

Shorebirds and Invertebrate Distribution on Delta Mudflats along the Beaufort Sea

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This study quantifies invertebrate resources in three coastal lagoons along the Beaufort Sea Coast, and assesses whether the resources available to shorebirds are sufficient to prepare for their fall migration. Sediment core samples were collected for laboratory analysis of chemical composition, and to determine invertebrate population structure, numbers of individuals, and species diversity for deltaic communities within the Beaufort Sea littoral zone. A functional response model will be used for this assessment based on capture rate and handling time modeled against invertebrate abundance.

We conducted the final field season for this portion of our research with several specific studies focused on the Jago River Delta to collect information on the feeding behavior of shorebirds (Table 1).

Preliminary results indicate a positive relationship between Chironomid biomass and fine sediment (Figure 1). In addition, we found that the distribution of Chironomids is similar to the distribution of fine sediment on the mudflat (Figure 2). This relationship to sediment particle size may enable some species of invertebrates to withstand freezing during the 7-8 month winter (Danks 2007).

Table 1. Invertebrate, sediment, and shorebird samples collected in 2012.

Number of:	Study Sites			Total
	Canning	Okpilak/ Hulahula	Jago	
Macroinvertebrate Samples	27	136	163	326
Sediment Samples	27	136	163	326
Shorebird Surveys	*	*	9	9
Feeding Behavior Samples	*	*	75	75
Feeding Exclosures	*	*	84	84
Shorebird Fecal Samples	*	*	21	21

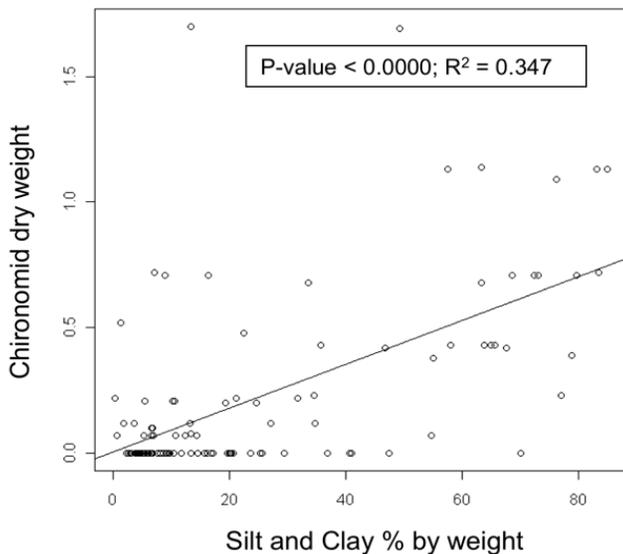


Figure 2. Linear regression showing the relationship between Chironomid biomass and % silt and clay per sediment sample.

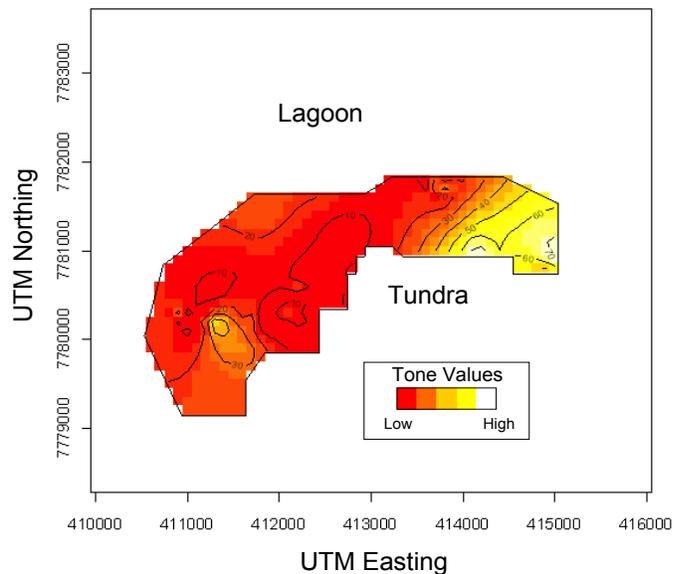


Figure 3. Isocline map of silt-clay on the Jago River Delta mudflat.