

Stratton, L.E., and Grant, G.E., 2018, Autopsy of a reservoir: Facies architecture in a multidam system, Elwha River, Washington, USA: GSA Bulletin, <https://doi.org/10.1130/B31959.1>.

## Data Repository

### **Supplementary Materials: Pre-Dam and Post-Dam Removal Facies Delineation**

Where exposed, the contact between pre-dam and reservoir sediments is typically clear. When the reservoir areas were logged prior to dam closure, the stumps were left in place. As the Elwha has reworked reservoir sediments, many of these have been uprooted and transported. However, many remain rooted, with visible butt swells and springboard notches providing an estimate of the approximate former ground surface. Additionally, in many locations, a pre-dam organic soil horizon 1–3 cm thick, with abundant roots and rootlets, is present. The increased cohesiveness of this horizon relative to post-dam sedimentation appears to act as a constraint on river erosion, as the Elwha and Boulder Creek were observed to be flowing directly over pre-dam soil horizons in many locations where significant reservoir sediment erosion had taken place. Where reservoir sediments drape the former river channel, cross-stratified, sandy gravels indicative of bar migration or channel lag gravels are frequently evident. However, in upper regions of the former reservoirs characterized by sandy facies or gravely facies, the contact may be difficult to recognize in the field.

Similarly, the sedimentation resulting from dam removal activities can be challenging to distinguish from reservoir-era deposition. Drawdown-associated sediments are most clearly distinguishable where defined by a sharp break in grain size with an obviously scoured underlying contact, but may also occur as a subtle change in grain size distinguishable mostly by stratigraphic context. Because the provenance of both primary and secondary units is the same, the distinction is often cryptic; in some locations (particularly those with little sediment accumulation throughout the life of Lake Aldwell) the contact is unknown.

