

Shorebird Food Items, Water and Sediment Sampling

Food Items for Shorebirds

Ground observations will be used to identify the locations on the GSL where the birds from each colony or nesting site are foraging (henceforth called the food-item sampling area, or FISA). FISAs will be named after their respective nesting site, and each nesting site will have one FISA associated with it.

FISAs will be delineated from the point birds were first detected foraging to the point where they are collected. During a 15-min. feeding observation, we will record the amount of time each bird spends within each foraging microhabitat (e.g., exposed mudflat, shallow water, moderate water, deep water). After each shorebird observation/collection, invertebrates will be collected from the mudflat, benthos, and water column within each foraging area. Invertebrate food items (brine fly adults and/or larvae or pupae and brine shrimp, depending on what the birds are eating) will be collected opportunistically in the general area of each foraging area. If available, three samples of each species and life stage (i.e., larvae, pupae or adult of brine flies) will be collected at each area (target 5 grams) and additional biomass when that is feasible. However, the numbers and types of invertebrate samples will be based on what the birds are eating. Each sample will be frozen in a Whirlpak or new Nalgene bottle. Each sample will be labeled with its location and collection date. All food items from a single FISA will be stored together in a 9 X 12 envelope upon which is ascribed the date and FISA where the enclosed samples were obtained.

Water Samples

We will collect 1–5 water samples from each FISA. Each water sample will be a composite water sample with 20% of the composite water sample coming from 5 different sites systematically distributed across the FISA. Water will be filtered through a 1-mm mesh to remove large items from the sample. All samples will be collected in new Nalgene bottles and stored at room temperature. After 48 hours, the water in each bottle will be decanted and placed in a new Nalgene bottle to separate the water sample from any sediment in the sample.

Sediment Samples

We will collect 1–3 sediment samples for each colony. The sediment sample will be a composite sample with 20% of the composite sample coming from each of 5 sediment core samples collected from 5 sites systematically distributed across each FISA. The sediment sample will be stored under refrigeration or frozen until they are shipped to the laboratory for selenium and total organic carbon analyses.