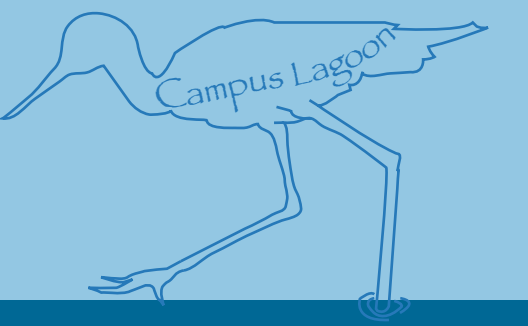


Waterbirds of the Campus Lagoon

More Than Feathers Distinguish These Birds

Four Main Evolutionary Groups

Although waterbirds at the lagoon look similar, four different evolutionary approaches allow these birds to get what they need. Their adaptations are closely matched to their diets and their habits are affected by their tolerance of disturbance. The coots and dabbling ducks often forage around the edges while the fish-eating, diving ducks, and grebes tend to forage and rest in the middle of the lagoon.



Diver

Capture

Dive and strain for benthic invertebrates or capture prey in water column

Food

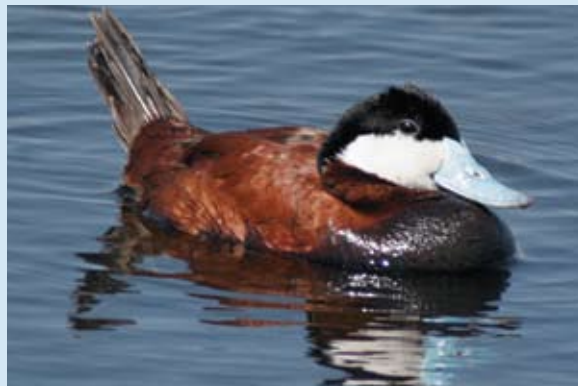
Fish, shellfish, mollusks, and aquatic plants

Adaptations

- Feet set back in body for efficient diving and swimming; can travel great distances underwater to hunt or escape danger
- Bill has ridges (lamellae) for filtering out food from bottom substrate
- Smaller wings than dabbling ducks: less resistance when swimming
- Dull, cryptically colored females provide all parental care



Redhead



Ruddy Duck



Lesser Scaup

Limitations

- Cannot walk well on land; nests in marshes
- Smaller wings require increased energy for flying
- Higher energy costs for osmoregulation in saline environments

American Coot



American Coot

Capture

Forages on land and by diving and dabbling in water

Food

Varied diet of grass, seeds, aquatic vegetation, invertebrates (insects, crustaceans), and vertebrates such as fish and tadpoles

Adaptations

- A generalist species of rail, the coot walks with agility on lobed feet and dives for food
- Abundant in a wide range of aquatic habitats except the ocean
- Not shy: forages readily on lawns and fields near water

Limitations

- Small wings make them awkward flyers

Grebe

Capture

Dive and strain for benthic invertebrates or capture fish and prey in water column

Food

Fish, bottom dwelling crustaceans, eels, dragonflies, frogs, and tadpoles

Adaptations

- Large, broadly lobed feet set back; can make dives as long as sixty seconds
- Bodies long and narrow with small wings minimize resistance when diving; diving is main escape from danger
- Bills range from short and thick, for straining invertebrates and crustaceans, to long and pointed for fish hunting

Limitations

- Vulnerable on land due to leg position; may lie on belly and kick feet to move forward
- Can be poor flyers and use excessive energy due to small wings; diving is the only available response to threats or danger

Can you tell these two grebes apart?

