



Release:

July 2012

Contacts:

Peter S. Coates
Michael L. Casazza

Email:

pcoates@usgs.gov
mike_casazza@usgs.gov

Phone:

530-669-5073
530-669-5075

USGS Western Ecological Research Center | Dixon Field Station | 6924 Tremont Road, Dixon, CA 95620

Pintails Prefer Managed Wetlands and Avoid Tidal Marshes in San Francisco Bay

Northern pintail (*Anas acuta*) populations have declined substantially throughout the western U.S. since the 1970's, largely as a result of converting wetlands to cropland. Managed wetlands have been developed throughout the San Francisco Bay estuaries to provide substitute waterfowl habitat. Many of these areas were historically tidal baylands, and while plans are underway to remove dikes and restore tidal action, the relationship between tidal baylands and waterfowl populations remains poorly understood.

USGS researchers surveyed the selection and avoidance of managed and tidal marshland by pintails during 1991–1993 and 1998–2000, via radiomarking of 330 female pintails at Suisun Marsh, California, to estimate resource selection functions during the nonbreeding months (winter). The results are published in the *Journal of Fish and Wildlife Management*.

Using a distance-based modeling approach, researchers calculated selection functions of pintails for different ecological communities (e.g., tidal baylands) and investigated variation explained by time of day (day or night hours) to account for differences in pintail behavior (i.e., foraging vs. roosting).

The analysis found strong evidence for selection of managed wetlands. Pintails also avoided tidal marshes and bays and channels. There were no differences in selection function between day and night hours for managed wetlands, but the degree of avoidance of other habitats varied by time of day. Areas subjected to tidal action did not influence the selection of immediately adjacent managed wetlands.

In areas where tidal marsh is restored, improving habitat conditions in adjacent wetlands would likely increase local carrying capacities of pintails, and offset the loss of managed wetland habitats and resources.

Management Implications

- Although tidal marshlands provide habitat for many migrant and resident avian species, northern pintails avoided these areas perhaps as a result of reduced feeding opportunities.
- Diked managed wetlands were highly selected by pintails, and the use of these wetlands was not influenced by adjacent tidal marshland.
- In areas where tidal marshland is restored by replacing existing managed wetlands, improving habitat conditions in adjacent wetlands would likely increase total carrying capacities of pintails and offset the loss of wetland areas.

THIS BRIEF REFERS TO:

Coates, PS, ML Casazza, BJ Halstead, JP Fleskes. 2012. Relative value of managed wetlands and tidal marshlands for wintering northern pintails. *Journal of Fish and Wildlife Management* 3(1): 98-109. doi: 10.3996/102011-JFWM-062

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=4746>
<http://www.werc.usgs.gov/casazza>



Photo courtesy of Robert McLandress

Although it is uncertain how conversion of managed wetlands to tidal marshland may change pintail abundance, it is clear that loss of managed wetlands would reduce preferred habitat of pintail populations.