OMB Control No: XXXX-XXXX xx/xx/xxxx

ELWHA RIVER RESTORATION

What do YOU think should be done?

Elwha River Restoration Survey

Background and Purpose

Steps that would improve the environment of the Elwha River in western Washington are being considered.

- Information will be provided so that you can answer the questions, even if you are not familiar with the area.
- Public officials will use the results of this survey and other information to decide what to do.

Choices to be made soon will determine what is done and ***may cost you money***. Please take a few minutes to fill out this survey.

The Elwha River

The maps on the insert show the Elwha River and the streams flowing into it.

- The Elwha River is more than 70 miles long.
- The river flows mainly from south to north before it empties into the Strait of Juan de Fuca, which connects the Pacific Ocean and Puget Sound.
- The maps show where the Elwha Dam and the Glines Canyon Dam were built.
- The map also shows other rivers that, like the Elwha River, have salmon.
- The largest city near the river is Port Angeles, WA, six miles away, with a population of about 20,000.

Before the river reaches the Elwha Dam site, it runs through steep, narrow valleys and canyons. This picture shows a scene from this part of the river. Most of the areas that run through these valleys are in Olympic National Park, in remote areas with limited or no access by road.

This picture shows the river as it empties into the Strait of Juan de Fuca. It also shows where a number of people live, including many members of the Lower Elwha Klallam Tribe.

The dams on the Elwha River are being torn down.

- The Elwha Dam was built in 1910. It is outside Olympic National Park, and ***was recently taken down***.
- The Glines Canyon Dam, which is inside the national park, was built before the area was set aside as a national park. The dam was built in 1920 and ***will be torn down by 2013***.
- The dams were taken down because they were old and obsolete. It is less expensive to take them down than to bring them up to modern standards.

	YES	NO
1. Before today, had you heard of the Elwha River?	☐	☐
2. Have you ever visited the Elwha River?	☐	☐
3. Have you ever visited Olympic National Park?	☐	☐
4. Before today, had you heard or read about removal of the dams on the Elwha River?	☐	☐

Salmon and the Elwha River Ecosystem

The Elwha River supports many kinds of plants and animals.

- The Elwha River ***ecosystem*** includes these plants and animals interacting with their physical surroundings.
- Dense forests typical of the coastal Pacific Northwest grow along the river.

Before the dams were built, salmon were part of the ecosystem throughout the Elwha River.

- Young salmon swam down the Elwha River and into the ocean.
- The salmon that survived to adulthood swam back up the Elwha River to spawn and die, beginning the life cycle again.

Scientists consider salmon to be a keystone species for the entire Elwha River ecosystem.

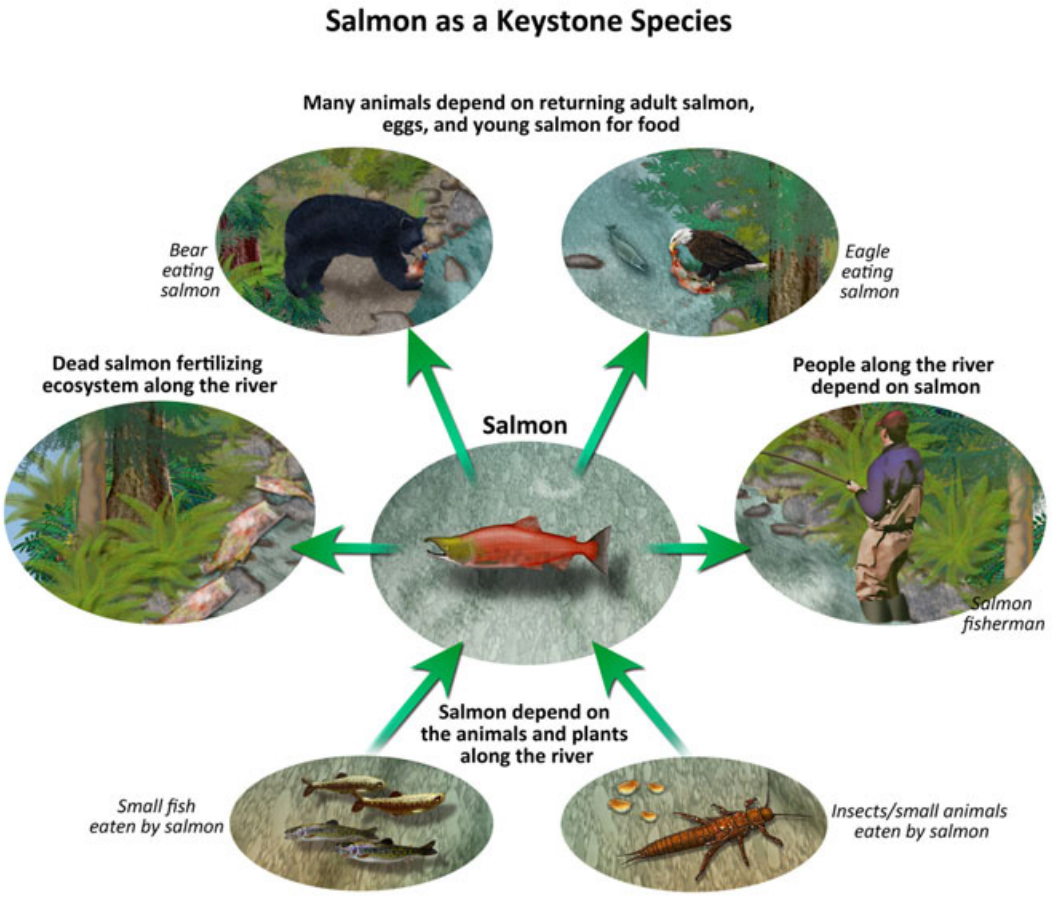
- A ***keystone species*** plays an important role in holding an ecosystem together. If a keystone species is removed, the entire ecosystem changes.

