

Main Points

- Most lakes (and wetlands) in Reaches E, F, and G (wide floodplain, fluvial domain)
- Most prevalent types are backswamps, swales, and artificial excavations
- Backswamp lakes are typically largest, connected, and likely to be most “fish friendly”
- Natural lake formation (and maintenance) owes chiefly to floodplain aggradation and channel migration
- Many backswamp areas affected by fill and drainage

Columbia River Estuary Floodplain Lakes

Jim O'Connor, Charles Cannon (USGS)

Keith Marcoc (LCEP)



Cunningham Lake, Sauvie Island

<http://columbiaestuary.org/projects/north-unit-sauvie-island-wetland-enhancement>



Hydrogeomorphic Reach

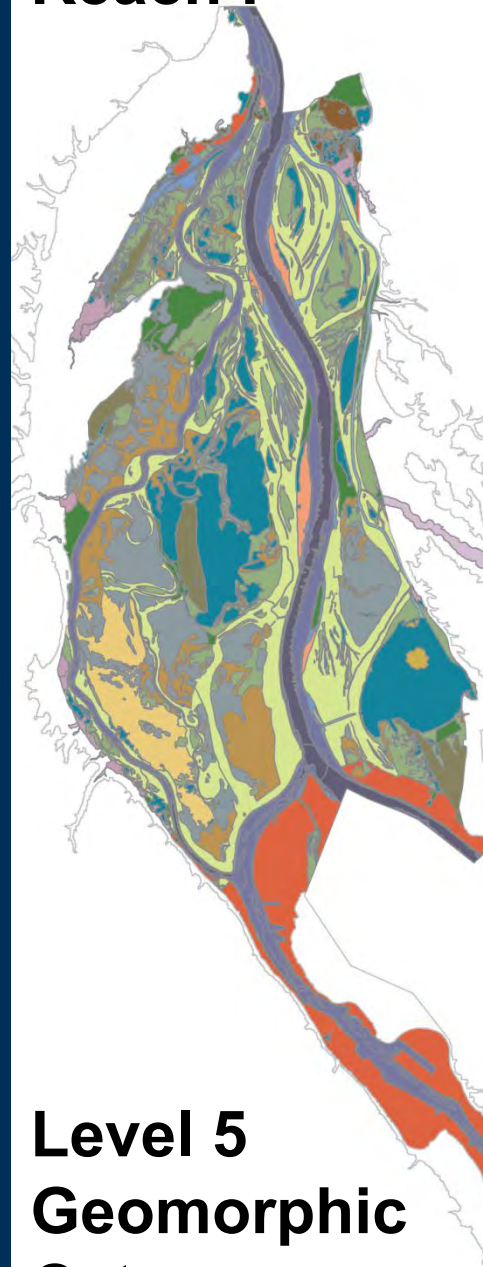
- A - Coastal Lowlands Entrance-Mixing
- B - Coastal Uplands Salinity Gradient
- C - Volcanics Current Reversal
- D - Western Cascades Tributary Confluences
- E - Tidal Flood Plain Basin Constriction
- F - Middle Tidal Flood Plain Basin
- G - Upper Tidal Flood Plain Basin
- H - Western Gorge

0 10 20 40 Kilometers

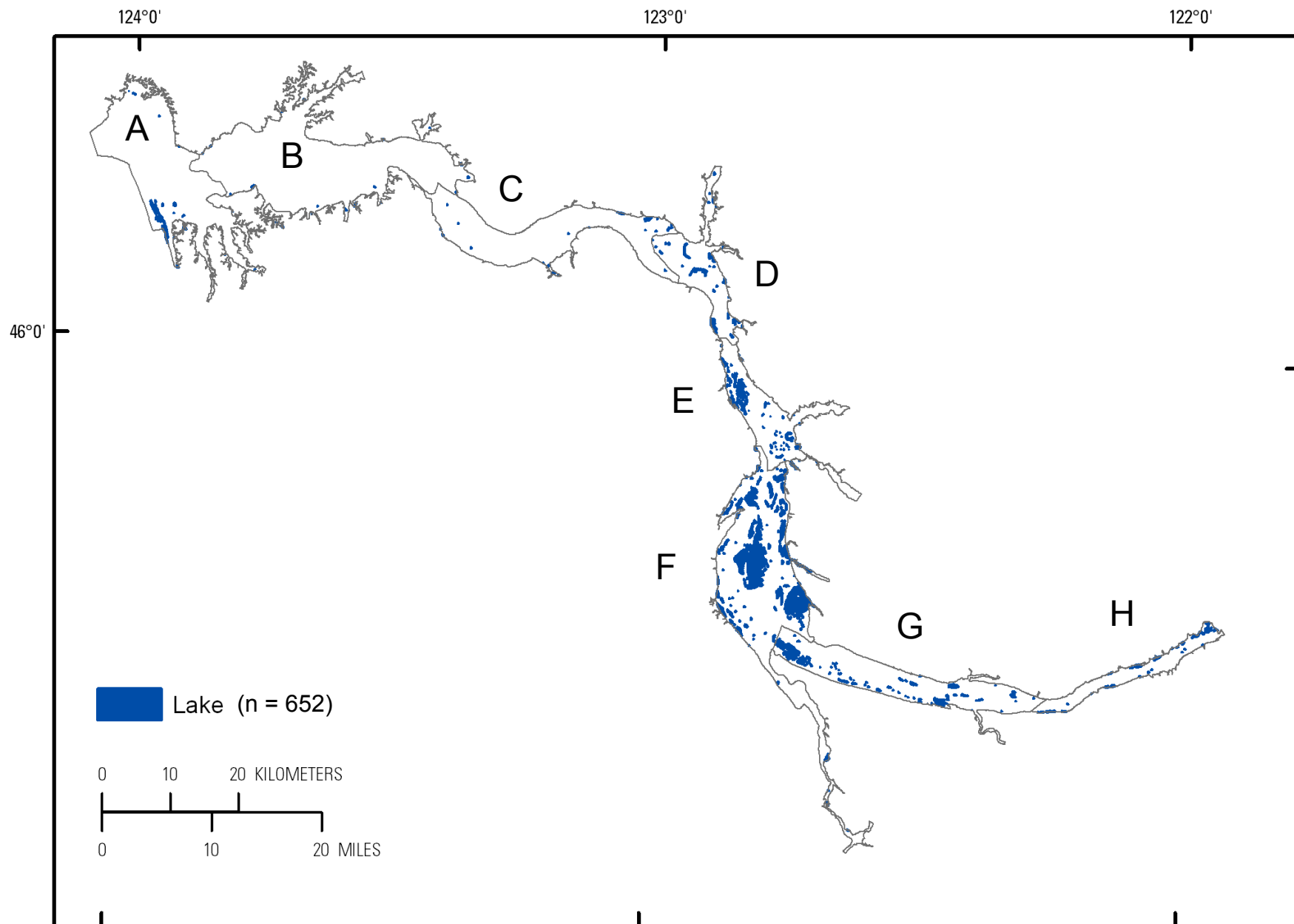
Columbia River Estuary Ecosystem Classification Level 3 Hydrogeomorphic Reaches

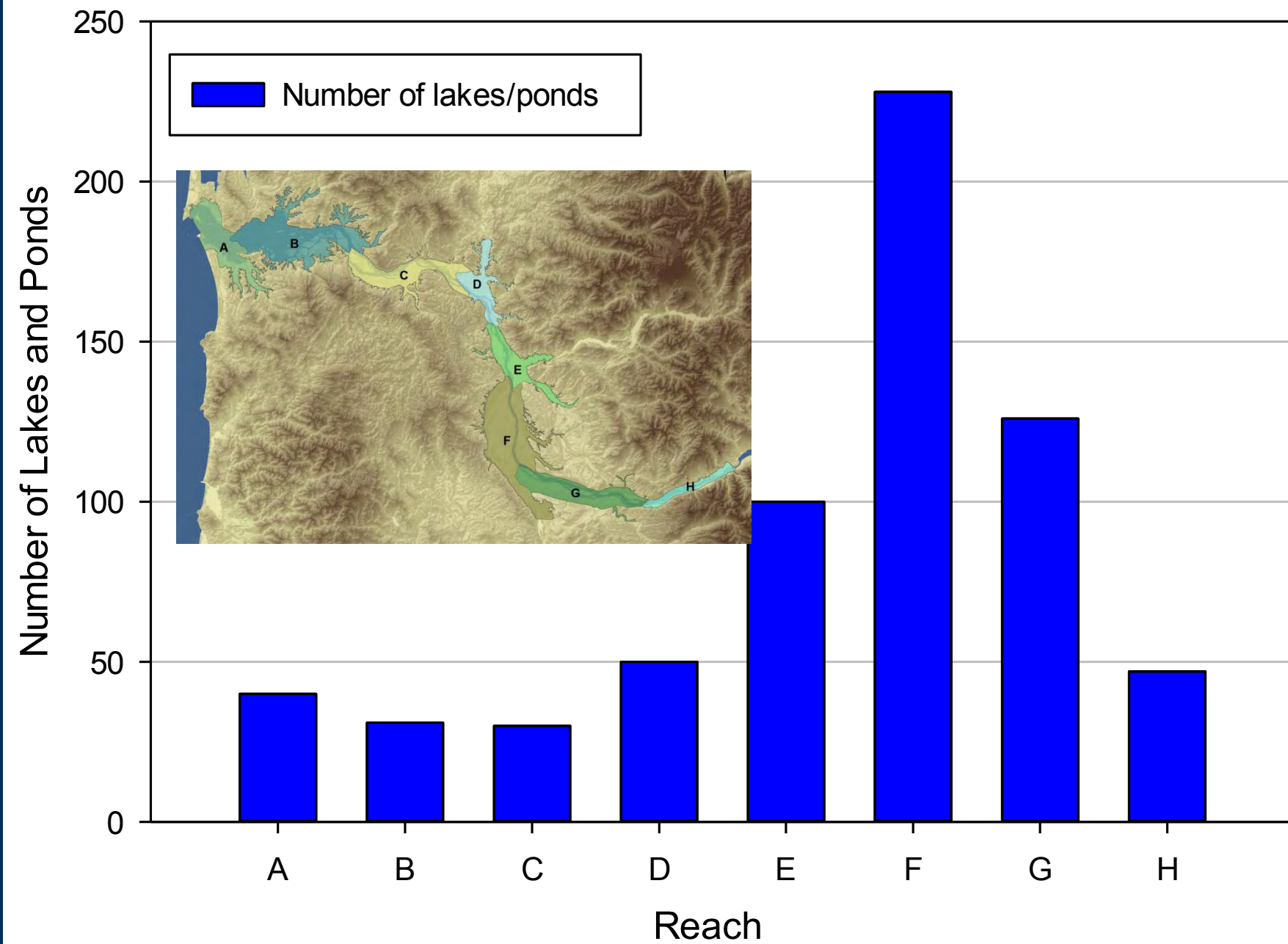
Map created by M.F. Ramirez and C.A. Simenstad,
University of Washington, School of Aquatic and Fishery Sciences,
Data Source: Digital elevation model courtesy of USGS.
Outline boundary courtesy of Earth Design Consultants, Inc.

