

ARCATA MARSH & WILDLIFE SANCTUARY

# JR. MARSH EXPLORERS'

ACTIVITY HANDBOOK

HAVE FUN!

QUIZZES!  
FUN FACTS!  
RIDDLES!

LEARN  
ABOUT THE  
MARSH!



ACTIVITY HANDBOOK

ACTIVITY HANDBOOK



# ARCATA MARSH & WILDLIFE SANCTUARY

# DOWNTOWN / ARCATA

Ca. Dept. Fish & Wildlife  
Mad River  
Slough Wildlife  
Area

*McDaniels  
Slough*

### Restored Tidal Hat

## Brackish

South

0.09

P  
1

Marsh

100

10

100

17

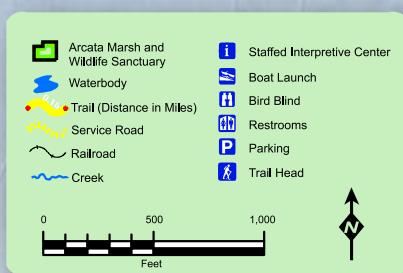
10

卷之三

**Arcata Marsh  
Interpretive Center  
569 South G St  
(707) 826 2359**

Arcata

Bau



USFWS  
Humboldt Bay  
National Wildlife  
Refuge

# WELCOME, JR. MARSH EXPLORERS!

This activity book will introduce you to the plants, animals, and wastewater treatment system that are all part of the Arcata Marsh & Wildlife Sanctuary.

The Arcata Marsh & Wildlife Sanctuary is 307 acres with 5 miles of hiking and biking trails, and part of the City of Arcata's innovative wastewater treatment process. Historically, this area has transformed from tidal marshes to lumber mills and the city landfill to restored wetlands. You will learn more about the history of the Arcata Marsh and about the plants and animals that live here.

## This Activity Handbook belongs to:

---

### What is a Jr. Marsh Explorer?

- Explorers explore & observe the environment around them.
- Explorers care for plants, animals and the land.
- Explorers encourage others to respect the environment and its inhabitants.

**FUN FACT:** Brown Pelicans feed by plunge-diving from high up, using the force of impact to stun small fish before scooping them up in their expandable pouches.



## MARSH HISTORY

After the landfill was closed and sealed in 1973 (now known as Mt. Trashmore), the original 75 acres of the Arcata Marsh & Wildlife Sanctuary (AMWS) was completed in 1981, consisting of 3 enhancement marshes (Allen Marsh, Gearheart Marsh, and Hauser Marsh) and Klopp Lake.

Five years later, the Butcher's Slough restoration project expanded the AMWS to 154 acres. In 1989 the Friends of the Arcata Marsh (FOAM) non-profit organization was formed and raised funds to help build the Interpretive Center along South G Street. In 1998, 75 acres of agricultural land was acquired as part of the AMWS and in 2013, another 78 acres of restored tidal wetlands were added.

The City of Arcata's Environmental Services Department regularly maintains the AMWS while FOAM continues to educate the public about the wonders of the marsh and also hosts volunteer work days to remove invasive plants and pick up trash.

### RIDDLE:

**Q.** Why do bees have sticky hair?

**A.** Because they use honey combs!



*Bees are important pollinators of crops.*

Allen Marsh

Is this green slime or Duck Weed?

# SHOREBIRDS QUIZ

## SOS! – Save Our Shorebirds!

Shorebirds rely on wetlands and other coastal habitats for feeding and resting along migration routes. Do you know how we can help protect them?

1. When shorebirds leave their nest because they are afraid of an off-leash dog it can cause...  
 them to lay more eggs       eggs to fail       the bird to attack the dog
2. True or False: During migration, many shorebirds fly for several days without stopping.  
 True     False
3. When disturbed by people or dogs, some shorebirds will...  
 play dead     abandon their chicks     bite you
4. True or False: Most shorebirds nest on rocky cliffs so their eggs and chicks are usually safe from predators or other dangers.  
 True     False



Check your answers  
on page 15



How many of  
these shorebirds  
can you spot out  
in the Marsh?



# KLOPP LAKE & MT. TRASHMORE

What do you see on the open water of the lake?

---

---

---

What do you see on the islands in the lake?

---

---

---

Can you find the remains of the old Arcata Wharf in the bay?

