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Eighth Grade 2008-2009

Oceans and Aquatic Biology Unit Review

Key Points:

- The ocean can be divided into three zones—the intertidal, the neritic, and the oceanic zones.
- Organisms in the ocean are either benthos, plankton, or nekton.
- Humans get many resources from the ocean.
- Energy is passed from producer to consumer to decomposers in a food chain. Many aquatic (water) food chains are found in the ocean.

INSIDE THIS ISSUE:

The Structure of the Ocean

The ocean is composed of three different zones: the intertidal zone, the neritic zone, and the oceanic zone. These zones are created as scientists consider water depth and distance from the shore.

The **intertidal zone** is the area that falls between high tide and low tide. Sometimes it is covered by water, but at other times it is exposed to the air. Many of the organisms that live here are adapted to changes in the salinity and to sometimes being underwater. They also have developed ways to "hold on" to the shore to keep from being washed into the ocean.

The **neritic zone** is the ocean area that slopes down from the edge of the shoreline towards the ocean floor. Because the neritic zone is fairly shallow, light can penetrate to the ocean floor and temperature stays fairly constant. As a result, many animals live in the neritic zone, especially in **coral reefs** (limestone deposits made of coral shells) and **kelp forests** (large brown algae that grow from the ocean floor toward the surface).

The **oceanic zone** is made of the ocean's open waters. The zone extends from the ocean surface to the deepest waters of the ocean. Sunlight can only penetrate the top 200 meters of this zone, so many organisms live in the surface waters. **Upwelling** occurs here as the wind blows warm surface waters away from the shore, causing cold, nutrient-rich water to rise in its place. Upwelling enables many fish to live.

The Organisms in the Ocean

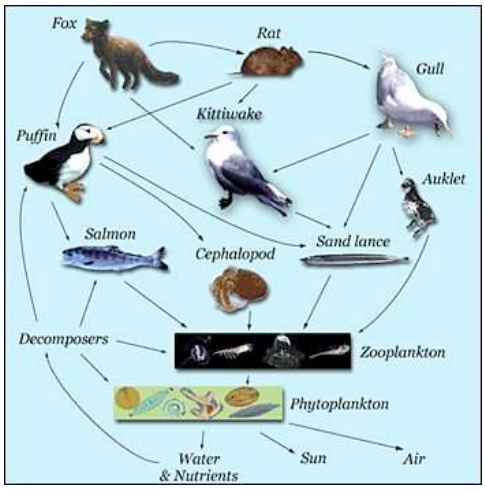
Organisms in the ocean can be divided into three groups: benthos, plankton, and nekton.

Benthos are organisms that live on the bottom of the ocean floor. Kelp, sponges, worms, clams, and starfish are all benthos.

Plankton are all organisms that float with the ocean's current. Some examples include krill, algae, jellyfish, and some mollusks.

Finally, organisms that swim are called **nekton**. Examples of nekton include fish, whales, seals, eels, squid, and octopus.

The Food Chain: Oceans are a Habitat!



Many organisms make their homes in the ocean. Of course, these organisms form a **food web** as organisms feed off each other to stay alive.

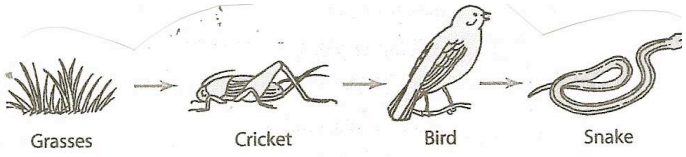
In the oceanic food web, we can find produces, consumers, and decomposers.

Producers are organisms that can make their own food using photosynthesis. These are plants and algae, as well as some bacteria.

Consumers are organisms that get their energy by feeding off other organisms. All animals and many protists are consumers. A **primary consumer** feeds off producers; a **secondary consumer** feeds off primary consumers, and a **tertiary consumer** feeds off secondary consumers.

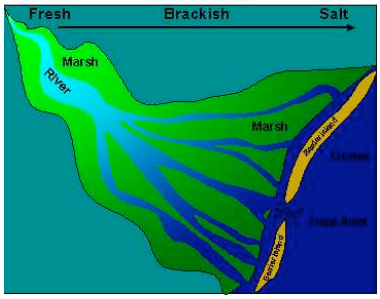
Finally, ocean habitats also contain **decomposers**, or organisms that break down the remains of dead organisms to get their energy. Decomposers return chemical materials to their environment so that other organisms can use them.

As we consider ocean food webs, it's important to remember a couple vocabulary words. **Aquatic** food chains are food chains that are found in water. **Terrestrial** food chains are food chains that are found on land. Of course, there are times when organisms can be found in both types of food chains or food webs. On the EOG, you might see questions about links between aquatic (water) and terrestrial (land) food webs.



Estuaries

The Estuary



Estuaries are unique habitats for organisms where salty ocean water mixes with fresh water from rivers. This makes a great habitat for many different types of organisms.

Estuaries are usually protected from the ocean's waves by some sort of barrier island or reef. Their **salinity** (how salty they are) can change constantly, depending on the amount of rain and the number of coastal storms in the area.