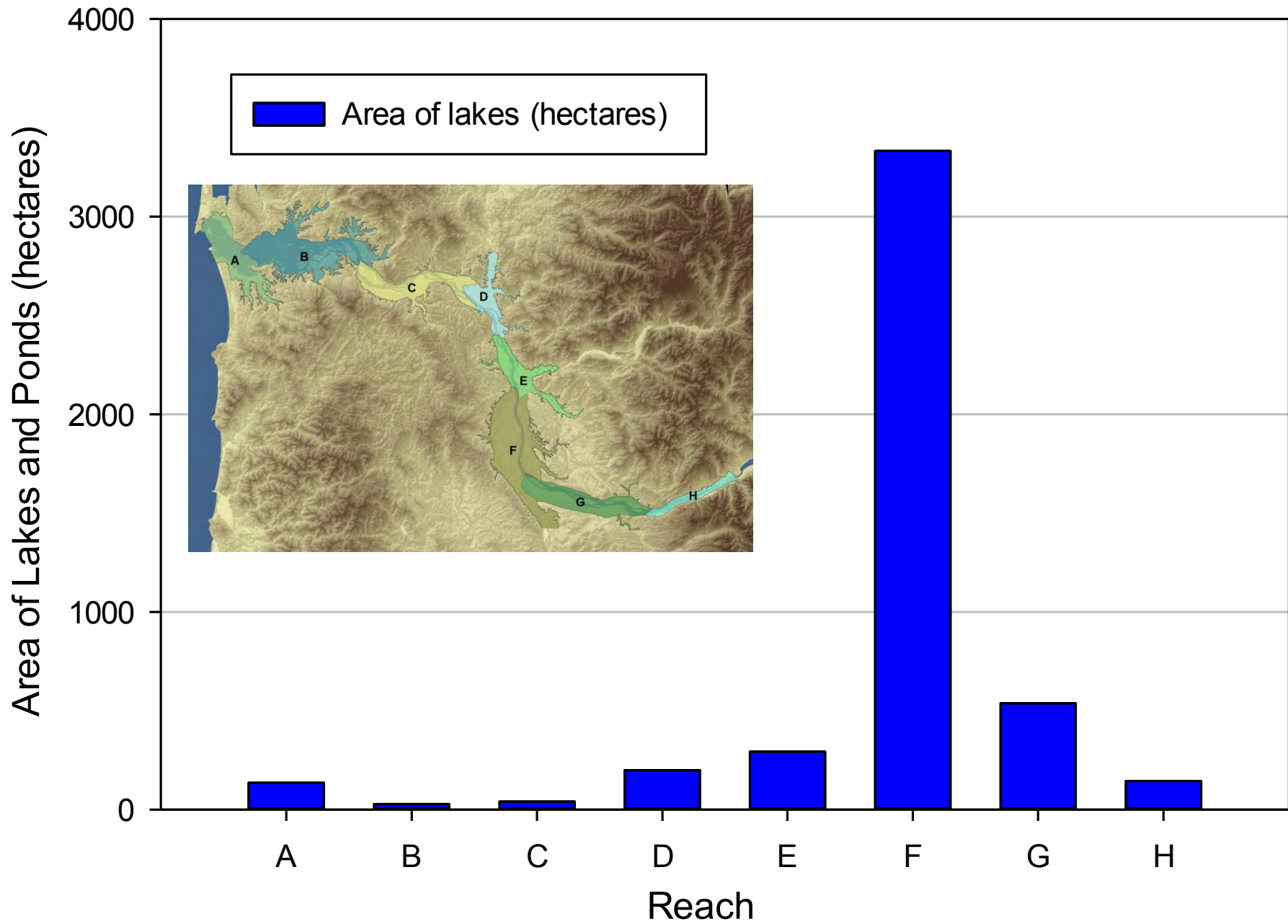
Reach F

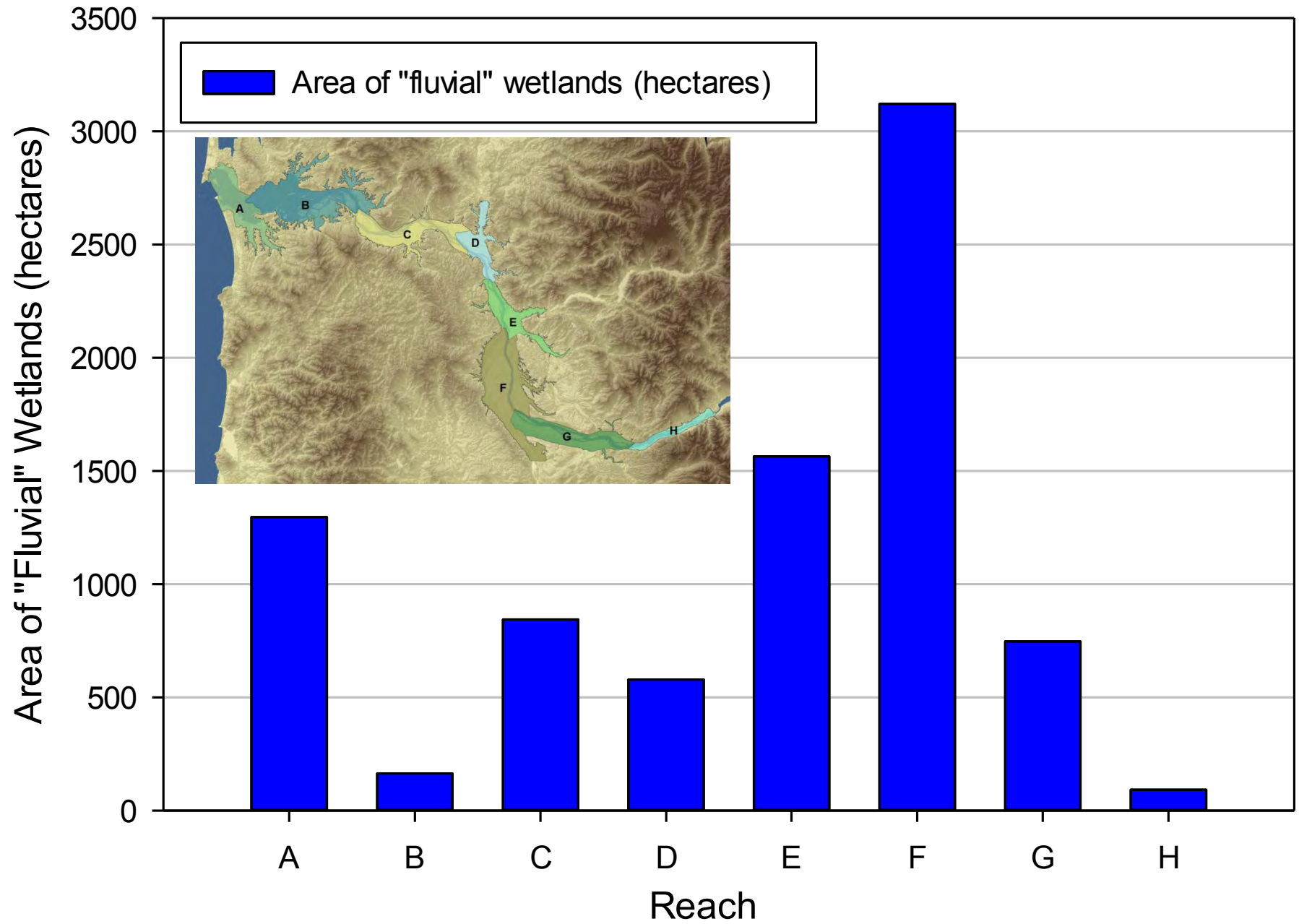


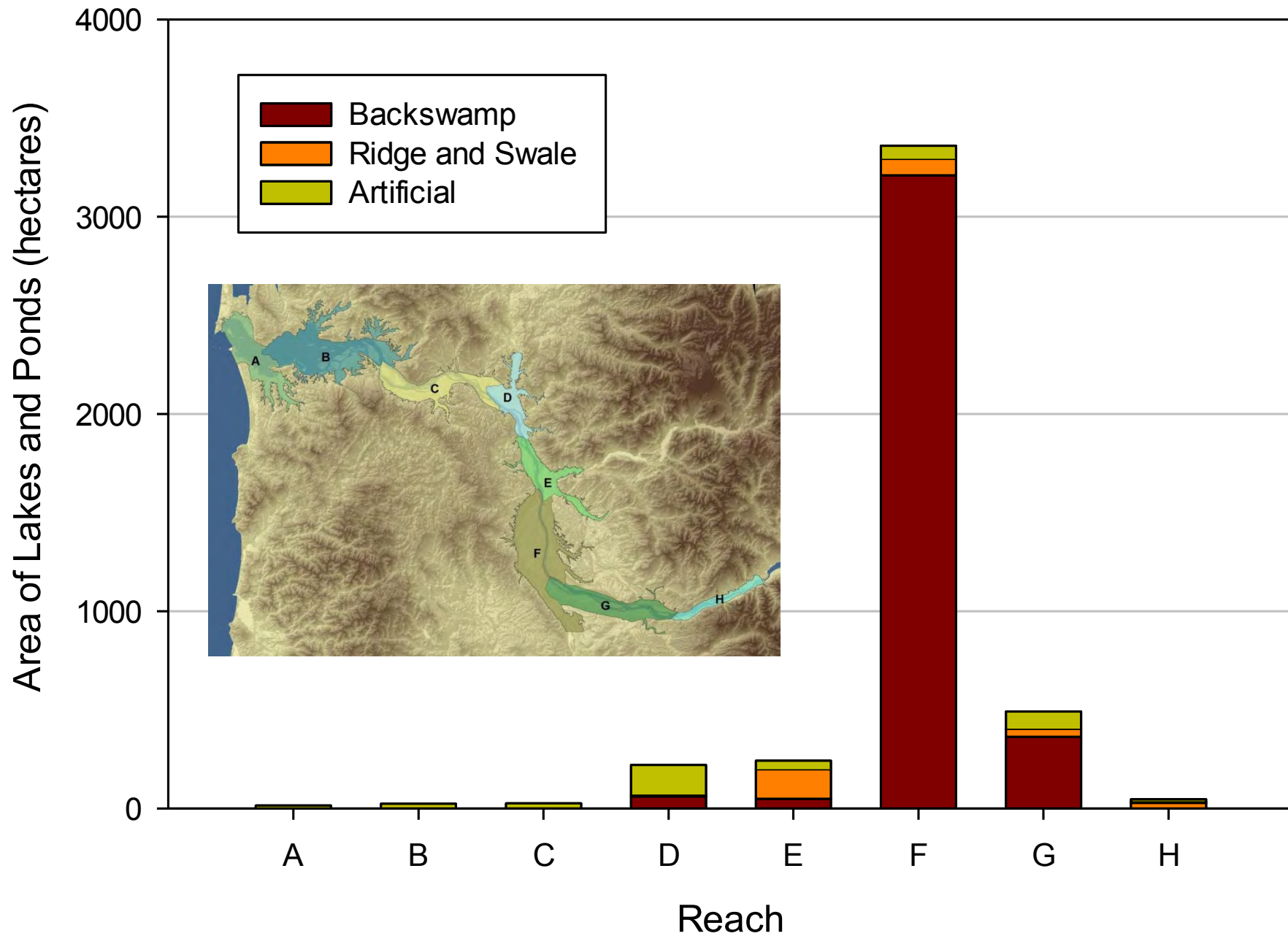
Level 5 Geomorphic Catena

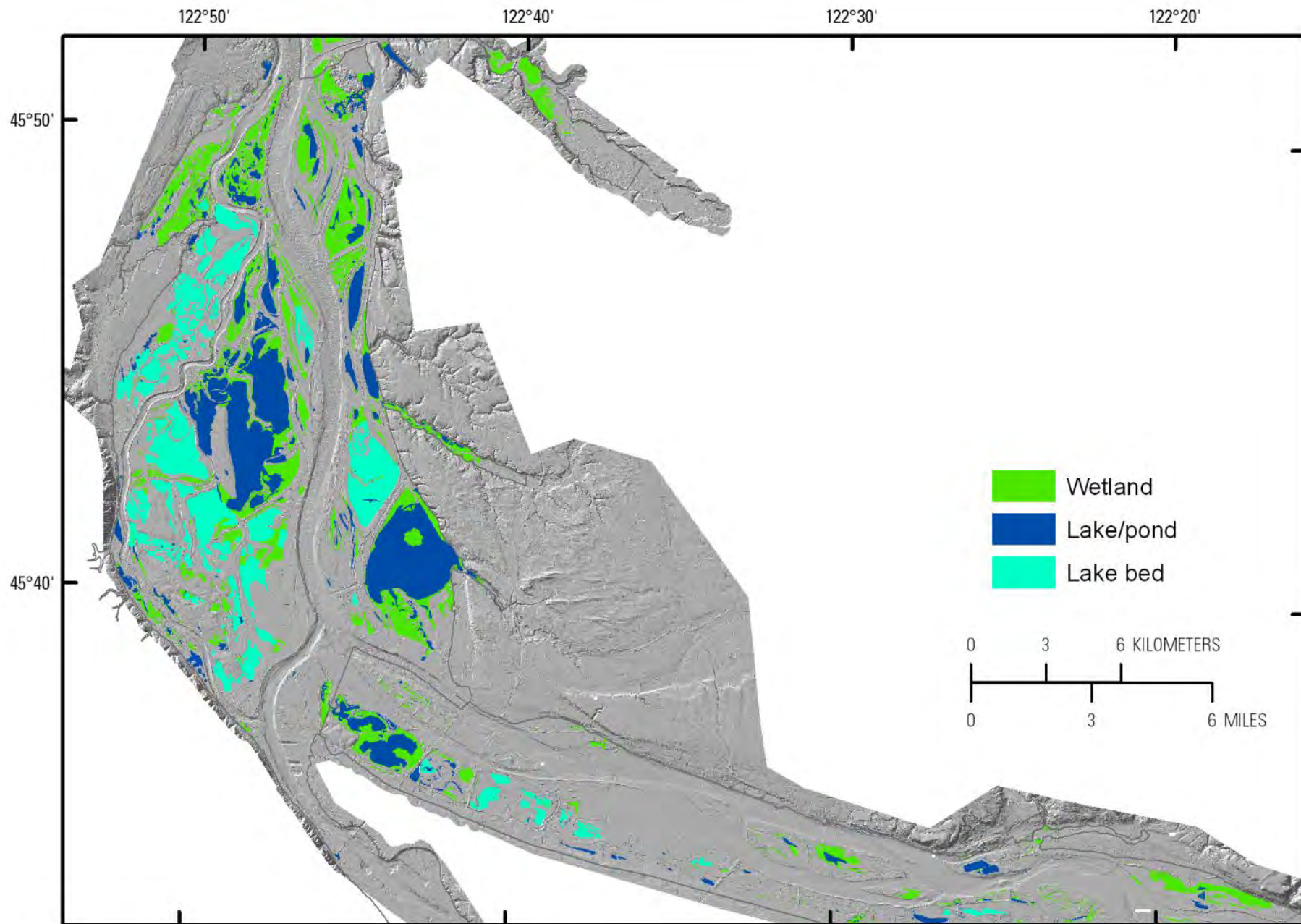












122°50'

122°40'