## How was this lake made?

In 1980, this lake was dug out and the dirt was placed on top of the old landfill, now known as Mt. Trashmore. This 17 acre lake is part **fresh** water and part sea water, or **brackish**”, with a tide gate to Butcher’s Slough on the east side. Fish can get in and out through this opening which feed the diving ducks and the river otters that can be seen here sometimes.



# WASTEWATER TREATMENT

## What happens to my poop?

The Arcata Marsh is where you  poop goes to heaven. From the flush, through the pipes, to the wastewater treatment plant it goes. Solids are separated from the water, and then digested and composted. The water moves on through the ponds and marshes that remove fine particles and pollutants.

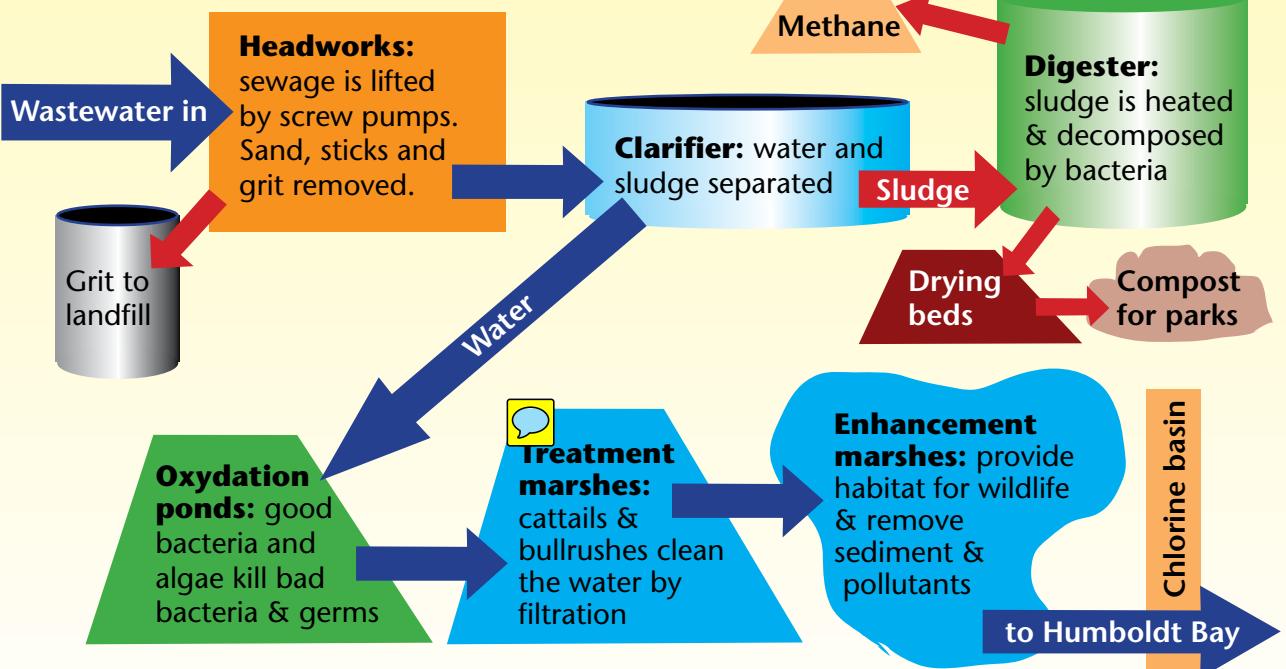
All the water there ever will be,

Goes through YOU, and goes through Me!

Every time we poo and pee, the water goes down in history!

Fl'fl'fl' fl' fluuuuuuush!  
Flush!

## HOW IT WORKS:

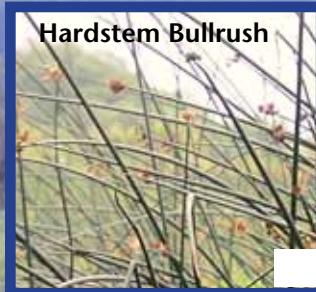


## TREATMENT & ENHANCEMENT MARSHES

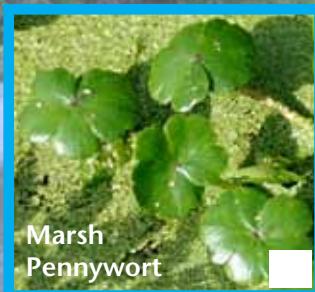
Can you find these MARSH PLANTS? Check them off when you see them!