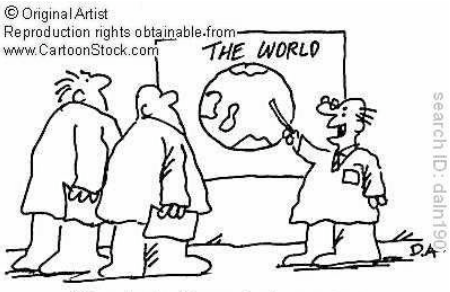
However, in spite of these changes, estuaries have calm waters that have quite a bit of dissolved oxygen, nutrients, and minerals supplied by river water. Seagrasses provided great shelter and food, and many organisms make their homes in estuaries as a result. In fact, estuaries oftentimes serve as nurseries for many aquatic animals before they spend their adult lives in the ocean.

Resources from the Ocean

Humans get many important resources, including freshwater, food, and salt, from the oceans.

Humans get many resources from the ocean. As we've discussed previously, many organisms that humans use for food live in the ocean. Think about lobster, shrimp, oysters, mussels, and other shellfish!

However, humans can get freshwater from the ocean through the process of **desalination.** Desalination is actually just taking the salt out of water. During this process, ocean water is boiled until the water evaporates, leaving behind only the salt, which humans can use. The evaporated water is captured and placed into a container, where it is cooled so it will condense back into liquid. Using this process, humans can obtain both salt and water to use for everyday purposes.

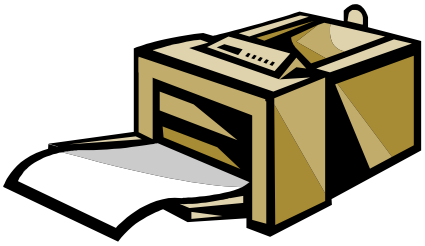


"To combat the rising sea levels we construct thousands of desalination plants to suck up the water."

Inside Story Headline

This story can fit 150-200 words.

One benefit of using your newsletter as a promotional tool is that you can reuse content from other marketing materials, such as press releases, market studies, and reports.



Caption describing picture or graphic.

While your main goal of distributing a newsletter might be to sell your product or service, the key to a successful newsletter is making it useful to your readers.

A great way to add useful content to your newsletter is to develop and write your own articles, or include a calendar of upcoming events or a special offer that promotes a new product.

You can also research articles or find "filler" articles by accessing the World Wide Web.

You can write about a variety of topics but try to keep your articles short.

Much of the content you put in your newsletter can also be used for your Web site. Microsoft Publisher offers a simple way to convert your newsletter to a Web publication. So, when you're finished writing your newsletter, convert it to a Web site and post it.

Inside Story Headline

This story can fit 100-150 words.

The subject matter that appears in newsletters is virtually endless. You can include stories that focus on current technologies or innovations in your field.

You may also want to note business or economic trends, or make predictions for your customers or clients.

If the newsletter is distributed internally, you might comment upon new procedures or improvements to the business. Sales figures or earnings will show how your business is growing.

Some newsletters include a column that is updated every issue, for instance, an advice column, a book review, a letter from the president, or an editorial. You can also profile new employees or top customers or vendors.

"To catch the reader's attention, place an interesting sentence or quote from the story here."

Inside Story Headline

This story can fit 75-125 words.

Selecting pictures or graphics is an important part of adding content to your newsletter.

Think about your article and ask yourself if the picture supports or enhances the message you're trying to convey. Avoid selecting images that appear to be out of context.

Microsoft Publisher includes thousands of clip art images from which you can choose and import into your newsletter. There are also several tools you can use to draw shapes and symbols.

Once you have chosen an image, place it close to the article. Be sure to place the caption of the image near the image.

Caption describing picture or graphic.

Primary Business Address
Your Address Line 2
Your Address Line 3
Your Address Line 4

Phone: 555-555-5555
Fax: 555-555-5555
E-mail: someone@example.com

We're on the Web!
example.microsoft.com

This would be a good place to insert a short paragraph about your organization. It might include the purpose of the organization, its mission, founding date, and a brief history. You could also include a brief list of the types of products, services, or programs your organization offers, the geographic area covered (for example, western U.S. or European markets), and a profile of the types of customers or members served.

It would also be useful to include a contact name for readers who want more information about the organization.

Organization

Your business tag line here.

Back Page Story Headline

This story can fit 175-225 words.

If your newsletter is folded and mailed, this story will appear on the back. So, it's a good idea to make it easy to read at a glance.

A question and answer session is a good way to quickly capture the attention of readers. You can either compile questions that you've received since the last edition or you can summarize some generic questions that are frequently asked about your organization.

A listing of names and titles of managers in your organization is a good way to give your newsletter a personal touch. If your organization is small, you may want to list the names of all employees.

If you have any prices of standard products or services, you can include a listing of those here. You may want to refer your readers to any other forms of communication that you've created for your organization.

Caption describing picture or graphic.

You can also use this space to remind readers to mark their calendars for a regular event, such as a breakfast meeting for vendors every third Tuesday of the month, or a biannual charity auction.

If space is available, this is a good place to insert a clip art image or some other graphic.