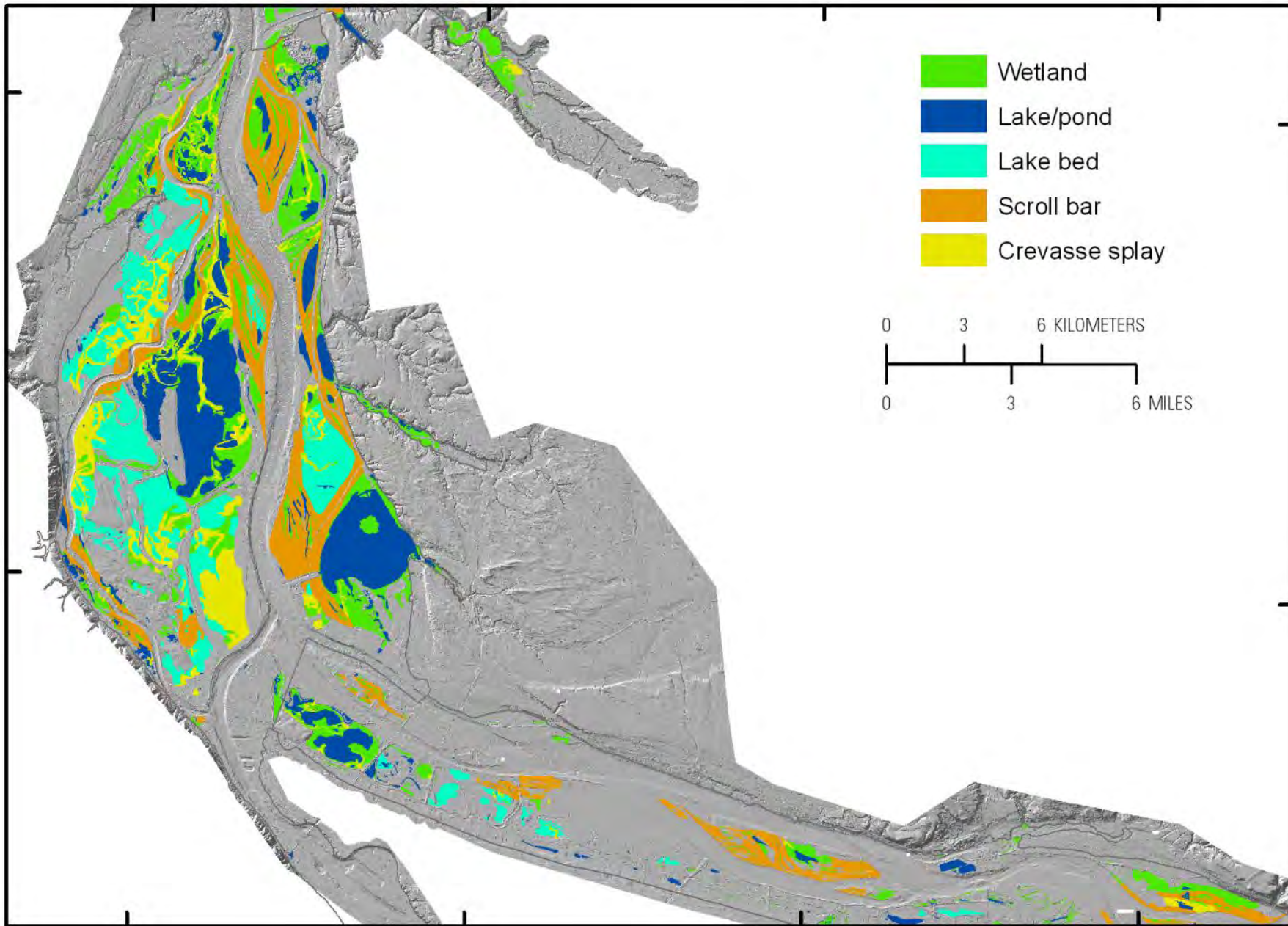
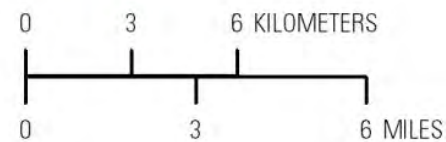
122°30'

122°20'

45°50'

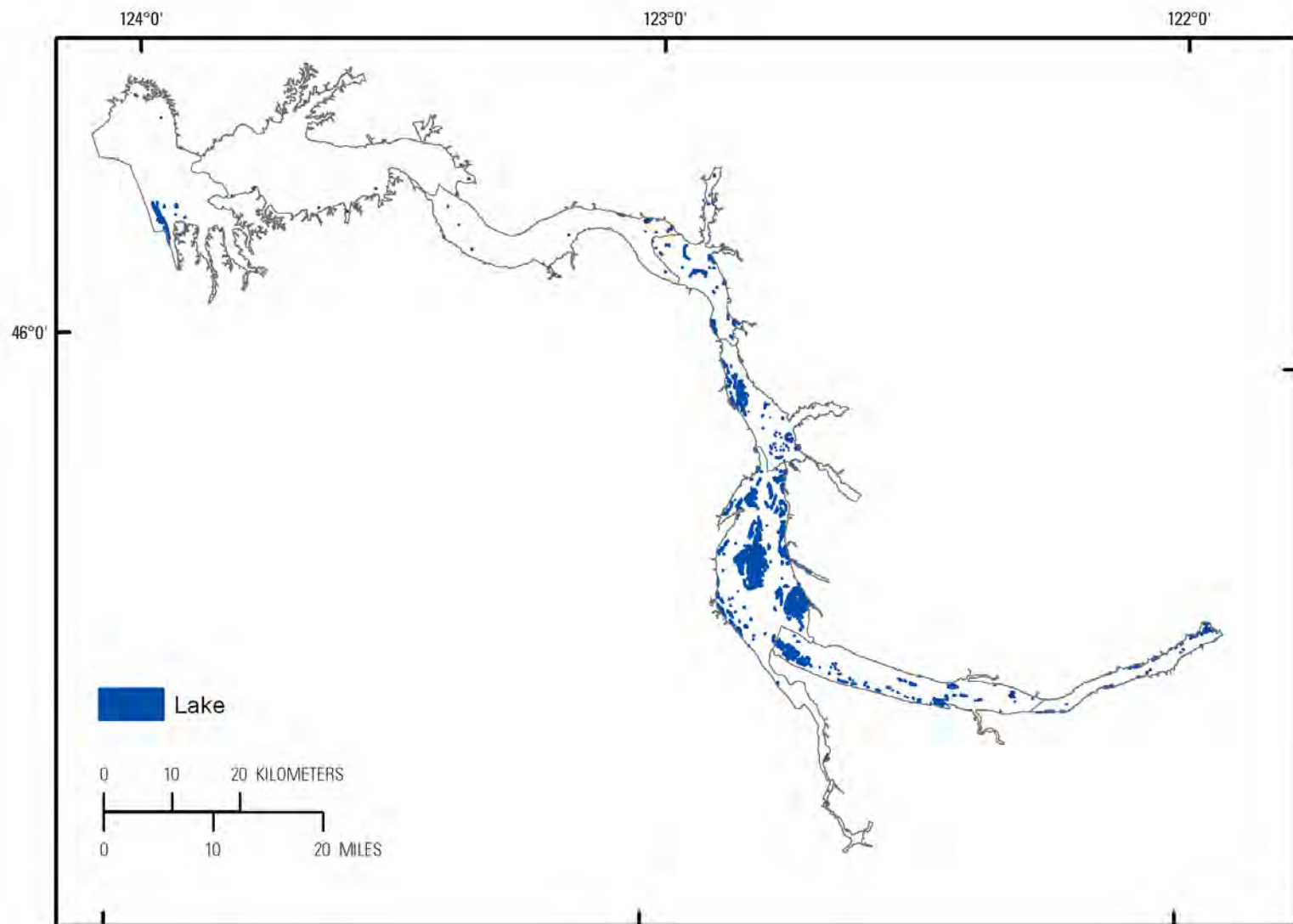
45°40'

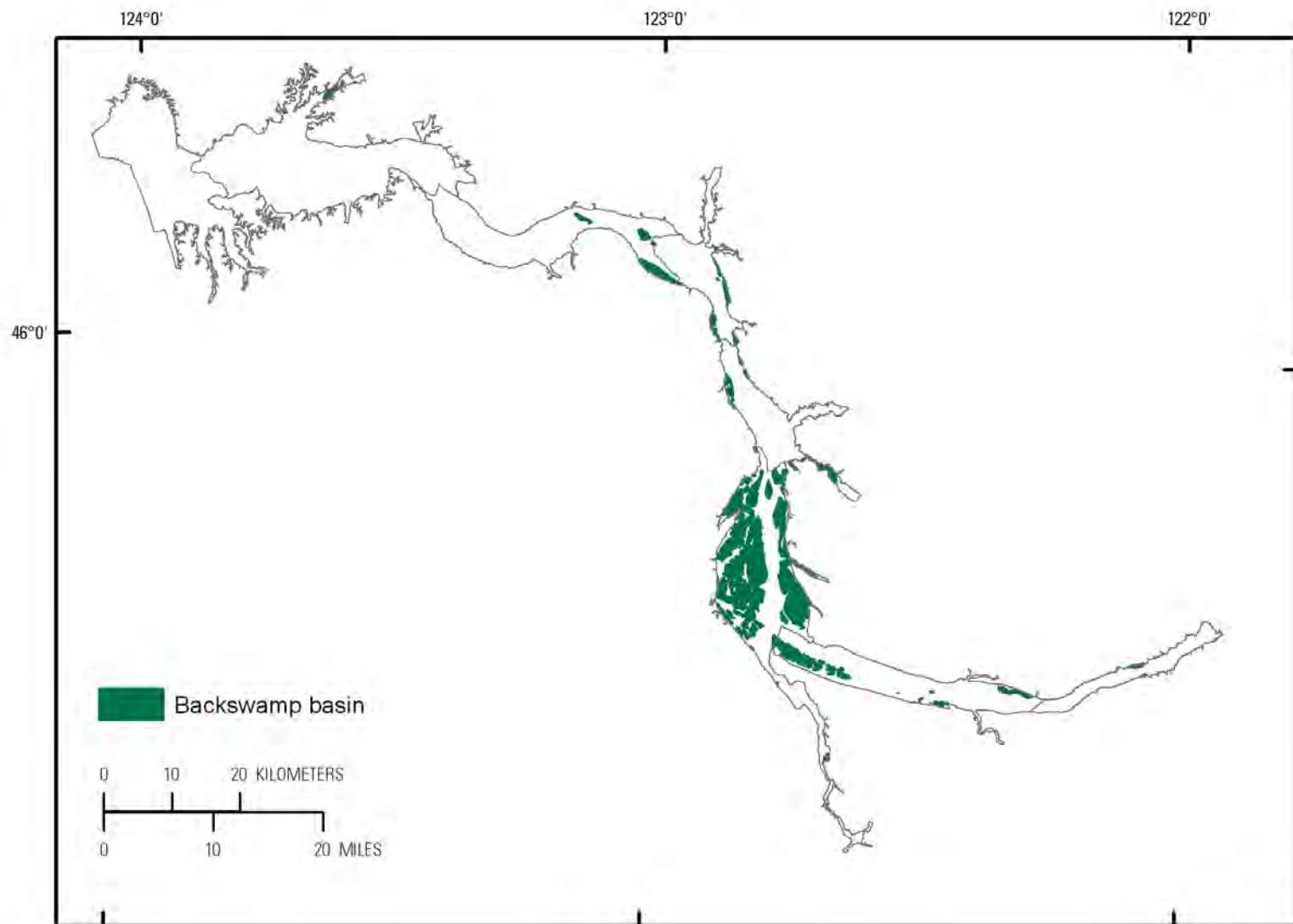
- Wetland
- Lake/pond
- Lake bed
- Scroll bar
- Crevasse splay

