	20	20
		Insignificant	Minor	Moderate	Major	Extreme
Consequence						

The risk heat map reflects that the majority of the assets are low cost, with very few being over the \$1M threshold for the Extreme category. All assets currently in the orange or Almost Certain category are being managed through RDC funds.

## 10.0 STRATEGY AND FUTURE STATE - Hatchery

### Strategy and Future State - Hatchery

EFW Hatchery Asset Management continues to mature and is currently working to refine its ability to accurately plan, track and forecast design, construction, operation and maintenance costs for hatchery projects. According to our risk analysis, EFW believes the reliability and financial impact of hatchery assets drive our strategy and future state.

The current methodology being used dictates that EFW prioritize investments according to criticality and reliability of assets, and for the organization to continue identifying opportunities for greater

program efficiency, increased use of data and prioritization of dollars to meet asset management criteria while still meeting EF&W obligations.

The Fish and Wildlife Hatchery Program plans to utilize project implementation support to inform and educate its strategy through lessons learned, information sharing, and best practices to achieve improved management of its assets and long term sustainability.

**Strategy and Future State - Lands**

The BPA Lands Program assumes that BPA will fulfill its commitments related to the acquisition of land for fish and wildlife habitat made in various agreements between BPA and sponsors, including the Columbia Basin Fish Accords, Willamette Wildlife Mitigation Agreement, and Southern Idaho Wildlife Mitigation Agreement. Notwithstanding new agreements, we expect future expense and capital funding levels are expected to be in line with present levels, and fiscal year execution of those budgets will depend on the availability of lands and willingness of landowners.

The initiatives described in Section 6 will help the EFW Lands Program continue to manage the inventory of acquired lands, but the program is not currently staffed to track all land management plans, annual reporting, and monitoring activities. We will continue to rely on remote monitoring to examine properties over fixed intervals.

**10.1 Future State Asset Performance – Hatchery**

In general, the performance of BPA’s hatchery program is closely related to individual asset performance. As assets are compromised or reach failure, they directly influence a hatchery’s ability to raise healthy, well-performing fish that meet size, weight, and maturation targets. Although many factors influence a hatchery’s overall performance, including a multitude of environmental factors beyond human control, the importance of functioning and maintained assets plays a significant role.

A recent effort within EFW was to develop performance metrics for the program as a whole to support the establishment of operational goals and objectives and to assist us in defining criticality above the asset level. Currently, these metrics are not mature enough that we can set performance objectives as we have not identified trends.

For the immediate future EF&W will track the completion of RDC projects as this signifies a significant increase in the health of our assets through replacements of assets in poor condition. In addition, to assist in meeting future asset performance goals, we will continue to try to meet execution of the O&M budget of at least 98%. This will also assist us in meeting our mitigation and conservation targets and assist in the conservation of ESA-listed salmon and steelhead populations.

**Table 10.1-1 Future Asset Performance Objectives**

Objective	FY24	Year +1	+2	+3	+4	+5	+6	+7	+8	+9	+10
RDC Contracts Completed	30%	70%	90%	100%							

Execution of O&M Budget	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
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**Future State Asset Performance - Land**

EFW developed a system for monitoring compliance with conservation objectives and management plans around 2009. Working with Realty Services and OGC, EFW improved its inventory, and piloted its current approach.

Acquired lands are evaluated periodically (the target cycle is once every 5 years) to verify that they are being managed as required by applicable agreements or grants of real property interests, such as contracts or conservation easements.

Remote sensing and on- site inspections, in coordination with the property owners, provides verification of proper asset management.

The documents (e.g., MOA, contract, or conservation easement) pertaining to use and management of each specific property define the standards and objectives for individual properties and reflect the unique qualities that made the property a good candidate for conservation. Information on the entire system of acquired properties provides a comprehensive measure of progress toward meeting broad wildlife mitigation targets, collective O&M obligations, etc.