Bright yellow-orange bill
White surrounding eye

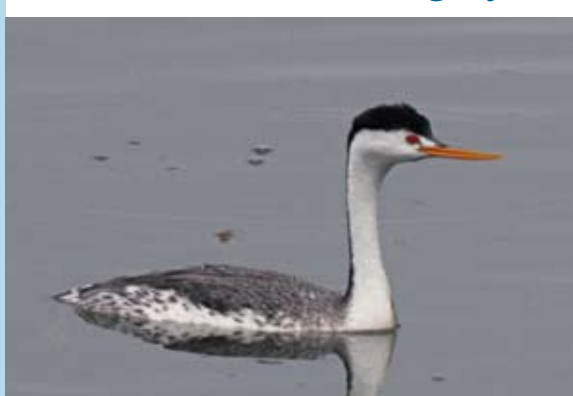
Dusky yellow bill
Black surrounding eye



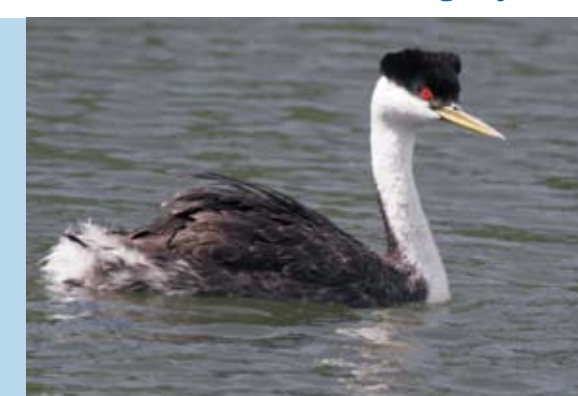
Eared Grebe



Pied-billed Grebe



Clark's Grebe



Western Grebe

Dabbler

Capture

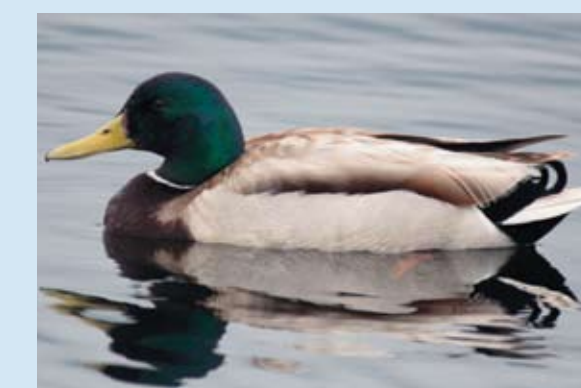
Feed by dabbling or tipping just below surface in large groups

Food

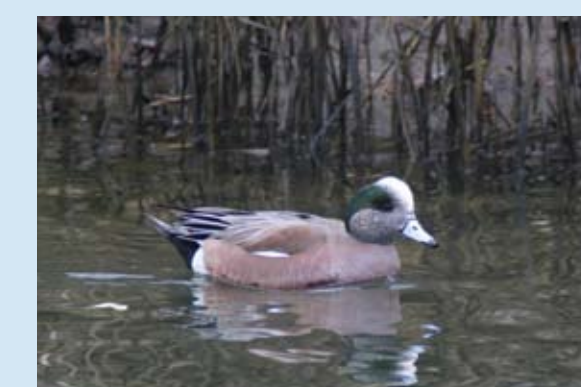
Grain, aquatic plant seeds, and primarily insect and aquatic invertebrate diet during breeding season



Gadwall



Mallard



American Wigeon

Adaptations

- Largest bodies of the ducks; float well
- Bills have small ridges to filter food particles from water
- Well-centered legs allow agile walking or running
- Dull, cryptically colored females provide all parental care
- Larger wings: can rise vertically from water to takeoff; good defense if threatened

Limitations

- Can only feed on land, shallow waters, and upper water column, which contain less nutritious food
- Nest location and feeding on land make them much more susceptible to predation
- Rarely dive and cannot travel far underwater

Campus Lagoon Supports Waterbird Diversity

Dabblers

Dabblers at the Lagoon

The muddy bottom, high nutrient levels, and variable salinity of the lagoon support seasonal stands of ditch grass (*Ruppia maritima*), which dabbling ducks favor. Dabblers can only forage for benthic organisms in the mud along the shoreline because most of the lagoon is too deep (6-8 ft).

Coots

Coots at the Lagoon

These generalists prefer freshwater inlets along the lagoon shore, particularly adjacent to the Commencement Green where they forage frequently. Freshwater marsh plant species increase availability of insect invertebrates, cover, and other resources for coots. During the night coots gather together in the center of the lagoon for protection from predators.

Grebes

Grebes Seek Fish

The Pied-billed Grebe is one of the most commonly seen waterbirds on the lagoon where it rests and hunts for small fish that are adapted to the variation in salinity. Top Smelt, Killifish and the Longjaw Mudsucker are three of the most common small fish found in the lagoon.

Lagoon Supports Divers

UCSB pumps seawater through the lagoon which keeps it full and reduces stagnation. This provides suitable habitat for diving waterbirds when they migrate through in the fall.