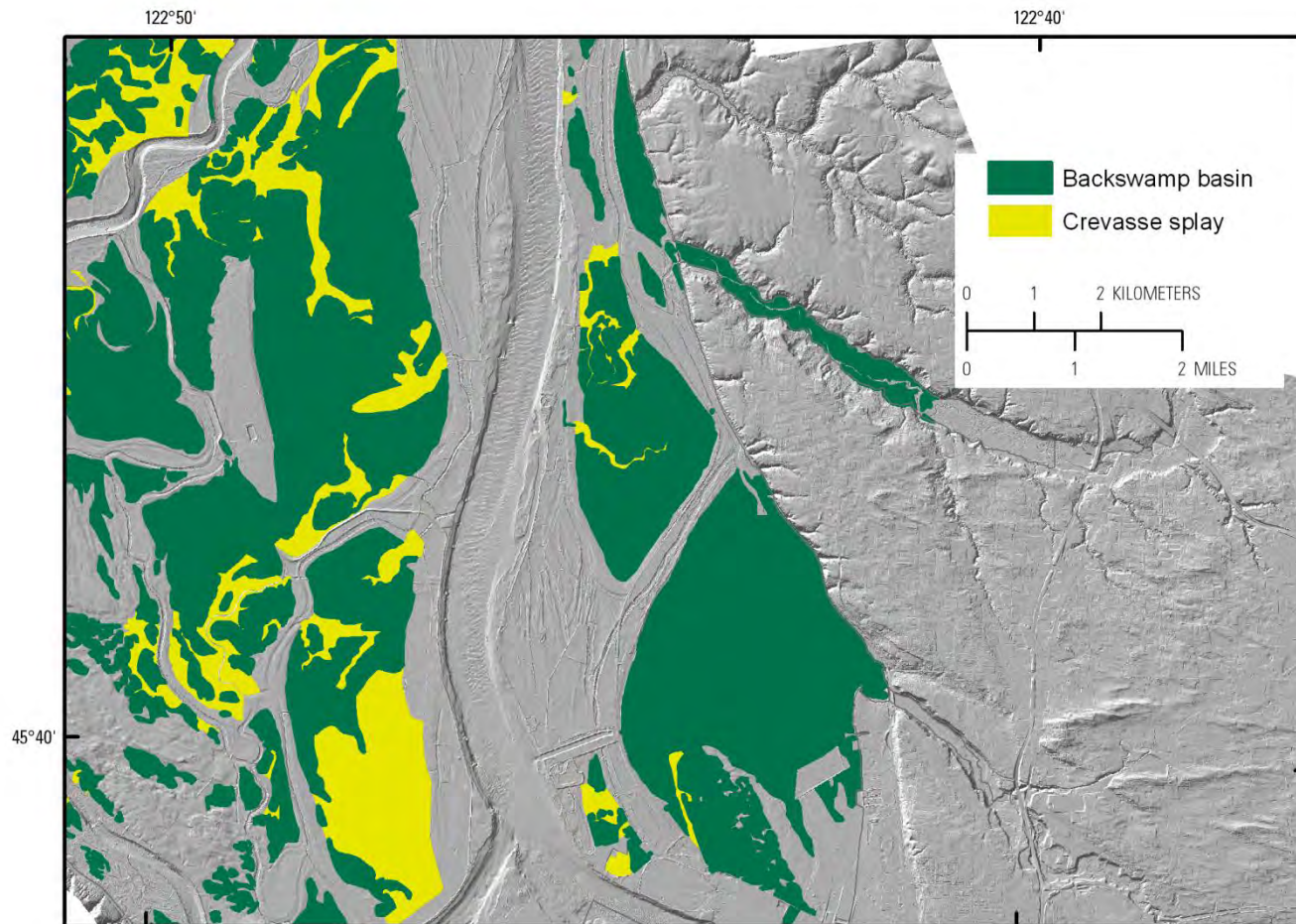


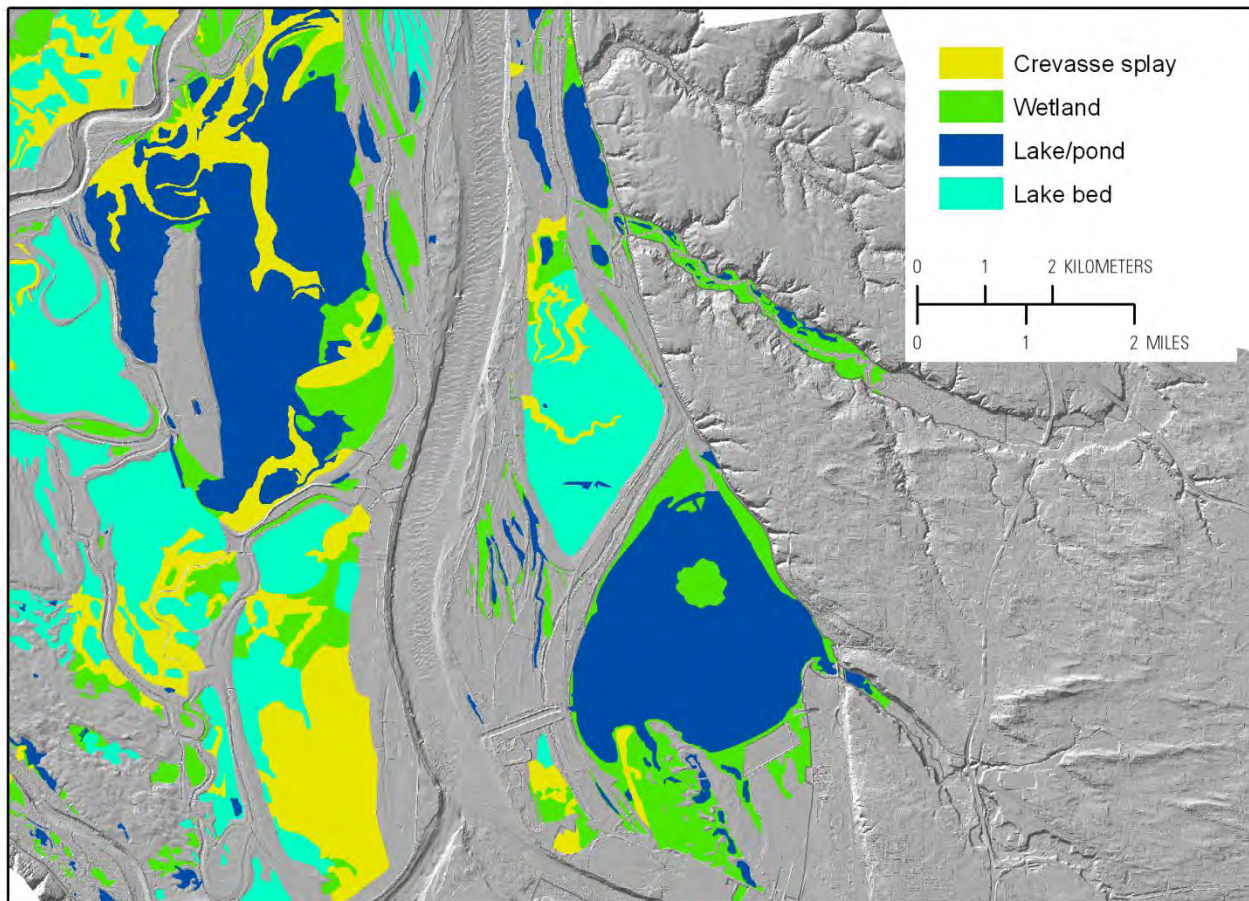
Long/Quigley Lake, Ridgefield NWR

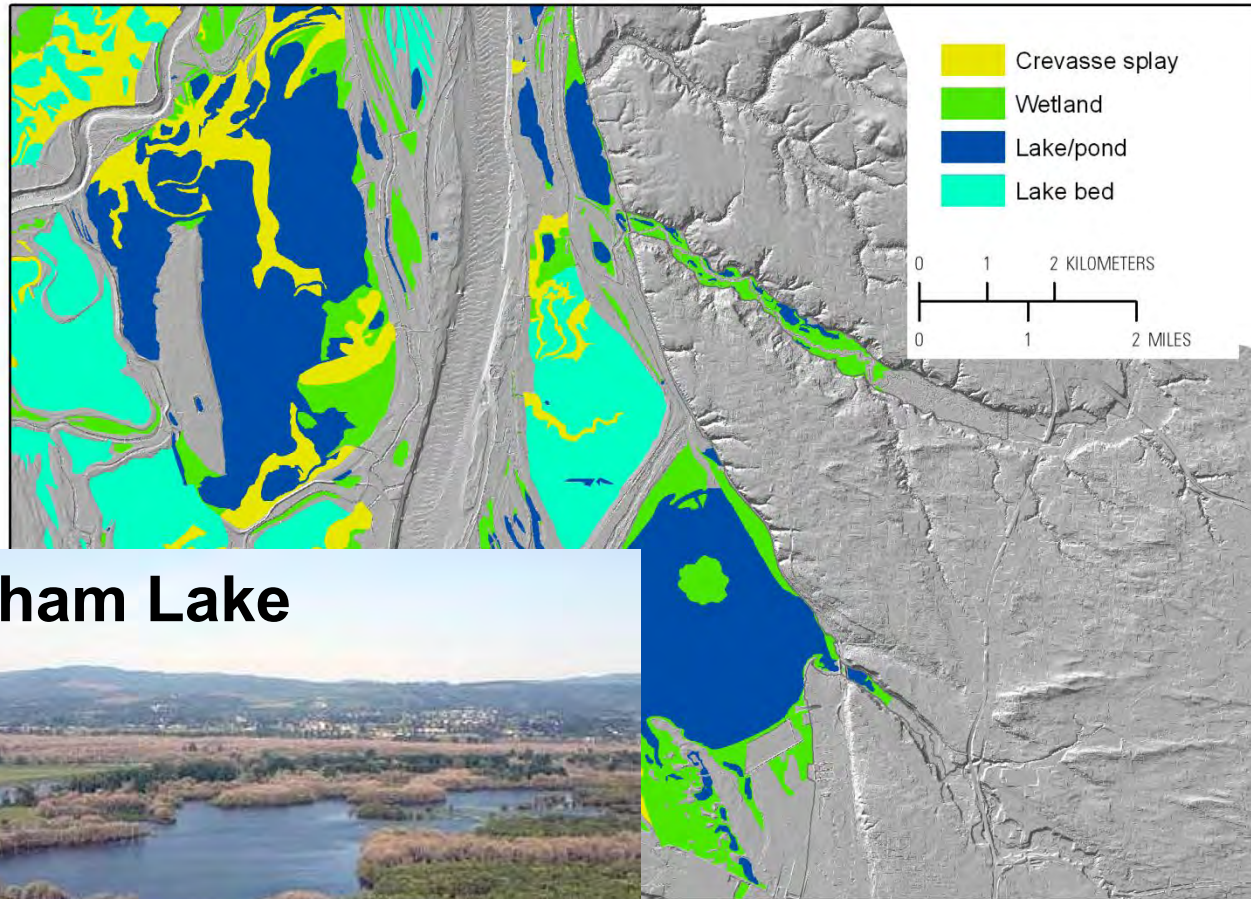








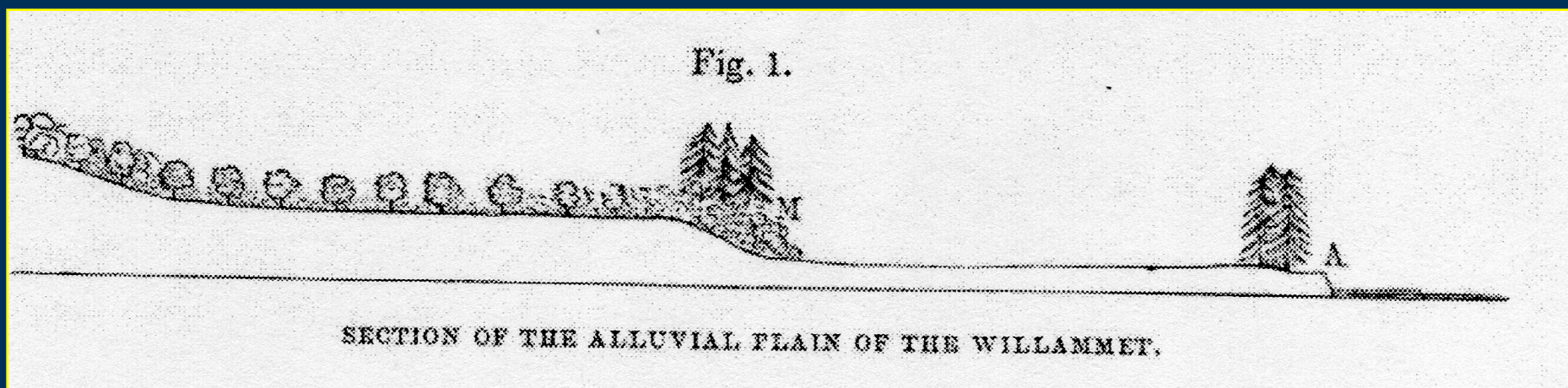




Cunningham Lake

From J.D. Dana, 1849 (Wilkes Expedition Report)

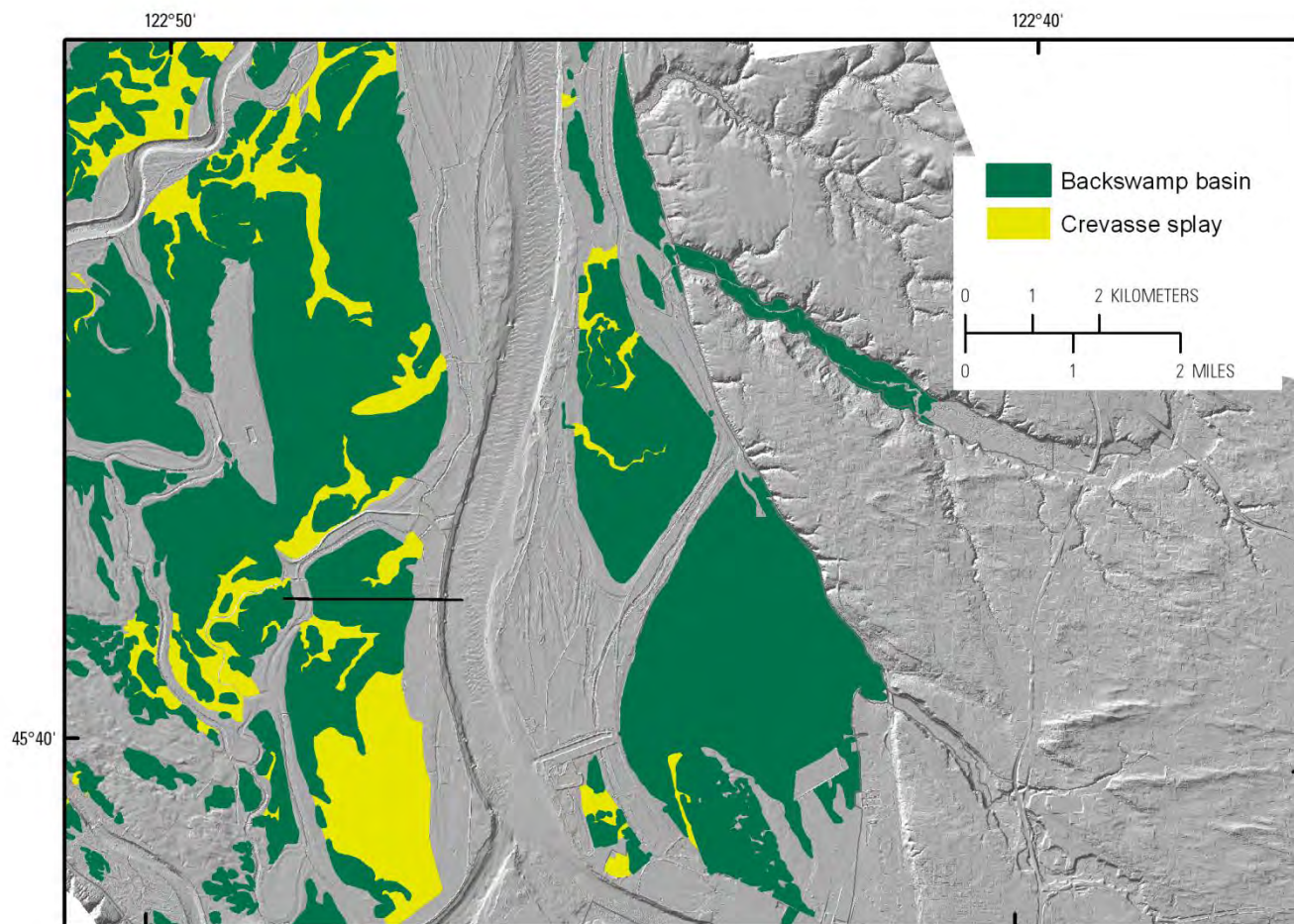
Alluvial Islands and lower Prairie of the Columbia.—The Columbia, below Vancouver, abounds in alluvial islands as well as submerged flats. The islands have generally the same height as the lower prairie, but are usually depressed at centre. From the broad line of cottonwood and willows which borders them, the surface gradually declines inward to a low flat, sometimes below low water level, though generally somewhat above it. A few of them consequently contain a permanent lagoon; and as remarked by Mr. Douglass, of the Hudson's Bay Company, they resemble in form the coral islands of the Pacific. All are filled during the freshets, and only a narrow rim of land remains above the surface.