People also depended on the salmon.

- Visitors and people living along the river, including members of the Lower Elwha Klallam Tribe, fished for Elwha River salmon.

The Elwha River salmon contributed to the much larger ocean ecosystem.

- Orcas, sea lions, and other sea animals ate salmon from the many rivers in the Northwest, including the Elwha River.



This picture shows salmon as a keystone species at the center of the Elwha River ecosystem before the dams were built.

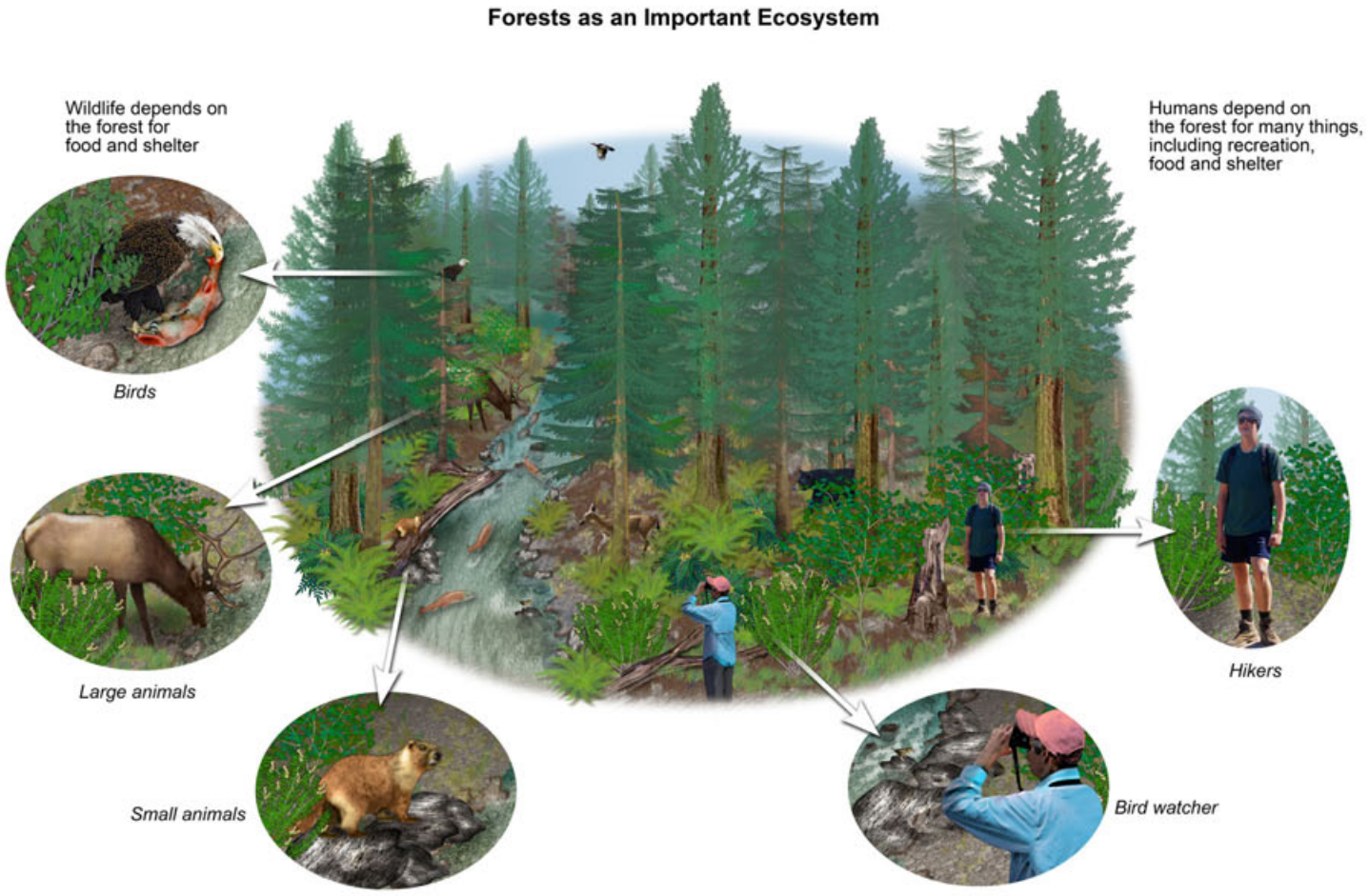
Forests and the Elwha River Ecosystem

Before the dams were built, forests grew along the entire length of the Elwha River.

