

Mercury and Selenium Contamination in Waterbird Eggs and Risk to Reproduction at Bear River Migratory Bird Refuge

A Multi-Year Investigation Funded Through
USFWS and USGS Science Grants

Collaborators:

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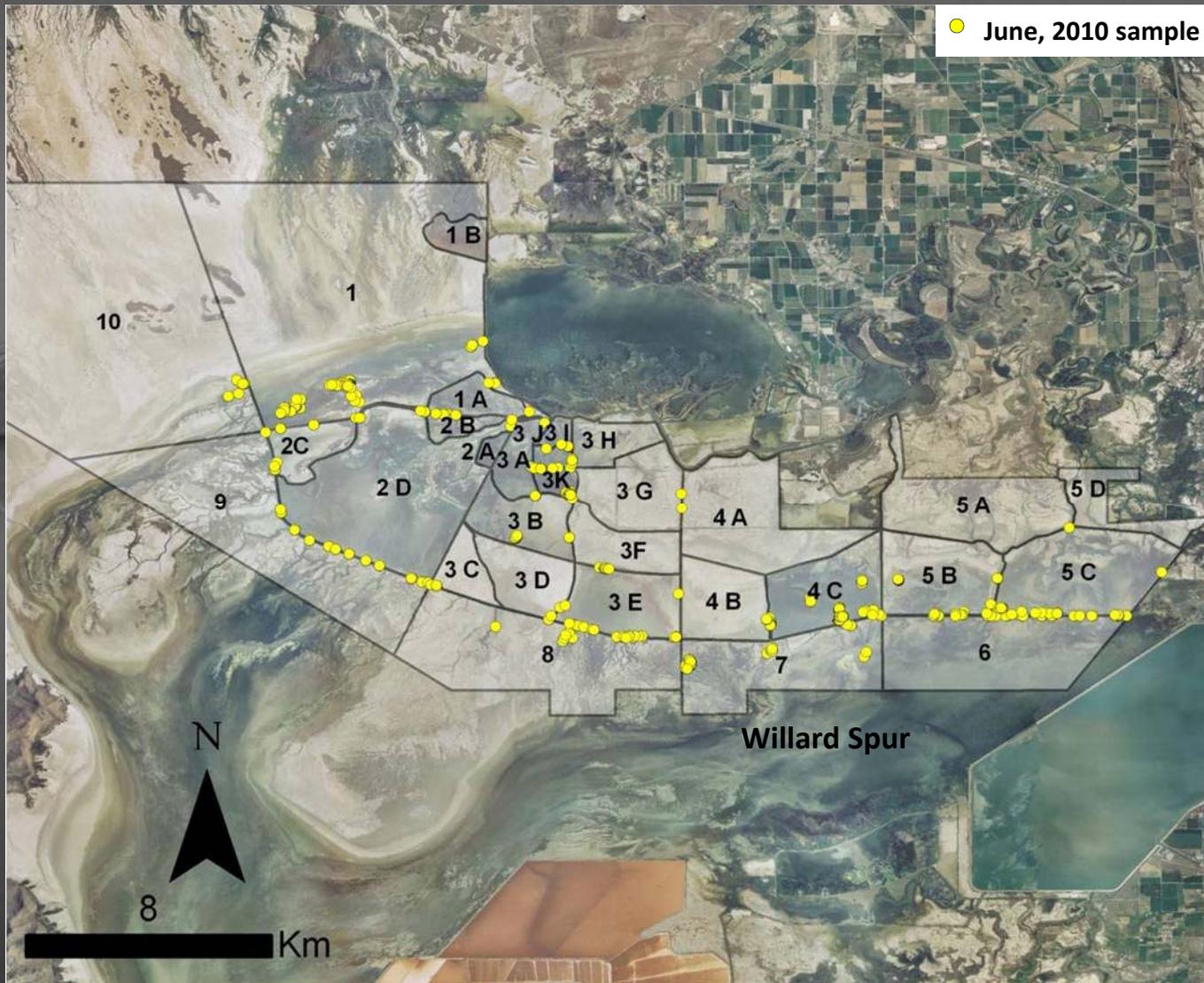
⁴ USFWS Intermountain West Joint Venture

