



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
*Upper Columbia River Basin Field Office*  
11103 E. Montgomery Drive, Suite 2  
Spokane, WA 99206

October 24, 1997

Carl Christianson, Chief of Environmental Resources  
Walla Walla District, Corps of Engineers  
210 North Third  
Walla Walla, WA 99362-1876

Dear Mr. Christianson:

Subject: Lower Snake River Habitat Coverage Analyses, 1987-1997

Enclosed are the 1995 aerial photographs and mylar overlays used in our habitat coverage analyses of Lake Sacajawea (Ice Harbor Dam pool) and Lake Bryan (Little Goose Dam pool). Our habitat coverage analyses for Lake Herbert G. West (Lower Monumental Dam pool) and Lower Granite Lake (Lower Granite Dam pool) will be provided to your office before November 14, 1997. The 1987 aerial photograph series and the remainder of the 1995 aerial photograph series of the lower Snake River will also be returned at that time.

The following is a summary of the habitat coverage analyses conducted by the Fish and Wildlife Service (Service) and an explanation of the information provided on the mylar overlays. To aid coordination between our offices should questions arise, we have retained photocopies of the enclosed aerial photographs and mylar overlays.

Between August 18 and October 2, 1997, Service biologists surveyed Corps of Engineers' (Corps) lands adjacent to the lower Snake River. Corps' lands were viewed from the river by boat or, when feasible, by road access. When parcels of land could not be surveyed directly from the river or by road access, the properties were accessed by foot. All of the Corps' currently developed Habitat Management Units (HMUs) along the lower Snake River were surveyed on foot.

During survey work, habitat and land-use polygons and field notes were drawn directly on temporary mylar sleeves covering the June, 1995, 1:12,000 aerial photographs of the area. Overlays of the Corps' GIS habitat maps produced from the June, 1987, 1:12,000 aerial photographs were also used in the field for comparisons and as an aid in locating the project boundary. To complete the habitat coverage analyses, comparisons between field conditions observed in 1997, the 1995 aerial photographs, the 1987 aerial photographs, and the GIS habitat maps were conducted. These comparisons included magnification and stereoscopic viewing of photographs, as required. Finally, clean mylar overlays were attached to the appropriate 1995 aerial photographs and pertinent information was transcribed directly onto these.

### Protocol Used for Mylar Overlays

Different types of information are depicted on mylar overlays and three pen colors have been used to help identify these differences.

**Black** is used for orientation and bookkeeping markings. Items marked in black on each overlay include: 1) The series and number of aerial photograph in the upper right corner; 2) The sequential photograph number from downstream to upstream for each pool is indicated in the lower left corner; 3) Four corner marks to indicate the center portion of the photograph. We attempted to restrict polygon delineations to this center portion to reduce distortion, however, some polygons had to be drawn outside this center portion on some photographs; 4) Features such as road intersections, railroad rights-of-way, and portions of the shoreline are included for map orientation; 5) Some habitat polygons which had not changed from 1987 were delineated in black also as an aid in orientation; 6) GPS readings that indicate the location point in UTM coordinates and horizontal error estimate; and 7) An approximation of the project boundary was included on some overlays.

**Blue** is used to indicate refinements to the 1987 GIS maps. While none of the items marked in blue represent changes in cover types from 1987 to 1995, these refinements were made to indicate mis-labeled polygons and/or improved delineation of cover types and land-use designations. Some polygons delineated (generally for mesic shrubs, palustrine shrubs, and shrub-steppe high habitats) are less than the minimum acreage used in the original mapping, however, we felt these smaller delineations better characterized the habitat.

**Red** is used to indicate changes in cover types and land-use since 1987. As with some blue delineations, some red delineations are less than the minimum acreage which were used in the original mapping.

There are instances where more than one color is used to indicate a single polygon. For example, black may have been used to indicate a portion of a polygon that had not changed since 1987, while red or blue may complete the polygon to indicate a change or refinement of the cover type. This type of notation was common on HMUs where Corps management of portions of these units has changed or was not adequately reflected in the 1987 mapping. Ongoing and future management practices should be taken into account to better define habitat conditions on HMUs.

Several types of information were not addressed in our analyses and therefore not included on the overlays. These situations are described as follows:

1. Minor adjustments to the size and shape of polygons indicated on the GIS maps. Considerable distortion exists between the geo-referenced maps and the aerial photographs, which made it difficult to precisely match polygon boundaries. However, obvious changes or refinements to habitat and land-use polygons have been indicated.

2. Most rights-of-way (including railroads, highways, and minor access roads). Polygons describing rights-of-way were not consistently indicated on the GIS maps and these areas were often incorporated into adjacent polygons. In addition, if necessary, this information can be obtained directly from the aerial photography.
3. Areas designated as Residential - Industrial (RI) or Recreation (RE) on the GIS maps when no development of the area was indicated from the photographs. This is because it is unclear why these areas were originally delineated (*e.g.*, Corps' land-use designation, potential of the area for development, ownership or lease designations?). For the habitat coverage analyses, these areas have been included within larger polygons (or identified as separate polygons) of appropriate habitat.
4. Large areas of upland habitat containing various combinations of Exposed Rock (ER), Rock Talus (RT), and Grass (G). These polygons were not consistently defined on the GIS maps, and some areas with considerable grass cover were designated as ER and vice-versa. Unless obvious changes to an area have occurred based on interpretation of the photograph series, efforts to refine these polygons to more accurately reflect the habitats present were not undertaken.
5. Three of the Corps' new HMUs, including Central Ferry, Kelly Bar, and Nisqually John. Most of the habitats within these HMUs have been recently delineated by the Corps and time constraints did not permit thorough surveys to be conducted. The John Henley HMU is included in the habitat coverage analyses.

If you have any questions or concerns regarding the information provided, or our work on the Lower Snake River Habitat Coverage Analyses, please contact Howard Browers or Chris Warren at (509) 891-6839; or Donald Haley at (509) 765-6125.

Sincerely,



*for* Philip Laumeyer  
Field Supervisor

Enclosures

cc (letter only):  
WDFW, Pasco (Ross)  
USFWS, Moses Lake, WA (Haley)