The less height of the land back from the shores may be owing to the following causes: the fact that the waters flowing along tend to heap up material on the banks, from the counter-currents produced along the shores; that the shores are covered with shrubbery and

DEPOSITS AT THE MOUTH OF THE COLUMBIA. 667

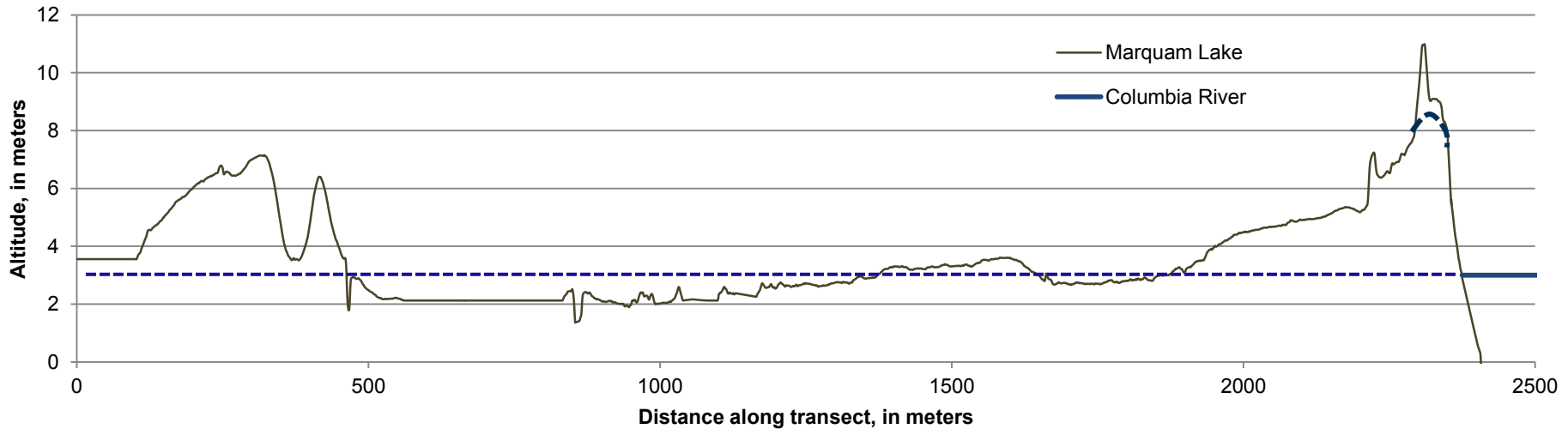
trees, which are calculated to entangle or stop the floating leaves and branches of the river, and secure a considerable part of its detritus; that the vegetation of the shores is contributing to the accumulations; that the roots, also, of the trees raise the surface by adding their own bulk to that of the soil; that the plain, back from the shores, lies for some time under water during freshets, which water exerts a pressure upon the material below, and may render it more compact than the alluvium of the shores.



Secondary
Channel

Marquam Lake (drained)