Cattails



Hardstem Bullrush



Marsh  
Pennywort



Duckweed

Did you know these plants are helping to clean the water? Cattails in the water slow the flow and allow sediment to settle to the pond floor. Leaves gather oxygen and move it down through the roots. Oxygen kills some toxic bacteria, and the plants soak up the extra nitrogen in the water. Plus, these plants provide wildlife habitat. Can you hear or see any Marsh Wrens chatting in the cattails?



# INTERPRETIVE SIGNS

Read the signs around the treatment marshes (Allen, Gearhart, and Hauser) and Klopp Lake to find answers to these questions:

1. Why do those tiny shorebirds fly so close together and all turn at the same time?

---



2. About how many Marbled Godwits spend the winter on Humboldt Bay?

---

3. What is that bird on the treatment ponds that is all black with a white bill?

---



HA HA! HEE HEE!

## JOKE BOX:

A duck walks into a drug store to buy some lip balm.

The cashier asks "Cash or charge?"

The duck says, "Just put it on my bill!"



*A male Ruddy Duck's bill turns blue in the spring to attract females.*

HA HA!  
HEE! H

# WRITE A HAIKU!

## Here's the structure:

5 syllables - Find a comfy bench  
7 syllables - Ponder the Arcata Marsh  
5 syllables - Create your own poem

A photograph of a bright, overexposed sky. The sky is filled with large, wispy white clouds that are backlit, giving them a bright, almost yellowish tint. The clouds are scattered across the frame, with some appearing in the foreground and others in the background. The overall effect is one of a hazy, dreamlike atmosphere. The image is framed by a thick black border.

## RIDDLE:

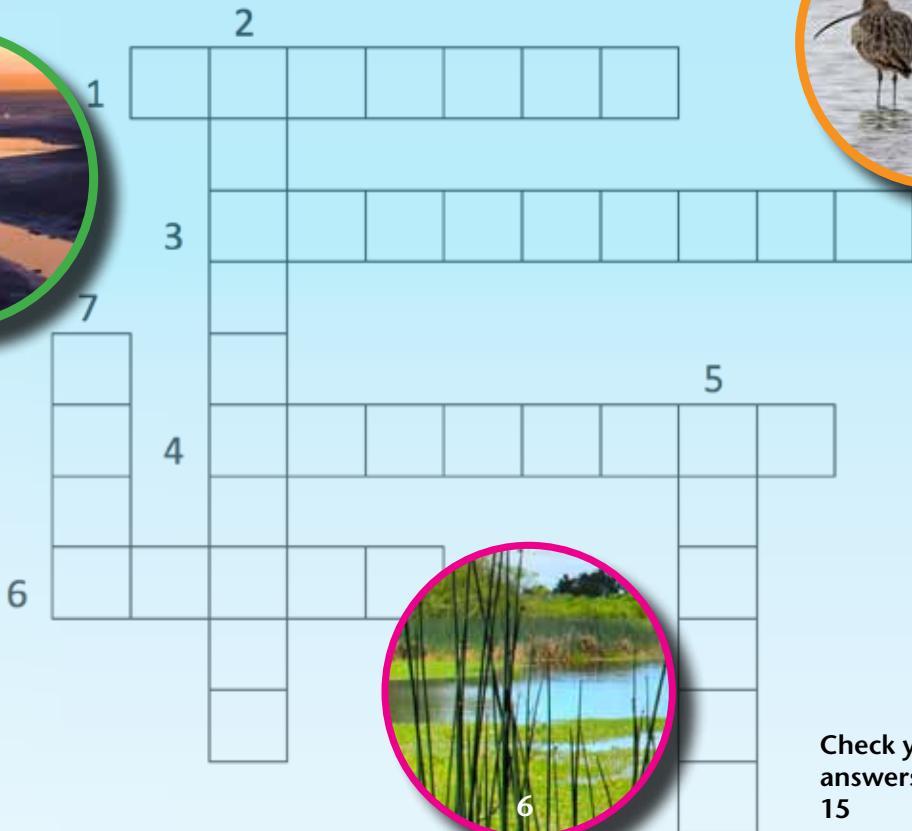
**Q.** What kind of a noise annoys an oyster?

**A.** A **noisy** noise annoys an oyster!



Oysters live in Butcher's slough. Humboldt Bay produces 1/3 of California's oyster crop.

# CROSSWORD PUZZLE



Check your  
answers on page  
15

**1 ACROSS:** Partially enclosed coastal body of brackish water with 1 or more rivers or streams flowing into it.

**2 DOWN:** Types of birds that are usually found around water, travel long distances along coastlines, and have various length bills depending on the species.