The three-step protocol for monitoring real property interests include annual reporting, supplemental observation, and adaptive management. Supplemental observation entails remote monitoring at least once every 5 years through free satellite and aerial imagery available in the public domain to observe program properties and changes that occur on them over time. Internal BPA experts in the Geospatial Services group use ArcGIS tools to analyze changes on program properties. BPA tries to remotely monitor 50 properties annually, and staff may also visit the sites. Depending on the nature of issues discovered in the remote sensing analysis and site visits, projects will continue to be visited annually to follow-up on compliance issues, ownership changes, or large or unusual restoration efforts.

During each follow-up visit, the field team will:

- Review easement, management plan, and contract requirements for site management.
- Compare current conditions to those established in baseline documentation.
- Verify annual reports.
- Reaffirm or establish project manager and stakeholder communication about site purposes and goals.

The Lands team has identified measures to track that can be included as performance measures for the program to be reported in future asset plans as shown in the table below.

*Table 10.1-1 Future Asset Performance Objectives - Land*

Objective	FY24	Year +1	+2	+3	+4	+5	+6	+7	+8	+9	+10
Improve corrective actions on conservation easement compliance issues	50%	60%	75%	90%	95%	100%	100%	100%	100%	100%	100%
Improve Land Management Plan Acceptance Rate	65%	65%	70%	70%	75%	75%	80%	85%	90%	95%	100%
Improve Annual Report Compliance rate	25%	30%	50%	60%	75%	90%	95%	100%	100%	100%	100%

## 10.2 Strategy

The EFW long term strategy for the hatchery sub-program is to make mission critical, essential maintenance and investment decisions that maximize the value of hatchery assets by mitigating risk, improving efficiency and/or producing incremental value of reliability. A cornerstone of the strategy is decision making that is informed by regular asset condition assessments. The hatchery subprogram recognizes that the hatchery program is growing as a result of our commitments. As such EF&W has developed a strategy to improve alignment with our partners regarding asset management principles and requirements, and for updating condition information more frequently. Through this increased knowledge, we will be able to proactively identify asset health and prioritize asset dollars to reduce risk and increase program efficiency.

### 10.2.1 Sustainment Strategy - Hatchery

The EFW Hatchery Sub-Program will continue to provide leadership and coordination of hatchery activities via project managers and regular meetings of the Hatchery Team. This program will continue to be managed by the hatchery sub- program team and led by three Fish and Wildlife leads—Policy, O&M and Design & Construction—and appropriately coordinated with the Council’s asset management sub-committee and regional sponsors.

The hatchery program does not receive health information on assets in a timely or consistent manner for understanding trends and predicting asset performance; therefore, we do not have a 10 year plans. Our long term objectives stated in 6.2 are meant to help us mature in this area over time.

### Sustainment Strategy – Land

Planning for individual projects and acquisitions will remain as described in the practices and procedures of the Lands Deskbook. Programmatic planning will remain focused on fulfilling BPA’s legal obligations under the Northwest Power Act and other laws, including the ESA.

O&M priorities will continue to focus on providing certainty and sustainable levels in funding for future O&M, where the Fish and Wildlife Program and project sponsors are able and willing to engage in such agreements. Actual O&M methods will remain as described in individual management plans, contracts, or MOAs, and are specific and unique to each

property.

Information systems will continue to rely on the current platform and tools. Opportunities for improved reporting capabilities and database content (i.e., property-specific information and attributes) will be identified and incorporated into asset work plans.

### **10.2.2 Growth (Expand) Strategy – Hatchery**

The hatchery program does not have an expansion strategy, as it is a mitigation program. Usually, initial capital investment decisions are made at the executive level of the Agency based on long term funding agreements and other situational priorities. The BPA Hatchery Program assumes that BPA will fulfill its commitments related to hatchery programs made in various agreements between BPA and sponsors, including the Columbia Basin Fish Accords.

### **Growth (Expand) Strategy – Lands**

The Lands Program will prioritize projects based on ongoing evaluation for the feasibility and likelihood of proposed acquisitions and progress toward meeting obligations defined within Accords or other agreements.