Levee

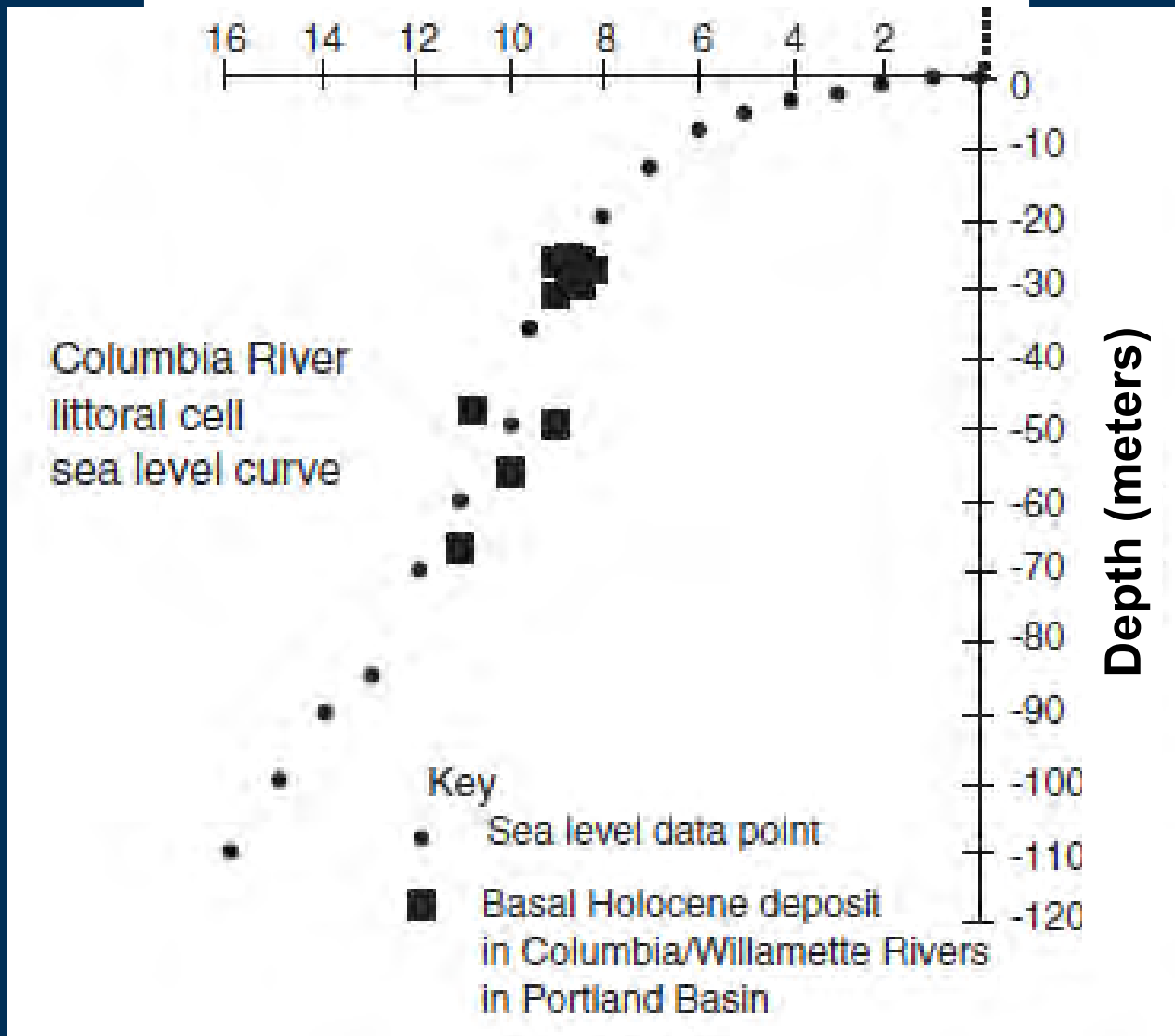


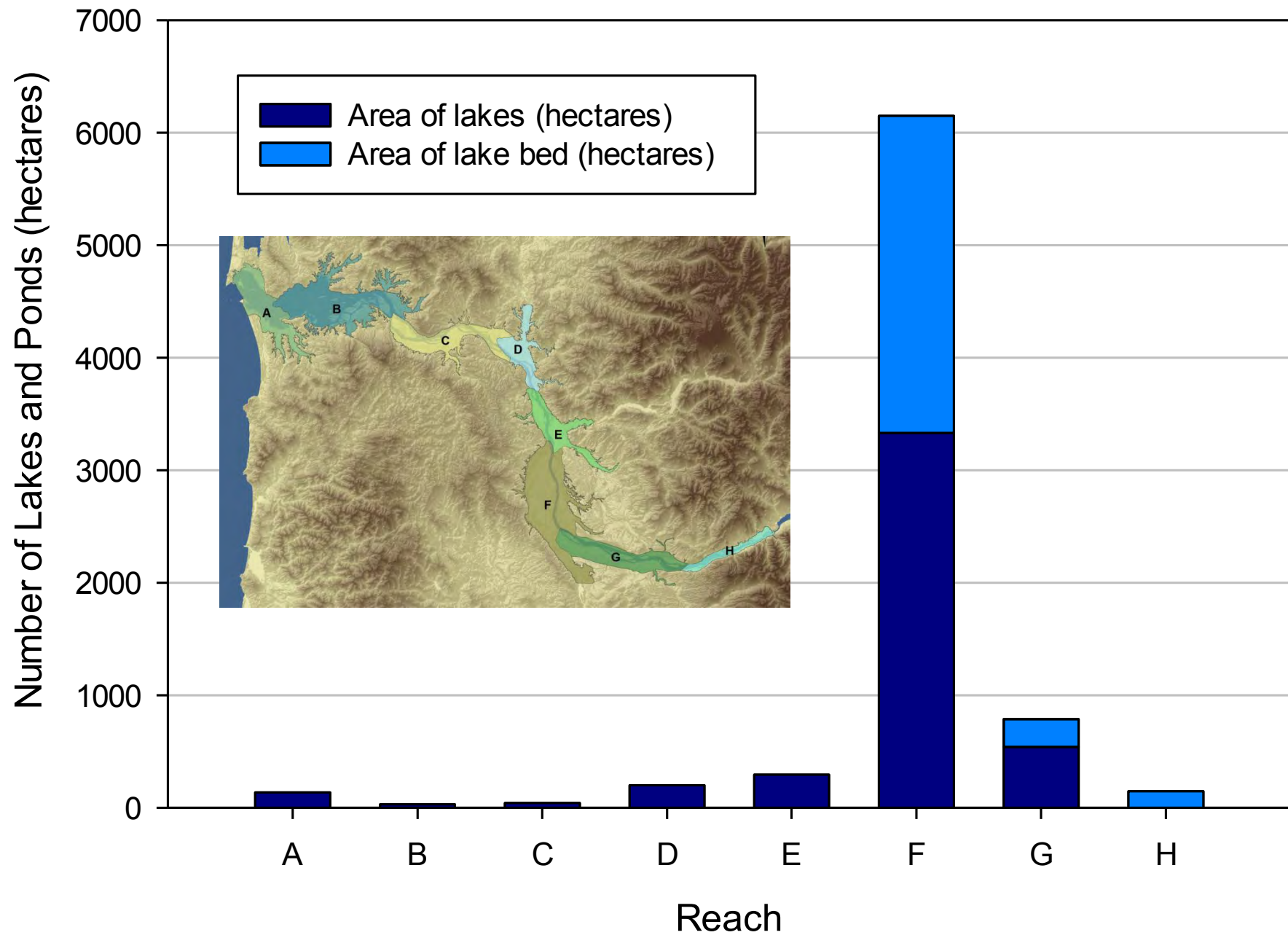
West

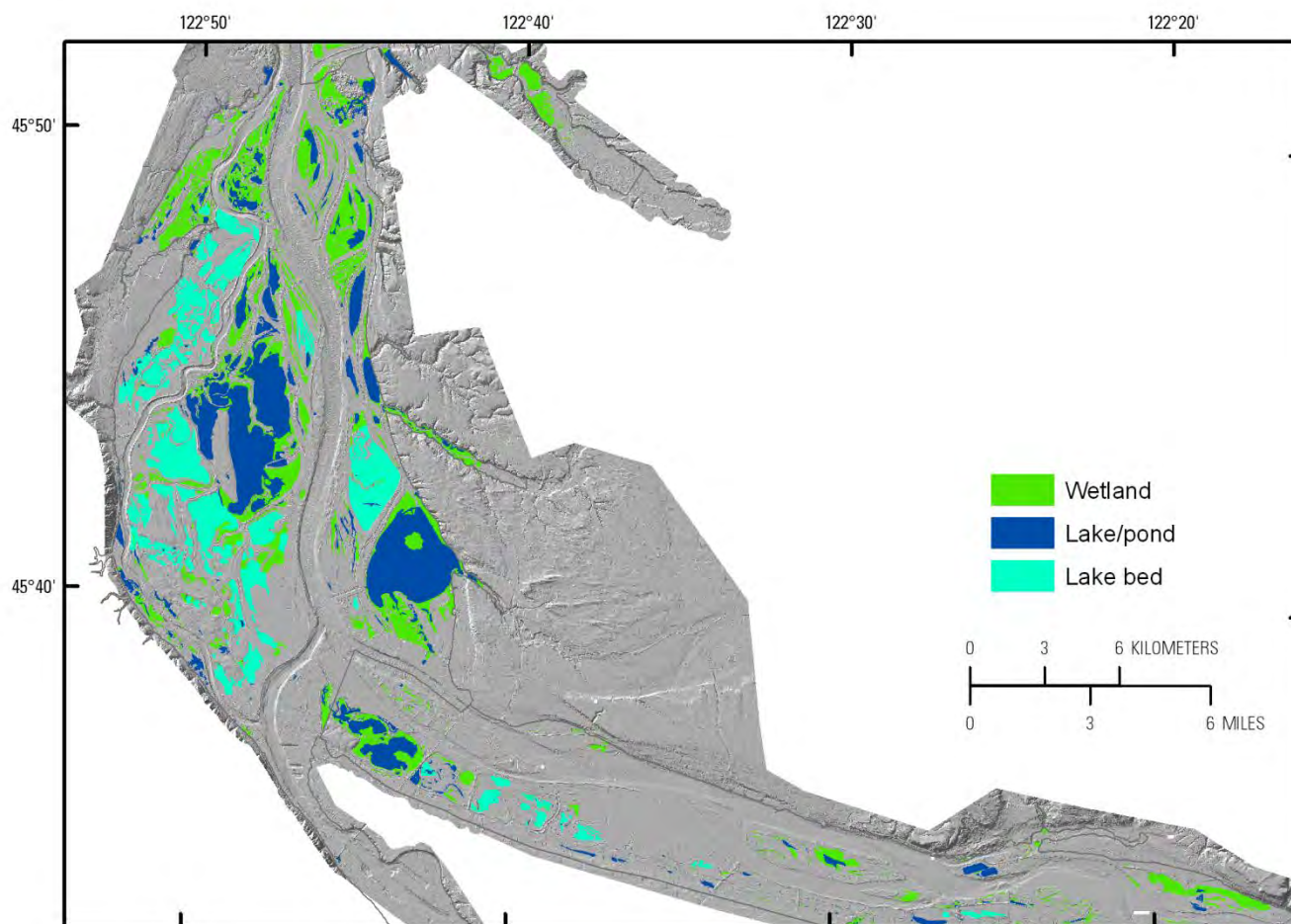
East

