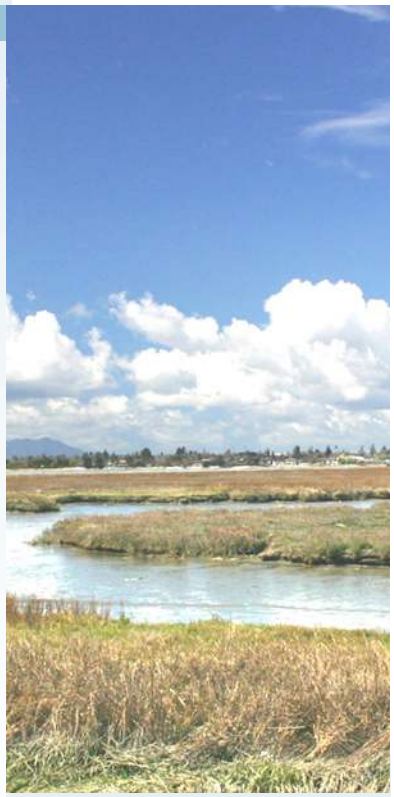
Save The Bay

7/7/2020

Ecosystem Services

Why are wetlands important?
How do wetlands protect us?
What are ecosystem services?
How do wetlands fight climate change?



Objective

Students will understand how wetlands around the Bay shoreline protect coastal communities from sea level rise and flooding. Students will understand that different ecosystems on earth provide different services, and wetlands provide specific services that other ecosystems do not.

Preparation

Que up the Khan Academy video: https://www.khanacademy.org/science/biology/biodiversity-and-conservation/ecosystems-ecosystem-services/v/ecosystem-services

Have ready the Ecosystem Services Worksheet.

Delivery

Ask: What does nature do for humans, or, what is the value of nature to us? Have students share their ideas to each other then to the class. Write down these ideas so the class can add to the list post-lesson. Watch the Khan Academy video with your students. Revisit the list of things nature gives us and add new ideas.

Now tell students they'll be looking at the ecosystem services that the tidal wetlands of the San Francisco Bay provide for us. Pass out the Ecosystem Services Worksheet. The challenge will be to match the lettered explanation to the numbered ecosystem service. Once all the students have matched the correct explanations to their respective services, revisit the class list of the values of nature. Students can add or change things on the list then lead a debrief discussion with the questions below.

Debrief

What ecosystem services are unique to wetlands specifically?
What is a direct service that tidal wetlands provide us in the Bay Area?
What's an indirect service tidal wetlands provide?
Describe in your own words the ethical and aesthetic value of the Bay.

- Why is it important that the wetlands around the bay be conserved, and open areas available be restored? Why should we restore and conserve these wetlands for future generations?

Theme

Human Impact & Climate Change

Age

6th-8th

Duration

45-60 mins

Materials

Ecosystem Services Worksheet and link to Khan Academy video

Standards

NGSS: ESS2.A-C; ESS3.D; ESS3.c

Vocab

Ecosystem Services: gifts that healthy, functioning ecosystem give to us.
Aesthetic and Ethical Value: the loss of biodiversity and ecosystem services (as a result of current human activity) is not something that our children will be able to rebuild.

ECOSYSTEM SERVICES OF WETLANDS

1

Clean Water

2

Help Curb Global Warming

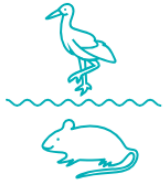
3

Open Space and Recreation

4

Economic Benefits

5



Habitat for Sensitive Species

6

Protect Communities from Floods and Sea Level Rise

ECOSYSTEM SERVICES OF WETLANDS

Match the lettered explanation to the numbered icon and service description!

[A] Wetlands take CO_2 out of the air at a higher rate than any other ecosystem which reduces the greenhouse gas effect. The carbon is stored in their leaves, shoots, roots and in the rich soil.

[B] Wetlands provide communities with space to use and promote physical and mental wellbeing. Folks can explore the shoreline on hiking trails or in the water filled channels.

[C] The San Francisco Bay is part of the Great Pacific Flyway, a path for bird migrating from Mexico to Alaska. It is also a home for the endangered Salt Marsh Harvest Mouse and Ridgeway's Rail.

[D] Many people live at or below sea level. Wetlands protect these communities by acting as a sponge slowing down and soaking up lots of water from storms and high tides.

[E] Wetlands filter physical trash and toxic chemicals out of the water. Check out our *Wetland in a Pan* lesson to learn how this works.

[F] Wetlands are a source of income for the state through tourism, fishing, use of open space. Many industries rely financially on a healthy wetland ecosystem

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ECOSYSTEM SERVICES OF WETLANDS

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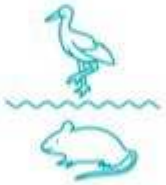

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