Practices and procedures, defined in the Lands Deskbook, provide management with criteria for the cost of new acquisitions. The Fish & Wildlife department budget targets, which are informed by spending levels by rate case projections, influence overall land acquisition program spending.

### **10.2.3 Strategy for Managing Technological Change and Resiliency - Hatchery**

In the long term, to build resiliency, the hatchery program will formalize a broader hatchery asset management team to develop processes for a bi-annual review of asset data and formalized decision making for asset replacement that is risk based and data driven. Our current initiative to upgrade our health condition information from a spreadsheet database to asset management software is our beginning strategy.

In addition, the subprogram keeps informed on emerging hatchery technology and management.

### **Strategy for Managing Technological Change and Resiliency – Land**

The Lands team keeps informed on emerging technology and shares learning of best practices that could benefit land management, conservation, or remote monitoring of current and potential properties. The team uses this information to advise them on their work and strategy for the program. Through our annual contracts we are able to support sponsors in training and management of emerging technologies such as improved databases or in field monitoring tools. The Program continuously collaborates with developers of [www.cbfish.org](http://www.cbfish.org) to improve our ability for tracking and managing properties within that system.

## **10.3 Planned Future Investments/Spend Levels**

Capital funding and availability will need to increase in the next 5 years to account for hatcheries not yet built,



including those identified under the Columbia Basin Fish Accords and other agreements:

### 10.3.1 Hatchery Optimal Capital and Expense Future Investments (in thousands)

	Rate Case FY's				Future Fiscal Years						
Capital Sustain (CapEx)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$-	\$8,668	\$14,334	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	
<b>Total Capital Sustain</b>	<b>\$-</b>	<b>\$8,668</b>	<b>\$14,334</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	
Capital Expand	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$18,712	\$42,400	\$19,200	\$30,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	
Land	\$13,700	\$15,500	\$28,000	\$12,000	\$10,000	\$10,000	\$10,000	\$25,000	\$10,000	\$10,000	
Fish Passage	\$15,000	\$15,000	\$15,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	
<b>Total Capital Expand</b>	<b>\$47,412</b>	<b>\$72,900</b>	<b>\$62,200</b>	<b>\$52,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$45,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	
<b>Subtotal Hatchery (Sustain + Expand)</b>	<b>\$18,712</b>	<b>\$51,068</b>	<b>\$33,534</b>	<b>\$33,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	
<b>Total Capital (Sustain + Expand)</b>	<b>\$47,412</b>	<b>\$81,568</b>	<b>\$76,534</b>	<b>\$55,000</b>	<b>\$33,000</b>	<b>\$33,000</b>	<b>\$33,000</b>	<b>\$48,000</b>	<b>\$33,000</b>	<b>\$33,000</b>	
Expense	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$53,196	\$54,473	\$55,775	\$57,096	\$58,421	\$59,759	\$61,098	\$62,472	\$63,878	\$65,322	
Land Acquisition	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	
Land O&M	\$12,500	\$12,800	\$13,106	\$13,417	\$13,728	\$14,042	\$14,357	\$14,680	\$15,010	\$15,349	
Fish Screens	\$5,936	\$6,078	\$6,224	\$6,371	\$6,519	\$6,668	\$6,818	\$6,971	\$7,128	\$7,289	
<b>Total Expense</b>	<b>\$75,632</b>	<b>\$77,351</b>	<b>\$79,104</b>	<b>\$80,884</b>	<b>\$82,668</b>	<b>\$84,469</b>	<b>\$86,272</b>	<b>\$88,123</b>	<b>\$90,016</b>	<b>\$87,960</b>	

- Sustain increases for hatcheries are related to new/rehabilitation of wells and water reuse infrastructure for Umatilla Hatchery and for capital upgrades to Spokane Ford Hatchery and Chief Joe Hatchery
- Capital increases in 2027, 2028, 2029 and 2033 are due to new agreements with Coeur d'Alene and Spokane Tribes. Dollars shown as land increased capital budget may be used for land or fish passage.
- Increases in Hatchery O&M are due to completed construction and the associated O&M tails. The additions are: \$500k in 2027 for Trinity, \$1M in 2028 for Marion Drain, and \$1M in 2029 for SBT Chinook (Water Wheel).

