MEMORANDUM

TO: Council Members
FROM: Patty O’Toole, Karl Weist, Stacy Horton
SUBJECT: 2020 wildfires and possible impacts to Fish and Wildlife Program projects

BACKGROUND:

Presenter: Raymond Davis - Monitoring Lead, Older Forests and Spotted Owls, Forest Service, Pacific Northwest Region 6
Bernadette Graham-Hudson - West Region Manager, Oregon Department of Fish and Wildlife
Kurt Merg - Vegetation Ecologist, Washington Department of Fish and Wildlife

Summary: The Committee will hear presentations about the 2020 wildfire season, particularly about the fires in Oregon and Washington that affected fish and wildlife resources and program-funded projects.

Relevance: This topic relates to Fish and Wildlife project implementation in addressing the Program’s past investments as called for in the 2014 Fish and Wildlife Program (Part Six; Section II, and Appendix P).

Within this investment strategy, long-term maintenance of past investments is prioritized as the highest priority and on October 10, 2018 the Council approved the Asset Management Strategic Plan (Plan) to ensure the longevity and integrity of the Program’s past investments made for the benefit of fish and wildlife. Not only does the Plan provide a process to address nonrecurring maintenance needs it is founded on the
importance that the past investments associated with lands continue to receive adequate annual budgets to cover annual O&M costs. These O&M budgets need to be protected and remain a Council Program priority. Annual maintenance is important to avoid emergency needs in the future.

**Background:**

The 2020 wildfire season was a record setting fire season in Oregon and Washington by contemporary standards, culminating in an east wind and fire event that burned over 750,000 acres over several days in Oregon and over 300,000 acres in Washington in one day alone. Although impact assessments are still preliminary, fish and wildlife mitigation and restoration efforts funded by a multitude of sources were impacted by the fires.

At the November Council meeting, the fish and wildlife Committee will hear from a representative from the US Forest Service about the 2020 fire season in the Pacific Northwest and how fire regimes are changing through time. The Committee will then hear from state fish and wildlife managers from Oregon and Washington who will share more specific information, though still preliminary, about how fires in 2020 impacted fish and wildlife mitigation and restoration efforts including those funded by Bonneville through the Council’s Fish and Wildlife Program.

More Info: The Oregon Watershed Enhancement Board, one of Bonneville’s funding partners in the Willamette Basin and other areas in Oregon, has established a [Wildlife Response Grant](#) through the end of the biennium (June 30, 2021) to address short-term fire recovery needs. OWEB has dedicated $75,000 for one mutually agreed-upon entity to apply to soil-stabilization and weed management on tribal or private lands in each of Oregon’s 13 fire areas.
Forest Fires of Washington, Oregon, and Idaho
Putting the 2020 fires into perspective

Information Sources

- Historic forest survey maps
  Gannet (1902)
- Historic forest fire maps
  Plummer (1912)
- Conifer species distribution maps
  Little (1971)
- Climate change prediction maps
  Cartwright and others (2020)
Forest Fires of Washington, Oregon, and Idaho
Putting the 2020 fires into perspective
Forest Fires of Washington, Oregon, and Idaho

Forested Areas

Northwest Power and Conservation Council
Species distributions are shaped by fire

- **Fire-sensitive conifer**
  - Western redcedar
  - Western hemlock

- **Fire-dependent conifer**
  - Ponderosa pine
  - Limber pine
Species distributions are shaped by fire

- Fire-sensitive conifer
  - Western redcedar
  - Western hemlock
- Fire-dependent conifer
  - Ponderosa pine
  - Limber pine
Forest Fires of Washington, Oregon, and Idaho
Tree Species Distributions (Little 1971)

Forest fires
2020

- Fire-sensitive conifer
  - Western redcedar
  - Western hemlock

- Fire-dependent conifer
  - Ponderosa pine
  - Limber pine
Forest Fires of Washington, Oregon, and Idaho
Historical maps of “burnt forests” (Gannett 1902)

Burnt forest
late 1800s to 1910

- Fire-sensitive conifer
  - Western redcedar
  - Western hemlock

- Fire-dependent conifer
  - Ponderosa pine
  - Limber pine
“The most startling feature shown by this map is the extent of the burned areas, especially in the Coast Range and in the northern half of the Cascades... the areas represented here as burned are only those in which the destruction of timber was nearly or quite complete.”

