

# **Ecological Role of Elodea in Lakes and Ponds on the Copper River Delta, Alaska**

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## Effects of Invasive Plants (Carey et al. Draft)

- Alter physical & chemical environment
- Alter nutrient availability
- Alter habitat
  - loss of available habitat
  - refugia
    - predators
    - prey

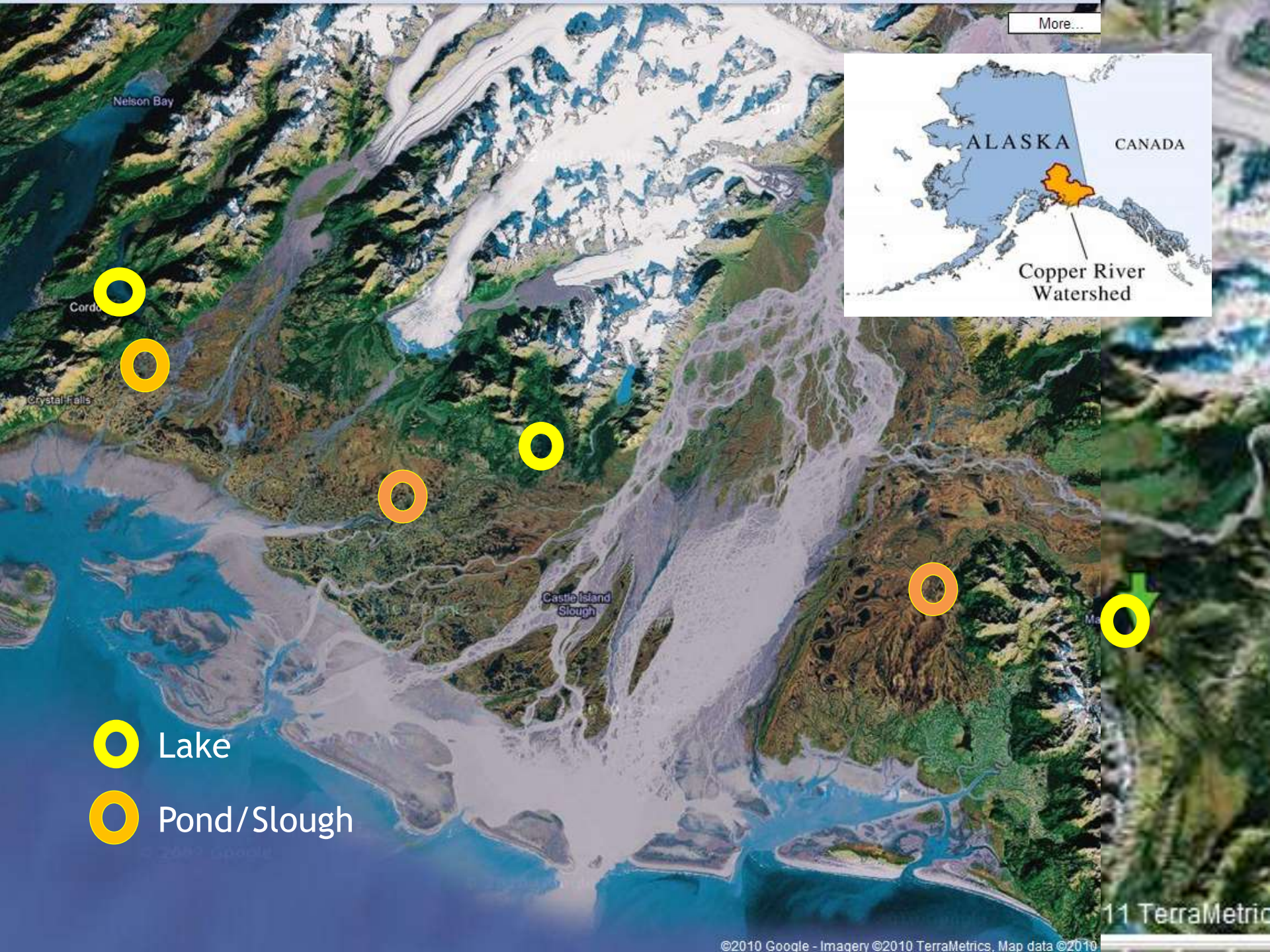


# Approaches to Eradication/Control (Blackburn et al. 2011)

- Early detection
  - eradication
- Already established
  - prevent spread & introduction of other invasives
  - understand effects
    - ecological
    - potential response of native vegetation
  - design actions