Hatchery capital budgets are dependent upon estimated project schedules, which may move due to unexpected circumstances outside of BPA's control within planning, design, permitting and constructions phases. In those cases, forecasted budgets may need to be adjusted to align with the revised schedules.

**Land:** In 2028, Land will have completed their largest existing settlement agreement, which causes a decreased budget from 2028 forward. However, future agreements may have an impact on the forecast.

**Fish Passage:** Expenses for fish passage in Fy2026 are due to the Umabirch project and completion of Svensen and Hall Ranch. There has recently been an upsurge in fish passage projects causing an increase in forecasting for 2027 and beyond.

*Table 10.3-2 Expected Future Expenditures (in thousands)*

	Rate Case FY's				Future Fiscal Years						
Capital Sustain (CapEx)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$-	\$8,668	\$14,334	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	
<b>Total Capital Sustain</b>	<b>\$-</b>	<b>\$8,668</b>	<b>\$14,334</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	
Capital Expand	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$14,970	\$33,920	\$15,360	\$24,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	
Land	\$10,960	\$12,400	\$22,400	\$9,600	\$8,000	\$8,000	\$8,000	\$20,000	\$8,000	\$8,000	
Fish Passage	\$12,000	\$12,000	\$12,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	
<b>Total Capital Expand</b>	<b>\$37,930</b>	<b>\$58,320</b>	<b>\$49,760</b>	<b>\$41,600</b>	<b>\$24,000</b>	<b>\$24,000</b>	<b>\$24,000</b>	<b>\$36,000</b>	<b>\$24,000</b>	<b>\$24,000</b>	
<b>Subtotal Hatchery (Sustain + Expand)</b>	<b>\$14,970</b>	<b>\$42,588</b>	<b>\$29,694</b>	<b>\$27,000</b>	<b>\$11,000</b>	<b>\$11,000</b>	<b>\$11,000</b>	<b>\$11,000</b>	<b>\$11,000</b>	<b>\$11,000</b>	
<b>Total Capital (Sustain + Expand)</b>	<b>\$37,930</b>	<b>\$66,988</b>	<b>\$64,094</b>	<b>\$44,600</b>	<b>\$27,000</b>	<b>\$27,000</b>	<b>\$27,000</b>	<b>\$39,000</b>	<b>\$27,000</b>	<b>\$27,000</b>	
Expense	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Hatchery	\$53,196	\$54,473	\$55,775	\$57,096	\$58,421	\$59,759	\$61,098	\$62,472	\$63,878	\$65,322	
Land Acquisition	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	
Land O&M	\$12,500	\$12,800	\$13,106	\$13,417	\$13,728	\$14,042	\$14,357	\$14,680	\$15,010	\$15,349	
Fish Screens	\$5,936	\$6,078	\$6,224	\$6,371	\$6,519	\$6,668	\$6,818	\$6,971	\$7,128	\$7,289	
<b>Total Expense</b>	<b>\$75,632</b>	<b>\$77,351</b>	<b>\$79,104</b>	<b>\$80,884</b>	<b>\$82,668</b>	<b>\$84,469</b>	<b>\$86,272</b>	<b>\$88,123</b>	<b>\$90,016</b>	<b>\$87,960</b>	

## 10.4 Implementation Risks

*Table 10.4-1, Implementation Risks - Hatchery*

Risk	Impact	Mitigation Plan
Global supply chain constraints, labor shortages and material cost increases lead to project delays and project cost	Moderate — The on-going impacts of the pandemic on supply chain, labor shortages and material costs result in an extended period of project costs increases and delays in project execution.	At present, project cost increases are being absorbed within existing program levels and budgets are re-optimized.