- These areas contained a larger variety of trees and other plants than forests farther away from the river.
- These forests were home to a rich variety of wildlife, including both large animals, such as elk and deer, and small animals, such as raccoons, mink, mice, chipmunks, squirrels, frogs, turtles, and salamanders.
- Many birds also used these forests, including songbirds, wood ducks, ospreys, woodpeckers, and others.

The dams had two effects on the Elwha River ecosystem that are being considered in our study:

- They prevented salmon from moving upstream to spawn, resulting in the loss of a keystone species from most of the river.
- Lakes behind the dams covered forests, destroying some wildlife habitat.



This picture shows forests as an important part of the Elwha River ecosystem before the dams were built.

Please check one box

5. How well do you feel you understood what you just read about the Elwha River ecosystem?

- ☐ I understood it very well.
- ☐ I have gained some understanding, but some parts were hard to understand.
- ☐ I didn't understand it at all.

6. Do you have any questions about the Elwha River ecosystem? If so, please write them here.

Elwha River Salmon Restoration

Because the dams blocked the river, salmon could no longer swim upstream to spawn, and their numbers have declined by more than 90%.

- The areas that salmon could not reach are in parts of the river shown in light blue on the maps.
- A small number of salmon still use the part of the river downstream of the Elwha Dam site, which is shown in dark blue on both maps.
- Some native salmon still spawn there, but many others are hatchery fish.
- Native salmon are those that are born in the Elwha River, go out to the ocean for part of their lives, and return to the Elwha River to spawn.

When the dams were built, the Elwha River ecosystem upstream of the dams no longer had its keystone species.

- As a result, the number of bears, eagles, otters, mink, raccoons, and other animals and birds may have declined because they did not have salmon to eat.
- The forest and other plants along the river no longer had the fertilizer from dead salmon.

The ocean ecosystem was also affected.

- Orcas, sea lions, and other sea animals had fewer salmon to eat.

Scientists at universities and research centers have studied Elwha River salmon for many years.

- They are drawing on 100 years of research in the Pacific Northwest, British Columbia, and Alaska, as well as their experience with methods for increasing the number of fish returning to various rivers.
- They have studied how many salmon could be restored in the Elwha River and how long it would take.

These scientists estimate that before the dams were built, about 300,000 salmon returned to the Elwha River each year, on average. This is considered the *historical level* of salmon.

- Depending on what is done after the dams are removed, these scientists predict that the number of salmon returning to the Elwha River each year could reach up to 60% of historical levels (180,000 salmon return each year).
- They predict that after dam removal, the number of salmon returning to the Elwha River would not reach historical levels for two reasons:
    - First, people have made changes to the salmon habitat, only some of which can be returned to its previous condition.
    - Second, there is no way to protect Elwha River salmon from recreational and commercial fishing once they are in the ocean and join fish from other rivers.

Steps could be taken to increase the number of salmon more quickly and allow more to return each year.

- Salmon habitat could be improved downstream of the Elwha Dam site.
  - More spawning areas in this part of the river would lead to a rapid expansion in the number of salmon there.
  - Some of these salmon would stray upstream of the Elwha Dam site, helping to establish more groups throughout the river.
- Elwha River salmon could be raised in a new salmon nursery and released upstream to establish salmon populations upstream.
  - The salmon nursery would be built and operated using the latest research on and experience in ways to successfully raise native salmon for release into the wild.
  - Such salmon nurseries have been successful in British Columbia and Alaska.
  - Eggs from the native Elwha River females would be collected, fertilized by native males, and placed in the nursery to grow into young fish.
  - The young fish would be put into the Elwha River upstream of the dam sites.
  - These areas are in nearly pristine condition, making them ideal places for young salmon to live and grow.

Three alternatives are being considered that involve different levels of salmon restoration.