Gannett 1902
“...where the forests are mainly of yellow pine in open growth, with very little litter or underbrush, destructive fires have been few and small, although throughout these regions there are few trees which are not marked by fire, without, however, doing them any serious damage.”

Gannett 1902
Forest Fires of Washington, Oregon, and Idaho
The Normal Fire Environment

The 1971-2000 normal*

* Climate normal period = 3 decades

High suitability for fires
Low suitability for fires
Forest Fires of Washington, Oregon, and Idaho
The Normal Fire Environment

The 1971-2000 normal*

The “normal” fires
1990-2019

* Climate normal period = 3 decades
The 1971-2000 normal*

The “abnormal” fires
late 1800s-1910

High suitability for fires
Low suitability for fires

* Climate normal period = 3 decades
The 1971-2000 normal* 

The “abnormal” fires 2020

High suitability for fires

Low suitability for fires

* Climate normal period = 3 decades
Forest Fires of Washington, Oregon, and Idaho
Climate Change Predictions

The 1971-2000 normal*

High suitability for fires
Low suitability for fires

* Climate normal period = 3 decades

The Fire Environment Concept – Countryman (1972)
Davis et al. 2017
Cartwright et al. 2020
Forest Fires of Washington, Oregon, and Idaho
Climate Change Predictions

The 2031-2060 normal*

High suitability for fires
Low suitability for fires

* Climate normal period = 3 decades

The Fire Environment Concept – Countryman (1972)

Davis et al. 2017
Cartwright et al. 2020
The 2071-2100 normal*

High suitability for fires

Low suitability for fires

* Climate normal period = 3 decades

The Fire Environment Concept – Countryman (1972)

Davis et al. 2017
Cartwright et al. 2020
Forest Fires of Washington, Oregon, and Idaho
Summary

- Fire has been an integral part of the forest
- Fire frequency relates to fire severity
- Tree species distributions are shaped by fire regimes

infrequent wildfires – high severity
frequent wildfires – low severity
Forest Fires of Washington, Oregon, and Idaho

Summary

- The fires of 2020 were “abnormal” (infrequent/high severity)
- Forest fire frequency, extent and severity are increasing
- The 2020 fires may become more “normal” with climate change
Forest Fires of Washington, Oregon, and Idaho

Questions?

2020... fires, smoke, and hurricanes
2020 Wildfire Impacts

Bernadette Graham Hudson
Oregon Department of Fish and Wildlife
November 17, 2020
Overview

- Location of the fires in Oregon
- Impacts to hatcheries and production
- Impacts to Willamette Wildlife Mitigation Program properties and White River Wildlife Area
- Ongoing recovery efforts
Fire Locations
Hatchery Impacts
Evacuations

- Eight hatcheries evacuated
- Minto Fish Facility, Marion Forks, Klamath, Rock Creek, McKenzie, Leaburg, Salmon River, and Clackamas hatcheries

Damage

- Klamath Hatchery
- Minto Fish Facility
- Rock Creek Hatchery
- Leaburg Hatchery
Klamath Hatchery

- Hatch house and office complex are a complete loss
- Lost 50k triploid brown trout in early rearing troughs in hatch house
- No loss in the outside raceways
Minto Fish Facility

- Minor damage to fish facility infrastructure
- Loss of storage shed, and fish liberation truck
- Adult spring Chinook were spawned and eggs transported to Roaring River Hatchery
Rock Creek Hatchery

- Near complete loss (hatch house, 5 homes, water disinfectant shed, equipment garage, liberation truck)
- Additional damage to intake control and ladder operations building
- Adult spring Chinook and summer steelhead were transferred to Cole Rivers Hatchery after the fire – being spawned to meet Rock Creek production goals
- Almost all juvenile fish were lost (winter steelhead, rainbow trout, spring Chinook, most coho)
- Remaining coho juveniles will be raised at Eastwood Elementary School’s fish rearing facility and released this spring as smolts in Cow Creek below Galesville Reservoir
Leaburg Hatchery