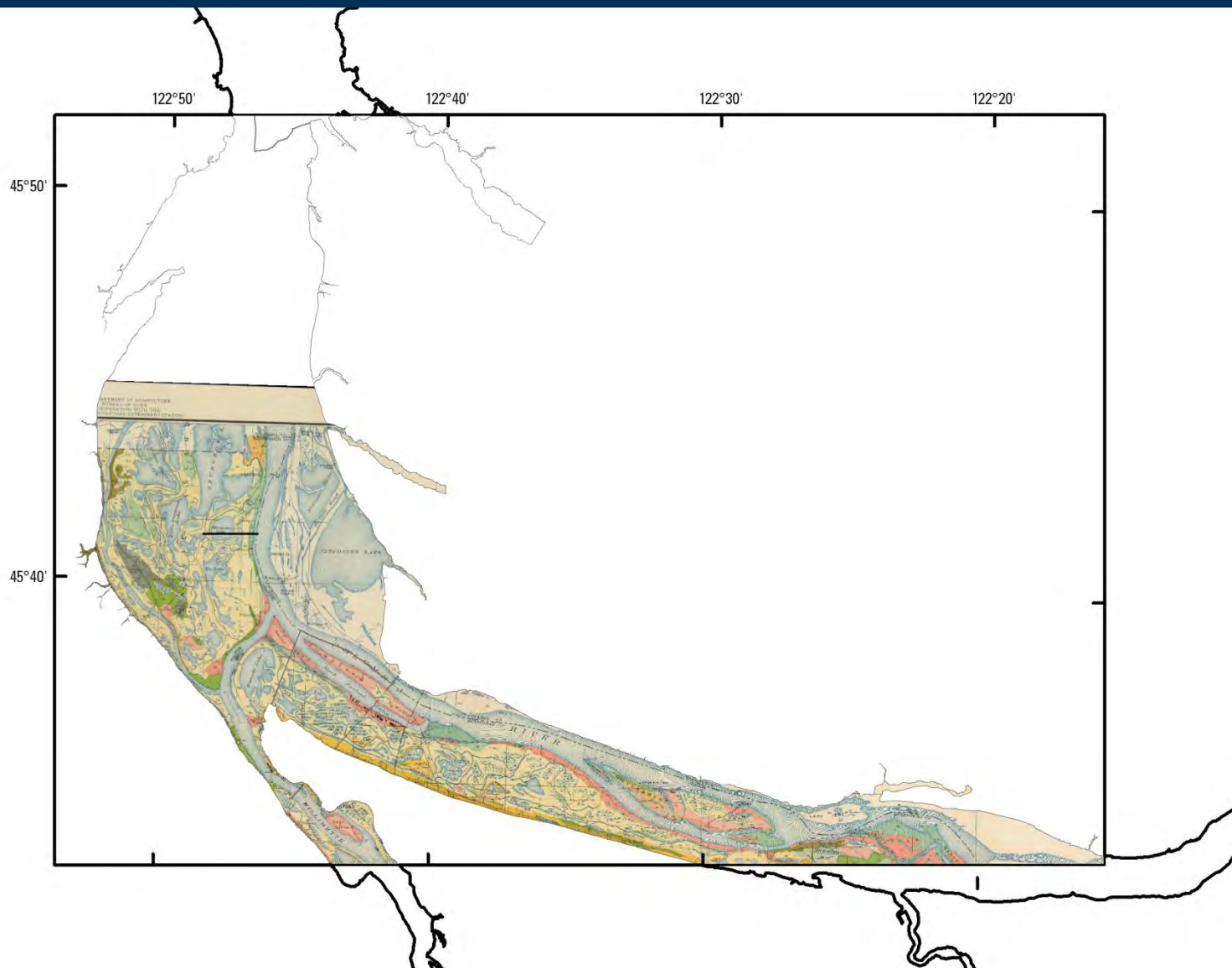
Sea Level Rise

Thousands of years before present









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