increases		
Lack of adequate information for O&M funding	Moderate – A lack of asset health information or lack of alignment on definitions of health with partners causes delayed and deferred maintenance on critical hatchery assets, which could impact hatchery performance objectives.	Explore opportunities with partners to strategically prioritize and sequence maintenance work to ensure that the most critical needs are addressed first.
High focus on the forecast and execution of the capital budget when preconstruction project processes have not begun, and scope of the project is not well understood.	High - A real understanding of the hatchery construction project scope has not been developed when the budget is forecasted. When scoping begins, many requirements can increase or decrease costs. Regulated processes are lengthy in nature and, as steps in the process are interdependent, can cause revision of the project schedule, sometimes for years. This causes the program to look as if it is under executing or going over or under budget.	Close coordination with regional and tribal partners to understand barriers to schedule and project execution, and continuous adjustment of schedules including revised capital forecasts. Continual communication with management regarding project progress. Although this captures some risk for near term budgets, a mitigation strategy still needs to be developed for the long-term portfolio with a possible revision and improved processes for how we account for dollars attributed to capital projects.
Unforeseen natural events (e.g., flood, fires, icing, earthquakes, etc.)	Potentially High - Impacts could range depending on the event, but there is potential for large damage to facilities that could pose a financial risk to the program and biological risk to fish. Hatcheries are particularly vulnerable to the ancillary effects of precipitation events because their infrastructure is so often located in or near rivers and streams.	Utilize the Budget Oversight Group (BOG) to address needs as they arise and anticipate the effect of these events during project planning to incorporate design solutions for mitigation.
Climate change	Moderate - Impacts to hatchery performance and ability of hatchery programs to achieve desired production goals.	Anticipate the effect of these events during project planning to incorporate design solutions for mitigation.

*Table 10.4-1, Implementation Risks - Land*

Risk	Impact	Mitigation Plan
Factors beyond BPA's control	High	Factors such as increased property value, inflation, and potential effects from climate change affecting the suitability of lands to be acquired are beyond BPA's control with regard to availability and cost of land acquisitions and their function in meeting BPA's habitat mitigation obligations. BPA will monitor and evaluate the impacts on individual properties on a case- by-case basis and respond to them as appropriate and feasible.

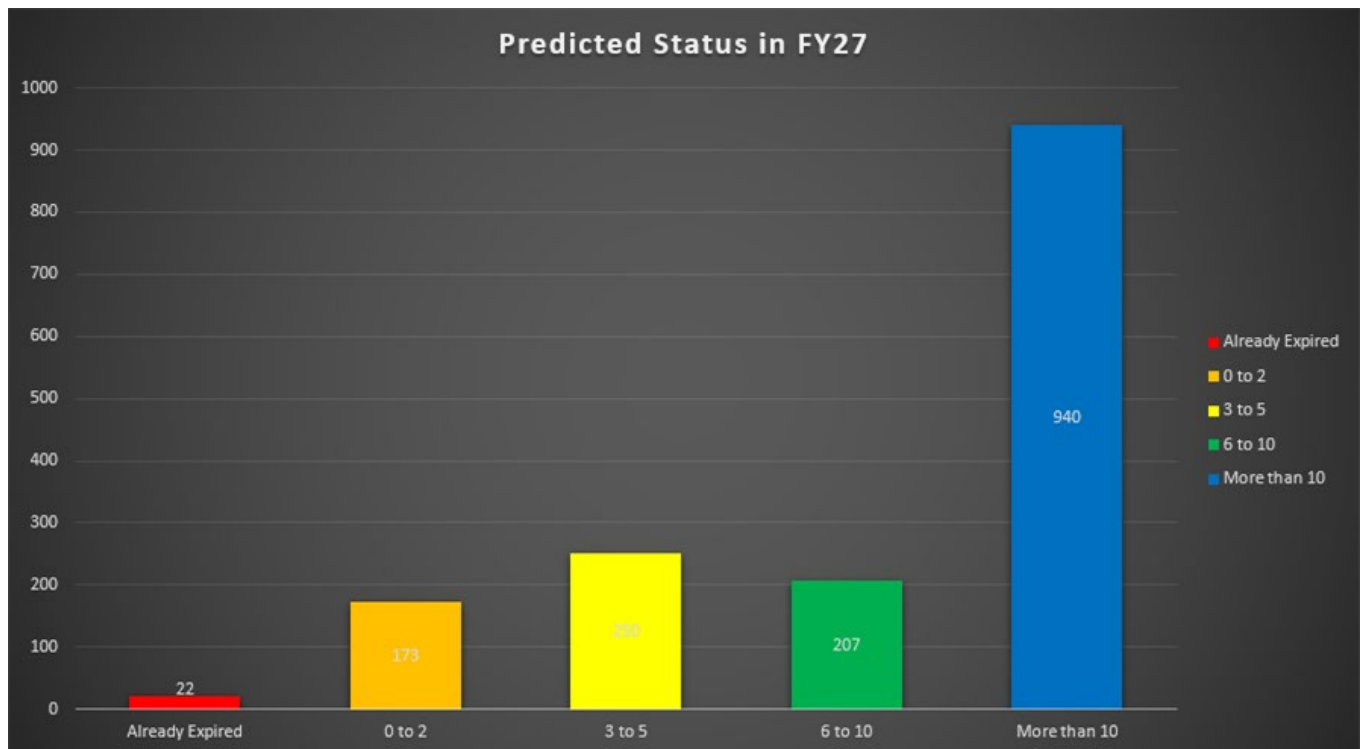
Need to improve processes around how information is managed and shared	Moderate	BPA will improve the information system tools and associated processes employed by the land acquisition program to provide comprehensive reports on the current and out-year commitments to funding purchases and O&M. This will be a multi-year effort and may be modified by parallel efforts in Pisces Web.
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## 10.5 Asset Conditions and Trends - Hatchery

