

Implications of Beach Restoration on Piping Plover (*Charadrius melodus*) at the Caminada Headland Beach and Dune Restoration Project (BA-45)

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Introduction

Currently in construction, the Caminada Headland Beach and Dune Restoration Project (BA-45) in Lafourche Parish, Louisiana is designed to protect and preserve the structural integrity of the barrier shoreline and provide for restoration of geologic and ecosystem processes such as longshore transport and overwash (Figure 1). Benefits of restoring the headlands Gulf shoreline would protect and sustain significant and unique coastal habitats important to the threatened and endangered populations of Piping Plover (*Charadrius melodus*).



Figure 1: Caminada Headland Beach before start of construction (left) and as of March 13, 2014 (right).

Methods

Following the Louisiana Piping Plover Non-Breeding Season Survey Guidelines, the study site is divided up into 4 - 5 sections and is surveyed on foot. Surveyors walk the length of each section, using binoculars and spotting scopes to identify target species and document band combinations (Figure 2).

Data collected includes:

- Number of Individuals
- Coordinates
- Location (Gulf, Bay or Area in Between)
- Activity (Foraging, Loafing, Flying Aggressive Behavior)
- Color Band Combinations
- Photographs



Figure 2: Surveyor using spotting scope to identify target species.

On April 1 & 2, 2013, 28 pre-construction benthic samples were collected at 4 sites and analyzed for population, density, diversity and total biomass of infaunal organisms known to be prey items for shorebirds. Post construction benthic analysis will also be performed.

Acknowledgments

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Preliminary Results

Bi-monthly surveys were initiated on January 11, 2013 with construction activities commencing in May 2013 on the Caminada Headland. Twenty-one surveys have been executed as of February 12, 2014. An average of 85 Piping Plover are detected per survey, with a range from a low of 43 to a high of 113. A total of 62 re-sighted color banded birds have been recorded (Figure 3). On average, 20 marked individuals are observed per survey.

Census numbers thus far have not indicated significant differences in the number of birds encountered between pre-construction and active construction distribution (Figure 4). Preliminary data of resighted banded Piping Plover show many of the birds exhibit site fidelity (n=31), with site usage ranging from 19.47 km to 0.35 km (Figure 5).

Benthic sampling indicated that *Scolecopsis squamata* and *Lepidactylus triarticulatus*, which are common inhabitants of intertidal and near-shore benthic habitats from the barrier island and mainland beaches from the Florida panhandle area to Texas, likewise dominated the intertidal benthic community at Caminada Headland Beach; they differed numerically but were similar in total biomass.

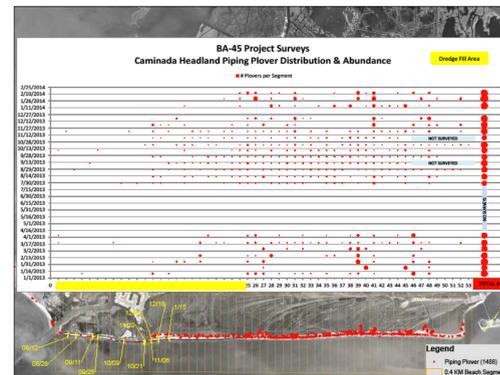


Figure 5: Piping Plover Distribution in Relation to Dredge Outfall Locations at the Caminada Headland Restoration Project (BA-45).

Thus far, surveys indicate active restoration has caused no Piping Plover "incidental takes". Additionally of note, on the September 11, 2013 survey, Piping Plover on the construction site were located foraging directly along the Gulf shoreline with Wilson's Plover, Snowy Plover, Black-bellied Plover and Sanderlings where water was slowly seeping from the dredge outfall area only a few 100 yards from major construction activities.

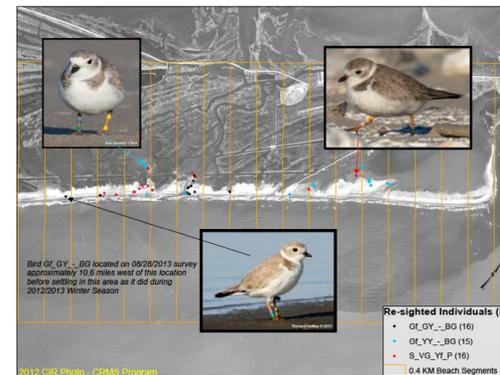


Figure 4: Location of Top 3 Re-sighted Piping Plover during Bi-Weekly Surveys (01/12/13 thru 02/12/14).

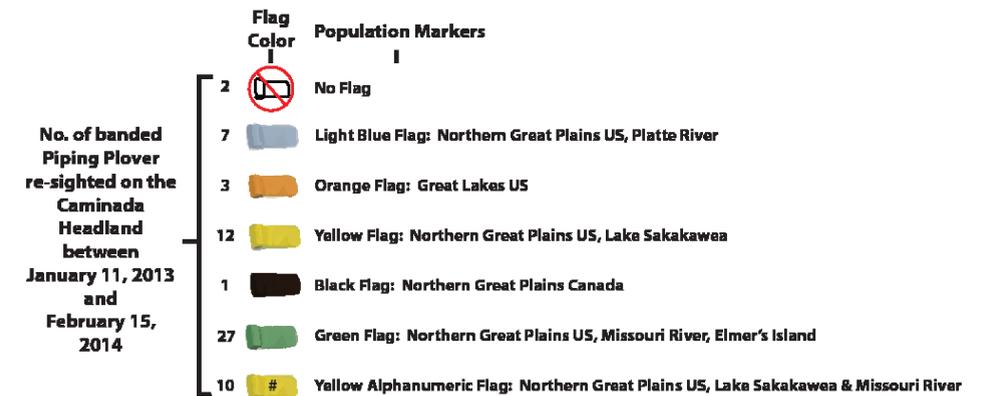


Figure 3: Number of re-sighted color banded Piping Plover and population markers.

Conclusions

Preliminary results indicate survey intensity is capturing consistent Piping Plover numbers and that the regular surveys have determined not only numbers of birds but patterns of usage as well. Indications are also that the construction activities along this area of the Caminada Headland have had little impact to wintering Piping Plover. Further analysis of the surveys should provide valuable indications of changes in Piping Plover distributions and potential for future use of the restored shoreline.

Determining short-term impacts of active barrier island restoration projects on the "threatened" Piping Plover could have consequences for future barrier island restoration as most beaches along the state are considered critical habitat for this particular species and are included in Louisiana's Comprehensive Master Plan for a Sustainable Coast. Shoreline restoration projects have become larger, leading to increased construction duration. These increased durations mean longer possible disturbances throughout multiple nesting and wintering seasons. Results of this project will help in development of best management practices (BMP's) available to the State for construction activities, as well as help regulators better access actual shorebird use and possible impacts of construction activities.

Further information:

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