**3 ACROSS:** Part of the wastewater treatment process where the chemical O<sub>2</sub> reacts with the water.

**4 ACROSS:** A mix of salt water and fresh water.

**5 DOWN:** Where a creek or river meets tidal flows from Humboldt Bay within a channel, often full of mud and slow moving water.

**6 ACROSS:** Wet areas dominated by herbaceous plants (not woody trees) on the edges of bodies of water.

**7 DOWN:** Abbreviation for the non-profit organization associated with the Arcata Marsh & Wildlife Sanctuary.

# FRESHWATER VS. SALTWATER



There are two basic habitat types at the Arcata Marsh. Draw a line from the animal or plant below to its preferred habitat.  
(Answers on p.15)



## DID YOU KNOW?

Wetlands along coastal areas help to settle out and filter pollutants from entering the bays and oceans. Coastal wetlands also are beneficial for protecting coastlines from erosion and flooding.



## MARSH POSTER ART BY LARRY EIFFERT

### Circle these hidden creatures

Can you find the Opossum?  
Can you find the River otter?

Can you find 2 frogs?  
Can you find the White-tailed Kites?



Green  
Heron

# AROUND THE INTERPRETIVE CENTER

You can find out more about the Marsh at the Interpretive Center. Can you find the answers to these questions in the exhibit hall?

1. Which birds made nests with blue material in them?

---

2. How much water does a typical washing machine use?

---

3. Where do the solids in wastewater go once they have been through the headworks of the wastewater treatment plant?

---

# NATIVE PLANT GARDEN



Why are native plants important? Find the sign that gives some answers.

---

---

1. Just based on its common name, which plant sounds like it would be sticky?

---

2. Which species has separate male and female plants?

---

3. Which plant looks like it could have been used by native Americans as a scrubbing brush?

---



# WANTED! DEAD!

## ← Spartina – alias Cordgrass

Thought to have arrived in Humboldt Bay in the 1870's in the hulls of ships from Chile, dense-flowered cordgrass (*Spartina densiflora*) has spread into about 90% of the salt marshes around Humboldt Bay and other nearby estuaries, overpowering native vegetation, some of which are rare or endangered. It even covers what used to be open mud flats that shorebirds used to find food. The City of Arcata, Friends of the Arcata Marsh, and U.S. Fish & Wildlife Service have been working on removing this invasive non-native plant for years. Check the City of Arcata website for community volunteer work days to help.

### FUN FACT:

Raccoons are known for their intelligence. One can remember a specific task for up to 3 years.



Native Plant Garden: 1. Gum plant, 2. Coyote brush, 3. Horse tail

Interpretive Center: 1. Vireo species & Bullock's Oriole, 2. 50 gallons, 3. Digesters and sludge beds

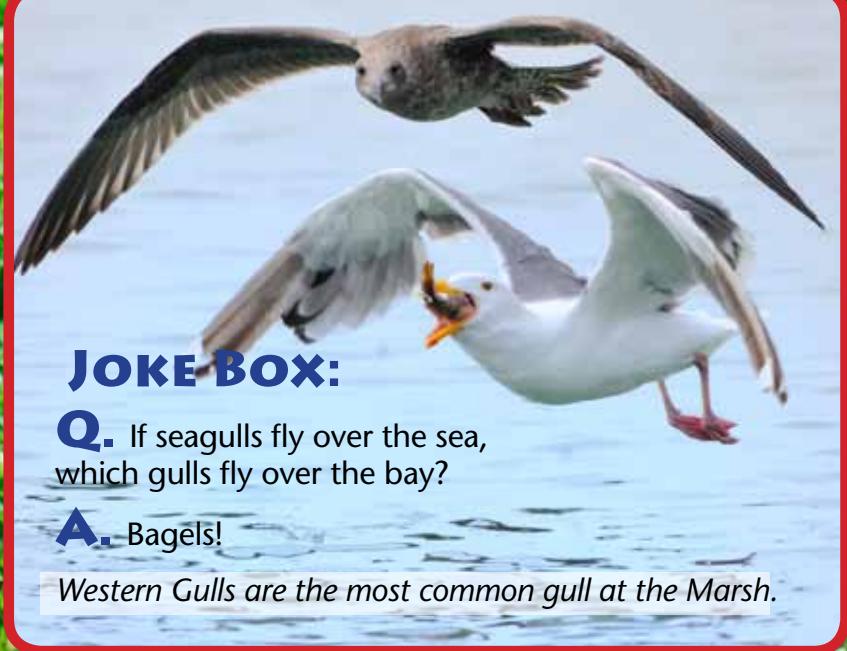
Freshwater vs. Saltwater: 1. Humboldt Bay Owl's Clover: saltwater, 2. Pacific Tree Frog: freshwater, 3. Pickleweed: saltwater, 4. River Otter: both!, 5. Horsetail: freshwater, 6. Water Parsley: freshwater.

