

Notes: Ocean Resources

What are living resources?

- Ocean animals are a food source.
- Phytoplankton produce a lot of Earth's oxygen.
- Some ocean organisms are being researched for properties that might cure disease.
- Seafood & algae
 - Huge food source
 - Algae is used to make some food (cheese, ice cream) and other products (shaving cream, toothpaste, pesticides).
 - Most seafood caught by big fishing nets
- Fisheries: areas where a lot of commercial fishing takes place
 - Fisheries provide about 16% of the world's protein

How do humans have a negative impact on the ocean?

- Overfishing and by-catch (by-kill)
 - Overfishing: catching fish faster than they can reproduce
 - Major threat to ocean environments
 - Ex: Cod—once very common in Atlantic ocean, now there are few left
 - Fisheries—main fishing areas of the ocean—most are overfished
 - By-catch (by-kill)
 - Nets catch more than they should
 - Portion of animals caught & thrown back (dead or alive)—sometimes more than what the net is meant to catch—nets catch dolphins and sea turtles too.
 - New nets reduce by-catch—still throw away about 30% of what they catch.
- Salt-water aquaculture (raise fish, oysters, shrimp, etc) → can cause lots of waste, often clear mangrove forests to make room for the farms.

Human impact (cont.)

- Pollution
 - Every part of the ocean is polluted.
 - Solid waste (plastic bottles, needles, etc.), chemicals, mercury, lead
 - Waste, sewage, & fertilizers have caused dead zones in the ocean (no plants or animals)
 - Most pollution is run-off from land (44%)
 - Preventing ocean pollution
 - Laws, properly disposing of chemicals
 - Ocean pollution is a global problem!
 - Currents carry water everywhere.
 - Oceans are all connected
 - 1944 Law of the Sea—manage resources, enforce pollution laws, conserve ocean

What is dredging?

- Dredging is using a machine attached to a ship that pulls sand up from the ocean floor and either moves it, or removes it to use on land.
- Dredging of any kind pulls up the ocean floor (and can pull organisms with it!), causing a cloud of sediment to rise in the water, blocking sunlight for plants and phytoplankton.
- Dredging can also introduce heavy metals into the ocean food chain (pull metals from the bottom).

What are some nonliving resources in the ocean?

- Desalination used in some countries.
- Energy resources
- Minerals & rocks
 - Wash into the ocean from land—most found close to shore
 - Nodules: lumps of minerals on ocean floor
 - Iron and cobalt (used to make steel), gold, lead, tin, diamonds, etc.
 - Sand & gravel used in building materials
 - Too expensive to remove them currently.

How do we drill for oil in the ocean?

- First, an oil well must be found in the ocean. Geologists locate potential wells beneath the ocean floor through surveys using special equipment.
 - When a potential well is found, government permission must be granted for exploratory drilling to see if the oil is actually there and if we can get it out.
- If oil or gas is found, a production well is drilled, and an oil rig is built. An average well lasts 10-20 years.
- Initially the pressure from the reservoir of oil is enough to pump it out, but over time, the pressure decreases, and other techniques must be used to help pump it.
- Crude oil obtained from a well is refined at oil refineries onshore.
- Environmental concerns:
 - The rigs impact living creatures, making noise, blocking their path, polluting the water.
 - Potential oil spills

How does tourism affect the ocean?

- Tourism is the fastest growing division of the world economy and is responsible for over 200 million jobs around the world.
- Tourism often has a negative impact on coastal and ocean ecosystems:
 - Development of coastal habitats (new buildings, like hotels, malls, etc.)
 - Garbage and sewage generated by visitors—usually produce more than locals
 - If this is dumped into the ocean, it can lead to eutrophication (an overgrowth of algae), which can harm other organisms.
 - Tourists can bring new diseases and lead to epidemics
- Ecotourism is a new trend that favors low impact tourism and creates a respect for local cultures and ecosystems.