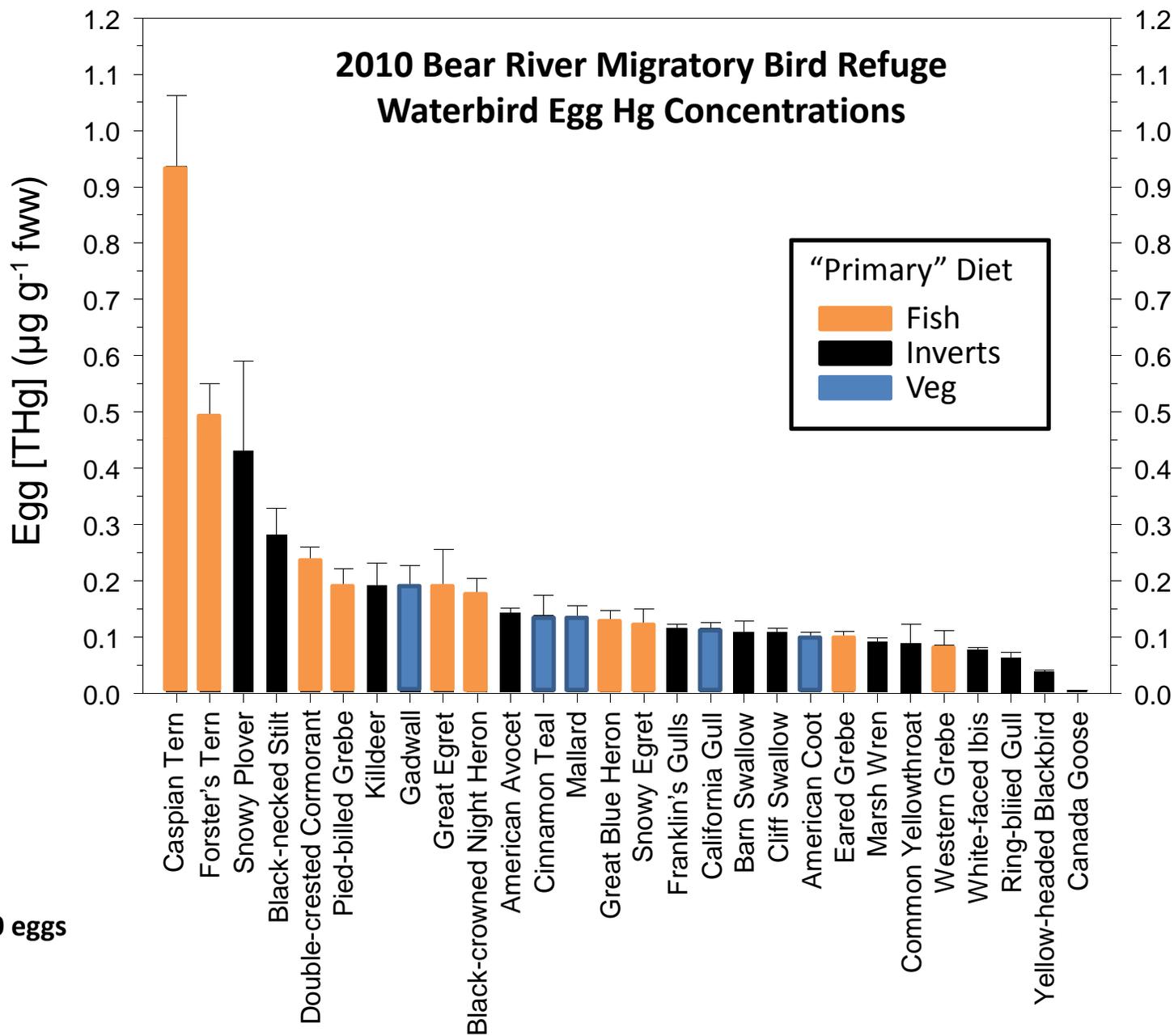


Overall Objectives and Purpose

1. Identify areas of greatest mercury risk to waterbirds within Bear River Migratory Bird Refuge wetlands
2. Study effects of Hg and Se exposure on egg hatching success
3. Evaluate spatial distribution of Hg in eggs to determine greatest risk to waterbird nesting
4. Provide a dataset that will help BRMBR manage water and waterbird populations to reduce risk to contaminant exposure sources

BRMBR Egg Collection Sites





n ~ 700 eggs



Results to Date / Next Steps

- **2010 data indicate that exposure is elevated, but below thresholds for reproductive effects in most species**
 - 2011 and 2012 data are needed to make final conclusions
- **2011 - Collected approximately 1,000 eggs representing 30 species of waterbirds from BRMBR and several other GSL wetlands**
 - All eggs will be analyzed for total Hg
 - Currently seeking funds to analyze a sub-sample of waterbird eggs for Se to examine additive or synergistic effects of Hg and Se
- **2012 – Detailed assessments linking Hg and Se exposure to reproductive success**
 - Assessments involve several species to address variation in sensitivity to Hg (e.g. ibis are shown to be very sensitive to Hg exposure)
- **2013 – Analysis and reporting; several publications anticipated**