Salmon Alternative 1 No further actions	Salmon Alternative 2 Limited actions	Salmon Alternative 3 Extensive actions
Elwha River scientists predict that by doing nothing more than dam removal, the number of salmon would level off at about ***40% of historical levels*** (120,000 salmon return each year) in about ***100 years***.	Elwha River scientists predict that with limited salmon restoration, the number of salmon would level off at about ***50% of historical levels*** (150,000 salmon return each year) in about ***50 years***.	Elwha River scientists predict that with extensive salmon restoration, the number of salmon would level off at about ***60% of historical levels*** (180,000 salmon return each year) in about ***25 years***.
• No salmon habitat would be improved. • Because there would be no habitat improvements, the number of salmon returning each year would level off at a lower level than with Alternatives 2 and 3.	• Only some salmon habitat would be improved. • These limited habitat improvements would allow the number of salmon returning each year to level off at a higher level than with Alternative 1.	• As much salmon habitat as possible would be improved. • These extensive habitat improvements would allow the number of salmon returning each year to level off at a higher level than with Alternatives 1 and 2.
• No Elwha River salmon would be released upstream. • The increase in the number of salmon would happen less quickly than with Alternative 3.	• No Elwha River salmon would be released upstream. • The increase in the number of salmon would happen less quickly than with Alternative 3.	• Extensive numbers of native Elwha River salmon would be released upstream. • Releasing these salmon would increase the number of salmon returning each year more quickly than with Alternatives 1 and 2.

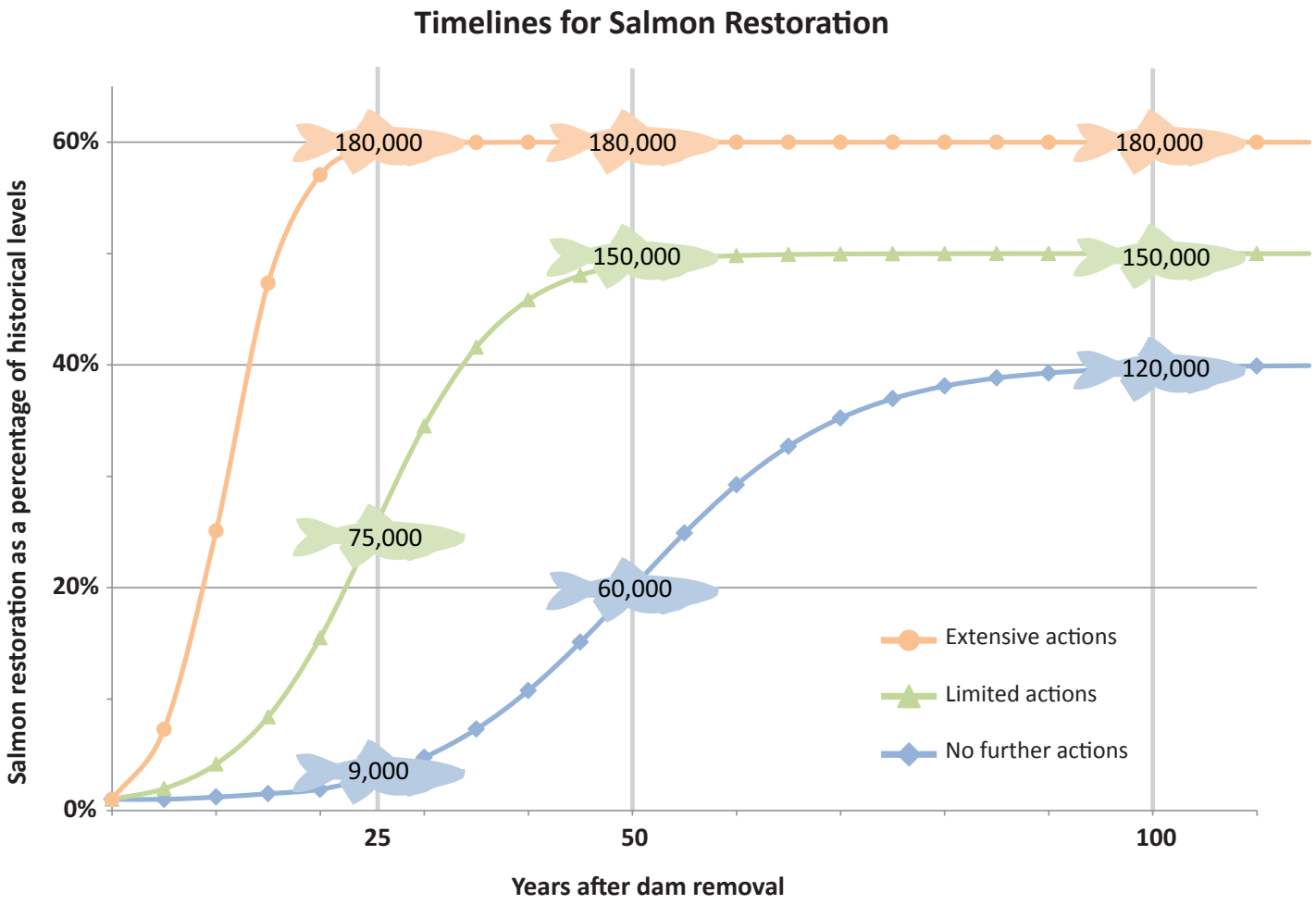


Table 1. Salmon restoration alternatives

Time since dam removal	Salmon Alternative 1 No further actions	Salmon Alternative 2 Limited actions	Salmon Alternative 3 Extensive actions
25 years after dam removal	3% of historical levels (9,000 salmon return each year)	25% of historical levels (75,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
50 years after dam removal	20% of historical levels (60,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
100 years after dam removal	40% of historical levels (120,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)

Table 1 shows the percentages of historical levels of returning salmon that are possible. These percentages are taken from the timelines in the graph above.