Crossword Puzzle: 1. ESTUARY, 2. SHOREBIRDS, 3. OXIDATION, 4. BRACKISH, 5. SLOUCH, 6. MARSHP, 7. FOAM

Interpretive Signs: 1. Smaller shorebirds, often referred to as "peeps", flock closely together in flight to appear as one large organism to a predator and making it more difficult to pick one out of the crowd; 2. 6,000; 3. American Coot.

Page Shorebird Quiz: 1. Eggs to fail, 2. True, 3. Abandon their chicks, 4. False (most shorebirds nest on open ground and rely on camouflage to hide their eggs and chicks but they are threatened by off-leash dogs, cars on the beach, and predators).

**ANSWER KEY**

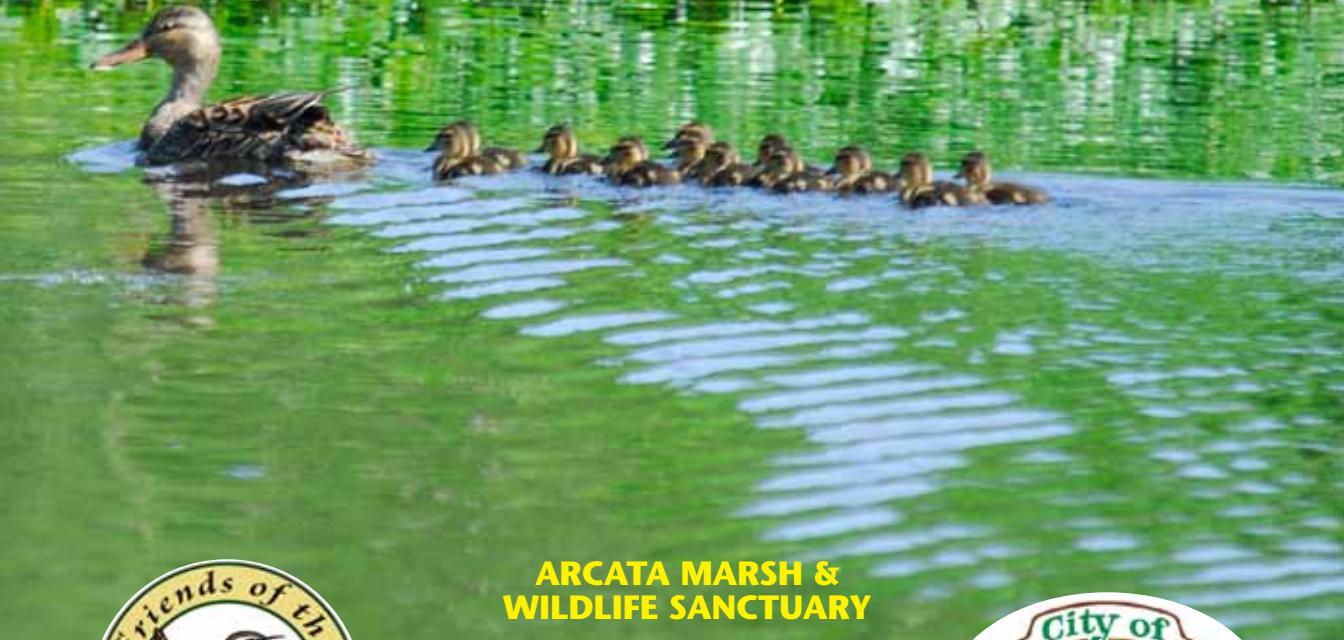


## JOKE BOX:

**Q.** If seagulls fly over the sea,  
which gulls fly over the bay?

**A.** Bagels!

*Western Gulls are the most common gull at the Marsh.*



## ARCATA MARSH & WILDLIFE SANCTUARY

569 South G Street  
Arcata, CA  
707-826-2359  
[www.cityofarcata.org](http://www.cityofarcata.org)