Aging facilities have components that deteriorate and require replacement. The hatchery condition assessment is repeated every 5 years to identify expected remaining life of assets. BPA prioritizes and allocates funding for asset replacement and/or repairs on an annual basis.

Expected changes to the condition of the assets have been categorized by the maintenance requirements criteria established at the asset level within section 7.1. The goal is to improve asset conditions by eliminating 100% of the mission critical non-recurring maintenance needs by 2027 and addressing all essential maintenance improvements with less than 0 years of life expectancy by 2027.

*Figure 10.5-1 Future Asset Status by Predicted Failure Rate*



The expired assets in this graph may be assets in good condition, as expired is defined by the calculated date of failure. However, with appropriate maintenance, assets may last longer. These may be assets that have aged in the last 5 years and if needed, we may replace. Some assets are not in use and defined as expired.

## Asset Conditions and Trends - Land

Baseline Reports are developed for each property to document existing property conditions at the time of acquisition. This includes natural and man-made features and uses and relevant biological conditions on the property. Land Management Plans are forward thinking. They reflect the purposes for which the property was being acquired, and whether, or to what extent, the property currently exhibits the desired conservation values. Management Plans should identify any existing limiting factors that may adversely affect the potential to maximize or retain its conservation values. Both of these tools are used to establish a baseline condition against which to compare self-reporting by the sponsors and remote monitoring by BPA to evaluate the condition and trends of properties.

### 10.6 Performance and Risk Impact

Over time, the recommended plan will reduce the number of mission critical elements and essential maintenance improvements required to replace items that have either already failed or for which failure is considered to be imminent with direct negative effect on the ability of the facility to perform its mission.

Through investments within the next 5 years, 100% of assets identified as mission critical and essential with needed maintenance improvements throughout 16 hatcheries would be addressed. While these increase financial commitments for BPA, they would conversely reduce the reliability and long term financial risk at the portfolio level.

**Figure 10.6-2, Strategy, Risk Assessment Reliability**

Likelihood	Almost Certain				3	
	Likely		18	7	2	
	Possible	247	28	5	4	1
	Unlikely	319				
	Rare	664				
		Insignificant	Minor	Moderate	Major	Extreme
Consequence						

This figure shows that with the completion of RDC-funded work, the reliability risk has decreased. However, other assets will have aged and be in need of replacement. This display is also affected by the fact that we only have health data which was collected twice in the last 10 years. Therefore, we do not have an understanding of health trends which may have an effect on this assessment. If the majority of our long term objectives are met by 2027, the assessment accuracy will improve.