Please check one box

7. How well do you feel you understood what you just read about salmon restoration alternatives?

- ☐ I understood the alternatives very well.
- ☐ I have gained some understanding of the alternatives, but some parts were hard to understand.
- ☐ I didn't understand the alternatives at all.

8. Do you have any questions about salmon restoration in the Elwha River? If so, please write them here.

Forests and Wildlife Recovery at the Old Lake Sites

When the dams were completed, a total of about 5 miles of forests along the Elwha River were covered with water to make the two lakes behind the dams.

- This would be about 7% of the total length of the Elwha River, which is about 70 miles.
- A total of 800 acres of forests were covered. This is equal to about 800 football fields.

This picture shows the lake site after the Elwha Dam was removed last spring.

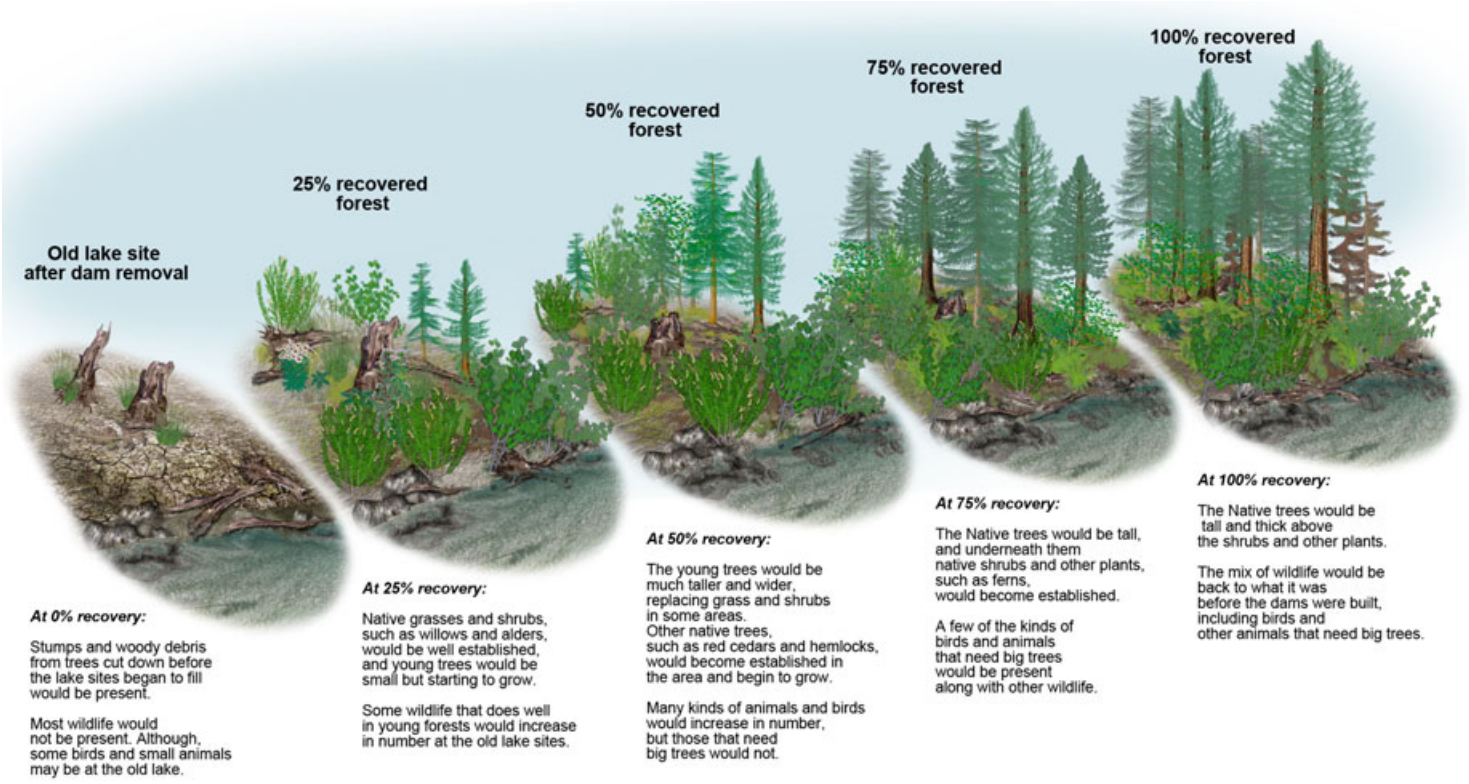
- The stumps are from trees cut down before the lake began to fill.
- The Glines Canyon Dam's lake bottom would look like this after that dam is removed.

The old lake site after removal of the Elwha Dam.

