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memorandum

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to Yakima River Basin Watershed Enhancement Program Workgroup

from Ann Root, ESA Adolfson
Robert Montgomery, Anchor QEA

subject Bumping Lake Expansion - Additional Information on Impacts to Northern Spotted Owl and Late Successional Forest

This memorandum summarizes the potential impacts to northern spotted owl and related late successional forest that could result from the expansion of water storage in the Bumping Lake reservoir. Expansion of storage in the reservoir is one of the options for increased water storage in the Yakima River basin. It was evaluated in Ecology's Environmental Impact Statement on the Integrated Water Resource Management Alternative (June 2009) and is being considered as a potential component of an integrated package being developed by the Yakima River Basin Watershed Enhancement Project Work Group.

Bumping Lake is one of five major storage reservoirs in the Yakima Project, located on the Bumping River 16.6 miles upstream of the confluence with the Little Naches River. The existing Bumping Lake reservoir is impounded by an earth dam, providing a storage capacity of 33,700 acre-feet. The proposal is to construct a new dam downstream of the existing dam or to expand the dam at the existing site to add additional storage capacity. No feasibility studies have been conducted yet on expanding the dam at the existing site, but information on the dam is provided as a comparison. The additional water supply would be used to improve stream flows for fish and provide irrigation water during drought years. Fish passage facilities would be included in any reservoir expansion project.

METHODS TO ANALYZE IMPACTS

For this analysis, an expanded reservoir storage volume of approximately 150,000 acre-feet was used. The exact volume would vary slightly depending on whether a new dam is constructed downstream of the existing dam or if the existing dam is expanded. This analysis assumed that the elevation of the proposed reservoir would be 3,490 feet regardless of which approach was used for the new dam. Using that elevation, Anchor QEA used GIS mapping to overlay these areas onto maps of northern spotted owl and late successional forest habitats (see attached figure). The data for northern spotted owl and late successional forest habitats was obtained from the Northwest Forest Plan Regional Ecosystem web site (http://www.reo.gov/index.htm). The area of habitat impacts in acres was then calculated. ESA Adolfson used these acreage calculations and habitat mapping to analyze resource impacts, as discussed in the following sections.

IMPACTS

Northern Spotted Owl Habitat Impacts

The northern spotted owl was federally listed as a threatened species in 1990 because of widespread habitat loss and degradation and a lack of effective regulations to conserve the species. Timber harvesting, catastrophic natural events such as fire, volcanic eruption and wind storms, and competition from the barred owl are considered major causes of the species' decline (USFWS, 2009). Northern spotted owls generally rely on mature and old-growth forests that provide the habitat structures and characteristics required for nesting, roosting, and foraging (USFWS, 2008).

Construction of a new dam and enlargement of the reservoir would flood areas of mapped spotted owl habitat located around most of the perimeter of Bumping Lake (shown with the speckled pattern on the attached figure). The largest contiguous spotted owl habitat in the project area overlaps with mapped old-growth forest habitat on the south side of the lake and in the Deep Creek and Granite Creek drainage basins. The expanded reservoir would replace existing forest habitat with open water. Reservoir expansion would incrementally reduce the amount of habitat available for the northern spotted owl in eastern Washington.

Table 1 summarizes the amount of mapped spotted owl habitat that would be impacted by expanding Bumping Lake. Expanding the reservoir by expanding the existing dam would inundate 670 acres of owl habitat, while constructing a new dam downstream would inundate 982 acres. There are 149,878 acres of spotted owl habitat in the Naches River basin. Table 1 provides the percentage of habitat in the Naches basin that would be inundated for each dam option. The table also shows the difference in habitat that would be inundated by expanding the existing dam versus constructing a new dam downstream of the existing dam.

Table 1. Northern Spotted Owl Habitat (Anchor, 2009)

	Impact (Acres of Owl Habitat)	Percent of Owl Habitat in the Naches Basin
Expanding Existing Dam	670	0.4
Between Existing Dam and Proposed Downstream Dam	312	0.2
Behind Proposed Downstream Dam	982	0.6

The Washington Department of Fish and Wildlife's database was consulted to determine if any spotted owl nest areas would be inundated by the lake expansion. While owl nests have been recorded around Bumping Lake, none of those sites are close to the area that would be inundated. The most recent year when spotted owl presence was detected in the area was 2000.

Late Successional (Old-Growth) Forest Habitat Impacts

Construction of a new dam and enlargement of the reservoir would flood forested communities above the current level of Bumping Lake. In addition to providing habitat for northern spotted owl (discussed above), old-growth forests in eastern Washington provide habitat for numerous other listed and priority wildlife species. Reservoir expansion would incrementally reduce the amount of old-growth habitat available for these species.

Table 2 summarizes the amount of mapped old-growth forest that would be inundated by expanding Bumping Lake. As shown in green on the attached figure, the old-growth habitat that would be lost to reservoir inundation is located along the southern edge of Bumping Lake and in the Deep Creek and Granite Creek drainage basins. Increasing reservoir size by expanding the existing dam would inundate 693 acres of old-growth forest, while constructing a new reservoir downstream would inundate 719 acres. There are 46,552 acres of old-growth forest

in the Naches River basin. Table 2 provides the percentage of habitat in the Naches basin that would be inundated by the two proposals.

Table 2. Late Successional Forest Habitat (Anchor, 2009)

	Impact (Acres of Forest Habitat)	Percent of Forest Habitat in the Naches Basin
Expanding Existing Dam	693	1.5
Between Existing Dam and Proposed Downstream Dam	26	0.06
Behind Proposed Downstream Dam	719	1.5

References

Anchor QEA, LLC. 2009. Emails to ESA Adolfson providing storage volumes, inundation elevations, and habitat impact areas. August 31, September 1, and November 13, 2009.

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USFWS (U.S. Fish and Wildlife Service). 2008. *Final Recovery Plan for the Northern Spotted Owl* (Strix occidentalis caurina). May 2008. Region 1, USFWS, Portland, OR.

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