**Figure 10.6-3, Strategy, Risk Assessment Financial**

Likelihood	Almost Certain	3	1			
	Likely	20	4	6	1	
	Possible	207	71	42	6	6
	Unlikely	192	69	61	7	4
	Rare	374	143	153	13	15
		Insignificant	Minor	Moderate	Major	Extreme
		Consequence				

This figure reflects RDC-funded work having replaced many of the assets that had already failed or were close to failing. However, in 5 years, assets that are high cost will be aging. True understanding of the risks would include additional information on maintenance programs and continued health assessments.

**Performance and Risk Impact - Land**

The strategy for the lands program is to maintain current planning and implementation practices. Therefore, there is expected to be little impact to performance of the assets in the long-term.

**11.0 Addressing Barriers to Achieving Optimal Performance - Hatchery**

*Program resources*

As we mature the asset management program, we will be asking our partners to do additional work such as inputting health information into a SEIS and developing more robust maintenance plans. There may be human resourcing issues around these additional tasks.

### *Internal/external relationships*

A critical element of achieving optimal performance of this strategy is establishing and maintaining strong internal and external relationships. The Fish and Wildlife program works closely with other agency organizations as well as external entities throughout the region including the Council, tribes and states. Developing and maintaining trust, shared learning efforts, and approaches towards common goals will help to gather consensus around this strategy and improve the likelihood it will be implemented successfully.

### *Data management and sharing*

In terms of the management actions that will support sustaining the assets optimally, the near-term emphasis will be on improving processes around updating the inventory and associated health data on a more frequent basis. A centralized database of hatchery assets with real-time view into the criticality and health of each individual asset is an identified weakness and a strategic objective. If a SEIS is not approved by the Agency, it will be difficult to carry out other pieces of our strategy. When we implement the SEIS, some internal and external training and a plan to engage partners to increase adoption will be required.

## **Addressing Barriers to Achieving Optimal Performance – Land**

### *Resource Constraints*

Staffing levels could limit adequate resourcing to optimally implement this asset management strategy. Currently turnover is high and current staff levels limit the ability of the program to perform optimally and retain the experience levels needed. Given current staffing levels it will be difficult for the Lands Program to move ahead of the status quo and make desired changes.

### *Program Management*

There have been a lot of changes in the program and current processes are not robust enough to effectively train new employees. The Lands Program needs to develop new processes as required, along with review and improvement of current process documentation and implement standardized processes. This will help to achieve maximum efficiency and enable timely and effective training for new employees.

Updating and standardizing the lands inventory, including the ability to efficiently produce desired metrics and reports. The Lands Program will specify responsibility and actions to be taken regarding potential utilization of Pisces functionality; potential enhancement of the current excel spreadsheet trackers; and other areas where efficiencies in reporting might be evaluated. Because resource constraints are likely to continue, finding and deploying process and reporting efficiencies will be a high priority.

### *Internal/external relationships*

A critical element of achieving optimal performance of this strategy is establishing and maintaining strong internal and external relationships. The Fish and Wildlife program works closely with other agency organizations as well as external entities throughout the region. Developing and maintaining trust, shared learning efforts, and approaches towards common goals will help to gather consensus around this strategy and improve the likelihood it will be implemented successfully.

## **12.0 DEFINITIONS**

Reference BPA Policy 460-2 and BPA Procedure 240-2-1 for standard definitions. Definitions specific to this asset category, if any, are listed below:

**Project Sponsor:** The entity proposing and performing the duties of operating and maintaining a hatchery for the Fish and Wildlife Program.

**Biological Opinion:** A document that is the product of formal consultation under Section 7 of the ESA, stating the opinion of the U.S. Fish and Wildlife Service or National Marine Fisheries Service, as applicable, on whether or not a Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.