Elwha River scientists are studying how the forests and wildlife might recover once both dams are removed.

- These scientists can draw on many years of research on how forests grow after lakes are drained.
- It would take some time, but scientists predict that 100% recovery of the forests and wildlife is possible.
    - 100% recovery means that all the forests and wildlife will return to what they were like before the dams were built.
    - Some birds and other wildlife do best living in mature forests with big trees; 100% recovery will not be reached until the young trees are large enough to support them.

Progress toward recovery will be described as percentages of full recovery, as illustrated in this diagram.



This picture shows the progress of forests and wildlife recovery.

Once the dams are removed, forests and wildlife would eventually recover at the old lake sites.

- If nothing else is done, progress would be slow for many decades after the lakes are drained.
  - Because of erosion, it would take several years before the soil could stabilize enough to support plants.
  - Weeds that grow faster than native plants and trees would become established.
  - Because of erosion and weeds, native grasses, trees, and shrubs would not start growing at the old lake sites for about 50 years.
- It would take about 200 years for the forest to grow enough to support the birds and other animals that need big trees.

Steps can be taken to restore the forests and wildlife at the old lake sites more quickly.

Native grasses, shrubs, and trees could be planted.

- Planting native grasses and shrubs, such as willows and alders, would reduce erosion and prevent weeds from taking over.
- Planting native trees, such as Douglas firs and cottonwoods, would give them a much earlier start than they would get with natural seeding.
- Planting native grasses, shrubs, and trees would eventually start new plants in neighboring areas without the help of people.

Three alternatives are being considered that involve different levels of forests and wildlife recovery at the old lake sites.

Forests and Wildlife Alternative 1 No further actions

Elwha River scientists predict that if no further actions are taken after the dams are removed, ***100% recovery*** of forests and wildlife would be achieved in about ***200 years***.

- No native grasses, shrubs, or trees would be planted.
- Because there would not be any actions to restore the old lake sites, it would take more time for the forests and wildlife to achieve 100% recovery than with Alternatives 2 and 3.

Forests and Wildlife Alternative 2 Limited actions

Elwha River scientists predict that if native grasses, shrubs, and trees are planted in some limited areas, ***100% recovery*** of the forests and wildlife would be achieved in about ***125 years***.

- Native grasses, shrubs, and tress would be planted in some areas.
- Planting in limited areas would allow the forests and wildlife to achieve 100% recovery in less time than with Alternative 1.

Forests and Wildlife Alternative 3 Extensive actions

Elwha River scientists predict that if native grasses, shrubs, and trees are planted in more extensive areas, ***100% recovery*** of the forests and wildlife would be achieved in about ***90 years***.

- Native grasses, shrubs, and tress would be planted in as many areas as possible.
- Planting in extensive areas would allow the forests and wildlife to achieve 100% recovery in less time than with Alternatives 1 and 2.