- Damage to domestic well pump/pump house
- All in-basin production was released due to loss of water from lowering Leaburg Lake
- Rock Creek production at Leaburg was lost
- All spring Chinook broodstock was released (McKenzie production)
- Broodstock were re-trapped and McKenzie production goals met
- Eggs are split between McKenzie Hatchery, Marion Forks Hatchery, and Willamette Hatchery due to concerns over water quality in Cogswell Creek
- Ongoing uncertainty about water supply from Leaburg Lake
WWMP and Wildlife Area Impacts
WWMP Impacts

Little Sweden –
Confederated Tribes of Warm Springs
White River Wildlife Area Impacts
Ongoing Recovery Efforts
Recovery Efforts

• Burned Area Evaluation Team (BAER)
• Emergency Stabilization and Rehabilitation (ESR)
• Oregon Post-Fire Erosion Threat Assessment and Reduction Team (ETART)
• Governor’s Natural and Cultural Resources Task Force

ODFW Priorities

• Removal/mitigation of hazardous wastes that might enter streams
• Ensuring that habitat recovery/restoration work is focused in the places where it will do greatest good
• Minimizing the impact of ongoing recovery/rebuilding efforts on fish, wildlife, and their habitats
Wildfire Impacts in Washington, 2020

WDFW Vegetation Ecologist, Kurt Merg
Wildfire in WA, 2020
## Fires Detail

from InciWeb, NWCG

<table>
<thead>
<tr>
<th>Fire Name</th>
<th>Acres</th>
<th>Percent contained</th>
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<tbody>
<tr>
<td>Mount Lena</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Big Hollow</td>
<td>24,995</td>
<td>70</td>
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<tr>
<td>Cold Creek</td>
<td>564</td>
<td>88</td>
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<tr>
<td>Evans Canyon Fire</td>
<td>75,817</td>
<td>90</td>
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<tr>
<td>Jungle Creek Fire</td>
<td>588</td>
<td>100</td>
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<tr>
<td>Downey Creek Fire</td>
<td>2,570</td>
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<tr>
<td>Chikamin Fire</td>
<td>1,685</td>
<td>100</td>
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<tr>
<td>Pearl Hill Fire</td>
<td>223,730</td>
<td>94</td>
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<tr>
<td>Apple Acres Fire</td>
<td>5,500</td>
<td>99</td>
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<tr>
<td>Palmer Fire</td>
<td>17,988</td>
<td>91</td>
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<tr>
<td>Inchelium Complex</td>
<td>19,399</td>
<td>100</td>
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<tr>
<td>Whitney Fire</td>
<td>127,430</td>
<td>95</td>
</tr>
<tr>
<td>Rattlesnake Fire</td>
<td>497</td>
<td>100</td>
</tr>
<tr>
<td>Babb-Malden/Manning Fires</td>
<td>18,254</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>519,037</strong></td>
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<tr>
<td></td>
<td>Wenas WLA</td>
<td>Sagebrush Flats WLA</td>
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<tr>
<td>------------------------------</td>
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</tr>
<tr>
<td><strong>Wildlife Area Acres</strong></td>
<td>105,000</td>
<td>12,000</td>
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<tr>
<td><strong>BPA Mitigation Acres</strong></td>
<td>75,000</td>
<td>12,000</td>
</tr>
<tr>
<td><strong>Burned Acres</strong></td>
<td>60,000 (~2/3 BPA)</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>Burned Boundary &amp; Internal Fence Miles (Damaged/Destroyed)</strong></td>
<td>6.5/4, 10.5 total</td>
<td>26/12, 38 total</td>
</tr>
<tr>
<td><strong>Burned Elk Fence Miles (on BPA/on State)</strong></td>
<td>5.5/12 17.5 total</td>
<td>n/a</td>
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<tr>
<td><strong>Other Infrastructure</strong></td>
<td>Estimate pending</td>
<td>$284,000 (signs/reader boards, upland bird feeders, debris removal, etc.)</td>
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<tr>
<td><strong>Minimum Damage Cost Estimate</strong></td>
<td>$6,144,000</td>
<td>$2,831,000</td>
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<tr>
<td><strong>Current Habitat Recovery Allocation (seed, herbicide, irrigation pipe)</strong></td>
<td>$210,000</td>
<td>$100,000</td>
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