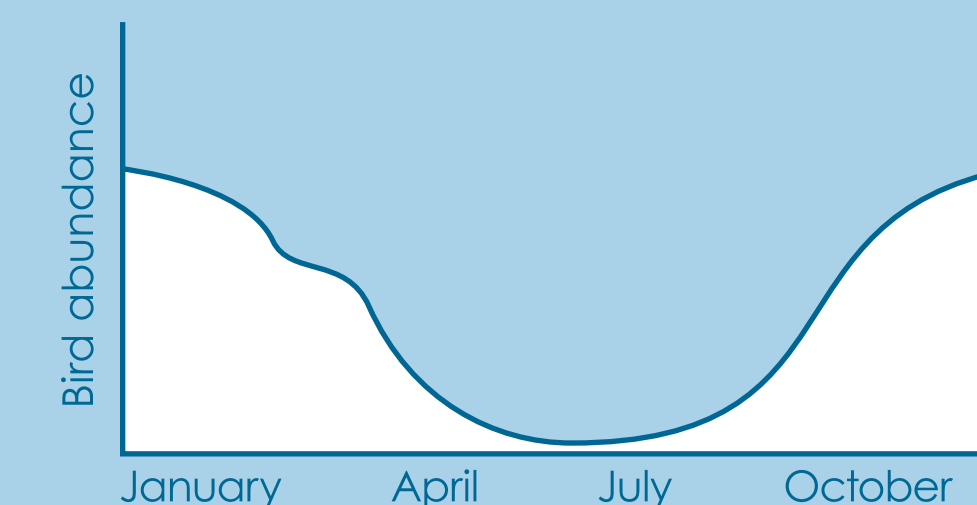
Lagoon Salinity Changes Seasonally

During the summer and fall, when many coastal wetlands are dry, the 31 acre Campus Lagoon is full because of the seawater pumping system which maintains a steady flow of seawater through the lagoon. The majority of campus stormwater also flows to the lagoon, making it brackish in the winter and spring and ocean-level saline in the summer and fall. Only certain fish, invertebrates and wetland plants are adapted to this annual variation in salinity. These austere conditions restrict the aquatic bird species that might breed here.

When are they here?

Monitoring indicates that the lagoon is an important migration stop and over-wintering site for a wide variety of waterbirds.

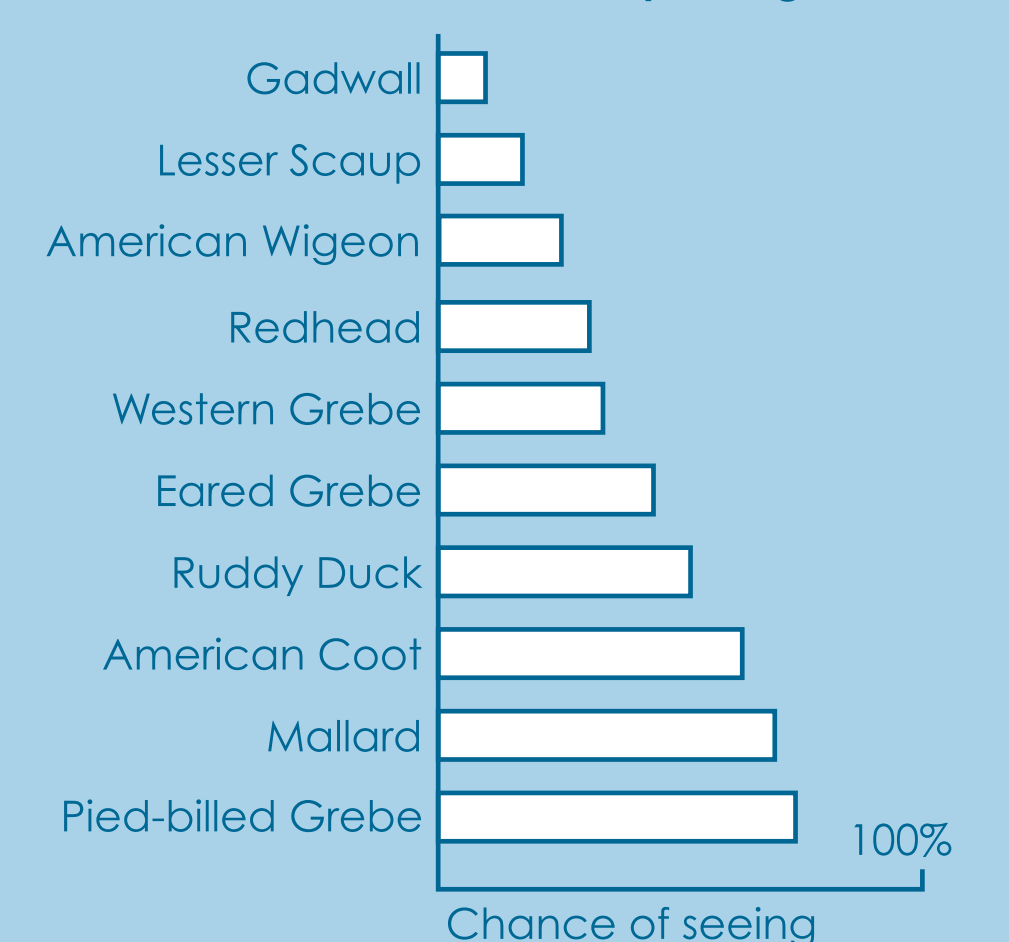
Seasonal Use



Gone during breeding season

Unsuitable shoreline features (roads, steep slopes and manicured lawns), human disturbance levels, an abundance of nest predators (raccoons, skunks and crows), and a lack of available freshwater marsh habitat make nesting unlikely around the lagoon for even the most common species.

Waterbird use of Campus Lagoon



Who are you most likely to see?

Monthly bird surveys reveal which birds use the lagoon most often. The generalist species like the Pied-billed Grebe, Mallard and American Coot are the most common due to their flexible diet and tolerance of disturbance. Most species migrate out of the region to breed.