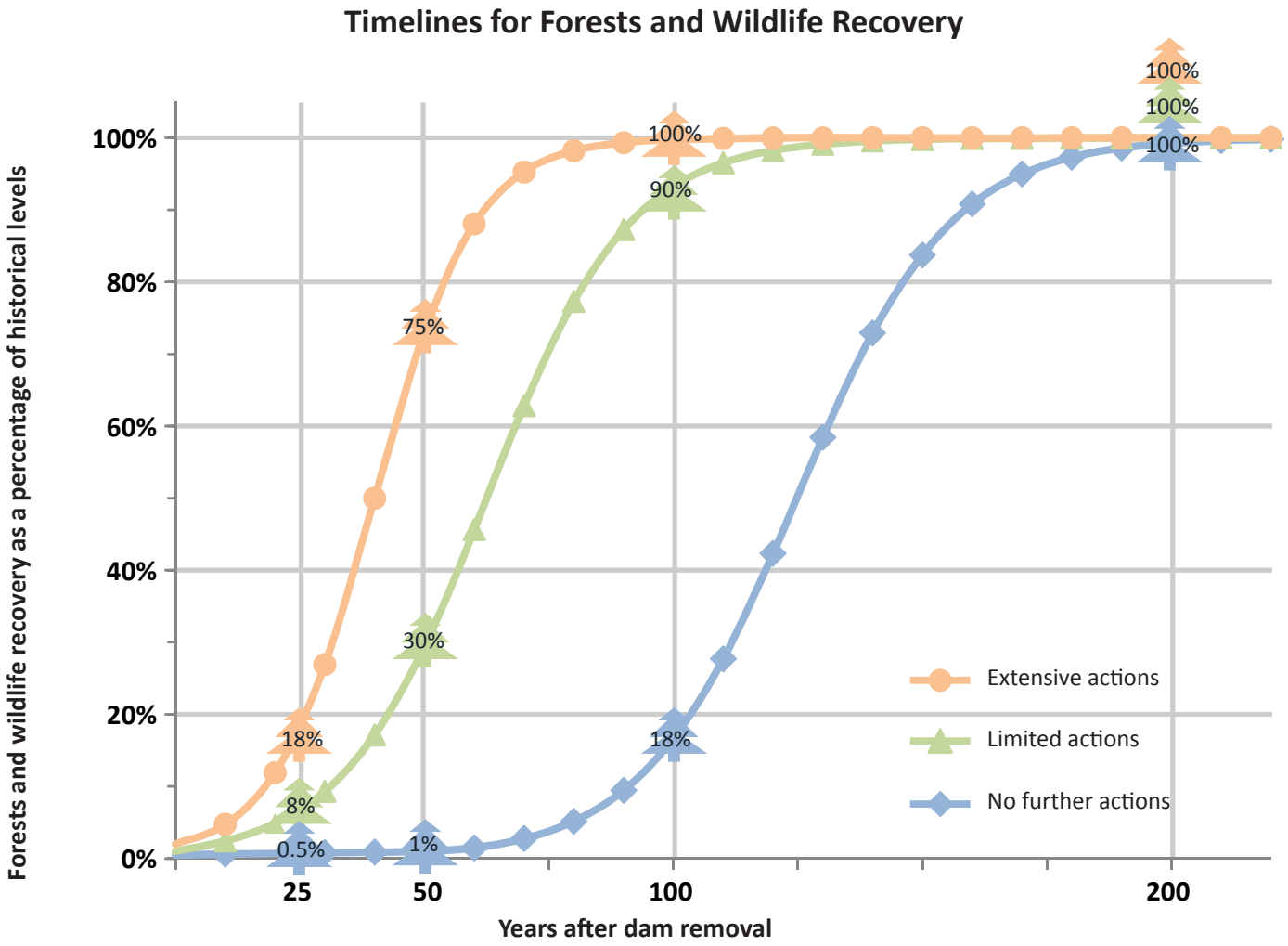


Table 2. Forests and wildlife restoration alternatives

Time since dam removal	Forests and Wildlife Alternative 1 No further actions	Forests and Wildlife Alternative 2 Limited actions	Forests and Wildlife Alternative 3 Extensive actions
25 years after dam removal	0.5% recovered	8% recovered	18% recovered
50 years after dam removal	1% recovered	30% recovered	75% recovered
100 years after dam removal	18% recovered	90% recovered	100% recovered
200 years after dam removal	100% recovered	100% recovered	100% recovered

Table 2 shows the percentages of forests and wildlife that would be recovered in 25, 50, 100, and 200 years after dam removal, depending on which alternative is adopted. The percentages are taken from the timelines in the graph above.

Please check one box

9. How well do you feel you understood what you just read about forests and wildlife restoration alternatives?

- ☐ I understood the alternatives very well.
- ☐ I have gained some understanding of the alternatives, but some parts were hard to understand.
- ☐ I didn't understand the alternatives at all.

10. Do you have any questions about forests and wildlife recovery at the old lake sites? If so, please write them here.

What Are Your Opinions on the Alternatives?

Benefits and Negative Impacts

Restoring the Elwha River ecosystem would benefit people.

- Some people may like knowing that natural ecosystems are being restored, even if they do not personally visit them.
- Sport and commercial fishermen would benefit from more salmon in the river and ocean.
- People visiting the river would eventually see tens of thousands of salmon returning to the river to spawn.
- In the future, visitors to the area and local residents would be able to enjoy forests, birds, and other wildlife at the old lake sites.
- The Lower Elwha Klallam Tribe supports restoration efforts because a restored ecosystem is important to them in many ways.
    - A restored Elwha River ecosystem has much cultural and religious significance for them.
    - In the future, because there would be many more salmon in the river, members of the Lower Elwha Klallam Tribe would be able to catch many more of them.

The more that is done after the dams are removed, the sooner these benefits will happen.

Restoring the Elwha River ecosystem would also have some negative impacts, however, which include the following:

- As the number of young salmon using the river increases, they would compete with local trout for food and habitat.
    - As the number of salmon increases, there will be fewer local trout.
- Improving salmon habitat and planting native grasses, shrubs, and trees may disturb local wildlife until the activities are completed in about five years.
- Doing more after the dams are removed would involve costs.

How costs would be paid for is the topic of the next section.

How Would Restoration Be Paid For?

Money for removing the dams was collected years ago. At that time, no additional money was collected for additional actions to restore salmon, forests, and wildlife.

- If no further action is taken after the dams are removed, there will be no additional cost to the public.

If additional restoration actions are taken, the costs would be shared across various groups.

- Sport fishermen, commercial fishermen, and national park visitors would pay a share of the costs.
    - The funds would come from fees already collected for entrance to national parks and for fishing licenses; no new fees would be collected.
    - Some of the fees that are currently being collected would be diverted to pay for Elwha River ecosystem restoration, rather than on other projects.
- The Lower Elwha Klallam Tribe would also pay a share of the costs.
- The rest of the costs would be paid for by the general public in Washington and Oregon.