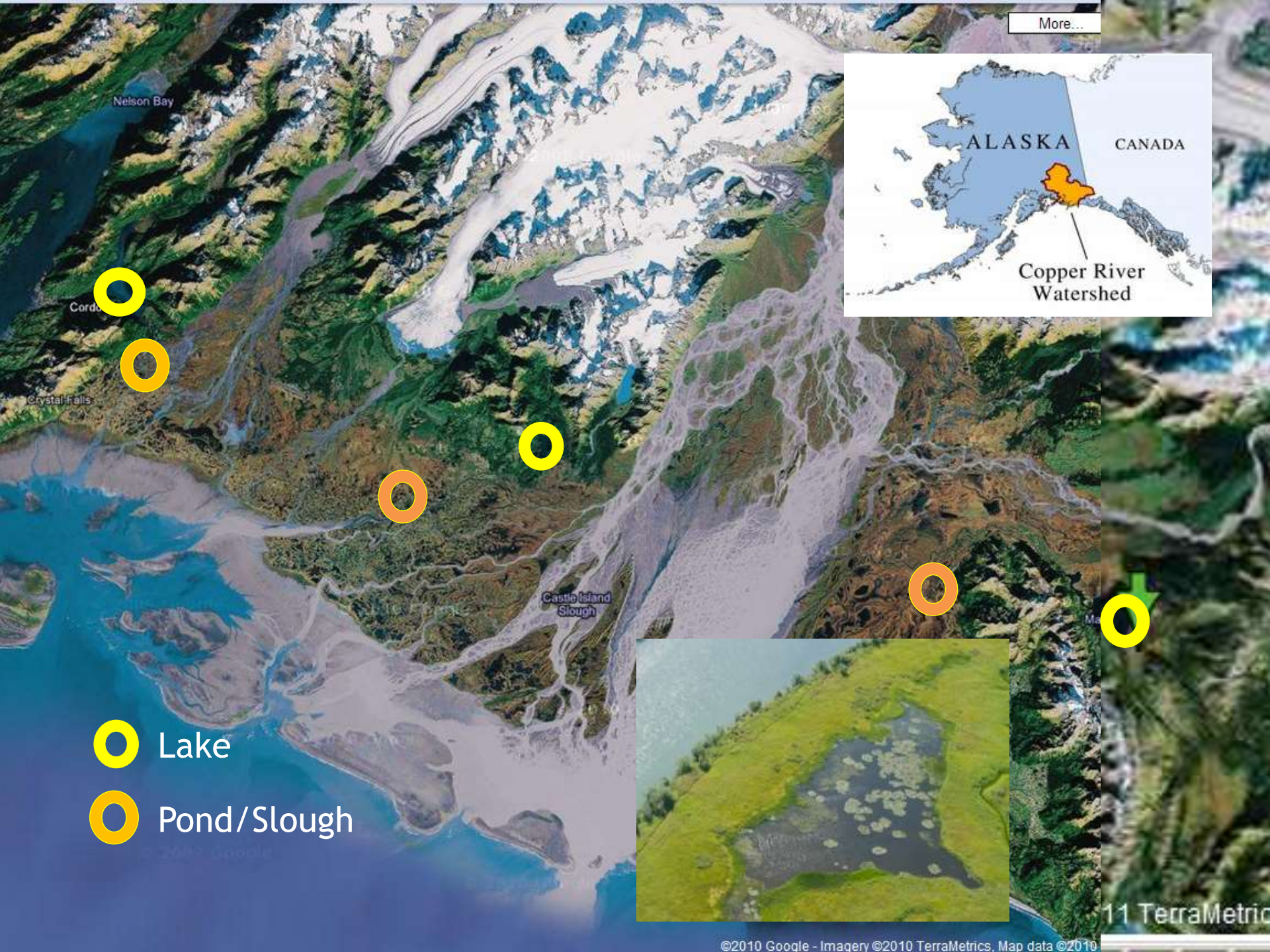
More...



○ Lake

○ Pond/Slough





More...

Nelson Bay

Cordova

Crystal Falls

Castle Island Slough

ALASKA

CANADA

Copper River Watershed

Lake

Pond/Slough









From: University of Washington









From: University of Washington





From: University of Washington



# Proposed Sampling

- Fish
  - Species
    - Coho salmon (adult/juvenile)
    - Sockeye salmon (adult/juvenile)
    - Dolly Varden
    - Cutthroat
    - Whitefish
    - Northern large scale sucker
  - Monthly
    - Diel (over course of day)
    - Collection
      - Snorkle/Scuba
      - Nets
        - Gill
        - Fyke











# Proposed Sampling (con't)

- Aquatic Macroinvertebrates
  - Monthly
  - Examine assemblage





## Eradication

-Fast?

-Slow?









# Basic Study Design

1. Survey lakes and ponds on Copper River delta for presence of *Elodea*
2. Estimate percent coverage of *Elodea* per unit surface area
3. Measure physical/chemical variables in *Elodea* and non-*Elodea* habitats
4. Measure biological use (fish & invertebrates) of *Elodea* and non-*Elodea* habitats



# *Elodea* spp.



← Frond



← Benthic growth

Nuisance bloom →





# *Elodea* spp. purported distribution in Alaska