The general public's share of the costs would be collected by adding surcharges to 2013 electricity bills.

- The surcharge on your electricity bill would last for only one year: 2013. By law, no surcharges would be added in 2014 or thereafter.
- All the money would go into the Elwha River Restoration Trust Fund.
- A nonprofit environmental organization would be formed to manage the trust fund.
- By law, this trust fund could be spent only on Elwha River ecosystem restoration activities.
- All the money would be collected in 2013, and then paid out as needed.
- All the money would be collected in the first year to ensure that there is enough to complete the work.

What Do You Think Should Be Done After Dam Removal?

In a moment, you will be asked about which alternatives you think are the best. Here are some things to consider:

- Public officials will take the results of this survey into account when they choose what to do.
- The costs, if any, would be added to your 2013 electricity bill.
- By law, no money collected for Elwha River ecosystem restoration could be spent on other things.
- You might decide that no further actions should be taken after the dams are removed, or you might choose other alternatives.
- The choice is yours. Our job is to learn what you think and report the results to the public officials who will decide.

For easy reference, the tables below summarize the alternatives as they were presented to you earlier.

Table 3. Salmon restoration alternatives

Time since dam removal	Salmon Alternative 1 No further actions	Salmon Alternative 2 Limited actions	Salmon Alternative 3 Extensive actions
25 years after dam removal	3% of historical levels (9,000 salmon return each year)	25% of historical levels (75,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
50 years after dam removal	20% of historical levels (60,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
100 years after dam removal	40% of historical levels (120,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)

Table 4. Forests and wildlife recovery alternatives

Time since dam removal	Forests and Wildlife Alternative 1 No further actions	Forests and Wildlife Alternative 2 Limited actions	Forests and Wildlife Alternative 3 Extensive actions
25 years after dam removal	0.5% recovered	8% recovered	18% recovered
50 years after dam removal	1% recovered	30% recovered	75% recovered
100 years after dam removal	18% recovered	90% recovered	100% recovered
200 years after dam removal	100% recovered	100% recovered	100% recovered

Which alternatives do you think should be implemented and what will it cost?

Please complete the four steps in the table below.

- First, review all of the alternatives and their costs.
- Second, check the box of the salmon alternative you would like to see implemented.
- Third, check the box of the forests and wildlife alternative you would like to see implemented.
- Fourth, add the one-year costs from the alternatives you circled and fill in the sum your household would pay on the right side of the table.

	Alternative 1 No further actions	Alternative 2 Limited actions	Alternative 3 Extensive actions
Salmon restoration			
25 years after dam removal	3% of historical levels (9,000 salmon return each year)	25% of historical levels (75,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
50 years after dam removal	20% of historical levels (60,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
100 years after dam removal	40% of historical levels (120,000 salmon return each year)	50% of historical levels (150,000 salmon return each year)	60% of historical levels (180,000 salmon return each year)
Surcharge on your electric bill in 2013	**$0 total ($0 per month)**	**$48 total ($4 per month)**	**$84 total ($7 per month)**
	Please check the alternative that you *personally* think is the best of the three		
	☐	☐	☐

Your total one-year cost for salmon restoration

$ _____

	Alternative 1 No further actions	Alternative 2 Limited actions	Alternative 3 Extensive actions
Forests and wildlife restoration			
25 years after dam removal	0.5% recovered	8% recovered	18% recovered
50 years after dam removal	1% recovered	30% recovered	75% restored
100 years after dam removal	18% recovered	90% recovered	100% recovered
200 years after dam removal	100% recovered	100% recovered	100% recovered
Surcharge on your electric bill in 2013	**$0 total ($0 per month)**	**$36 total ($3 per month)**	**$60 total ($5 per month)**
	Please check the alternative that you *personally* think is the best of the three		
	☐	☐	☐

Your total one-year cost for forests and wildlife restoration

$ _____

Your total one-year cost (salmon cost plus forests and wildlife cost)

$ _____

11. You just chose a combination of alternatives for salmon and forest restoration. In the space provided below, please tell us your reasons for choosing that combination.

12. When you chose which combination of restoration actions you would like to see implemented, did you think that public officials would use the results of this survey when they decide what to do? **Please check one box.**

    ☐ I thought that public officials would definitely use the results of this survey.

    ☐ I thought that public officials would probably use the results of this survey.

    ☐ I thought that public officials would probably not use the results of this survey.

    ☐ I thought that public officials would definitely not use the results of this survey.

13. When you chose which combination of restoration actions you would like to see implemented, how certain were you that you would actually have to help pay for restoration as part of your 2013 electricity bills? **Please check one box.**

    ☐ I thought I would definitely have to help pay for restoration.

    ☐ I thought I would probably have to help pay for restoration.

    ☐ I thought I would probably not have to help pay for restoration.

    ☐ I thought I would definitely not have to help pay for restoration.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Tony Penn, NOAA NOS, 1305 East-West Highway, Silver, Spring, MD 20910.

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