

MARINEreview: Human Impact on the Sea

Your most important resources are www.sciencrush.net and PowerSchools. Use them! I am available every day before school, after school, and during lunch for extra help. Let me know if there is anything I can add to this review to help you.

Marine Organisms of the Day

1. Atlantic Bluefin Tuna (*Thunnus thynnus*): Bluefin are the largest tuna and can live up to 40 years. They migrate across oceans and can dive more than 4,000 feet. Bluefin tuna are built like torpedoes, have retractable fins and their eyes are set flush to their body. They are tremendous predators from the moment they hatch, seeking out schools of fish like herring, mackerel and even eels.

<https://www.youtube.com/watch?v=CGVVK7aTaZw> (1:09)

2. (Bruce) Great White Shark (*Carcharodon carcharias*): Great White Sharks can detect one drop of blood in 25 gallons of water (100L) and can sense tiny amounts of blood in the water up to 3 miles away. They are the largest predatory fish on Earth, weighing up to 5,000 pounds. They can also swim up to 15 miles an hour (the fastest human swimmer ever recorded swam 5.3 miles an hour). They are listed as an endangered species due to overfishing and accidental catches in gill nets, but the exact number of great whites in the world is unknown.

<https://www.youtube.com/watch?v=kXaIykJdtwM> (4:03)

3. American Lobster aka Maine Lobster (*Homarus americanus*): The lobster is one of the largest types of crustacean with some lobster species known to get to weigh over 45 pounds. Lobsters live on rocky, sandy, or muddy bottoms close to the shoreline to beyond the edge of the continental shelf as the lobster prefers the shallower ocean water. Lobsters have been known to get to 100 years old, sometimes older and the lobster continues to grow in size throughout its life.

https://www.youtube.com/watch?v=jv3opUhYC_Y (3:41)

4. Antarctic Toothfish aka Chilean Seabass (*Dissostichus mawsoni*): Antarctic toothfish are large, pelagic predators that live in southerly waters influenced by the Antarctic Circumpolar Current at depths between 300 and 2,500 meters. Living up to 48 years, it is believed they reach sexual maturity between 13 and 17 years of age. This is of concern due to the popularity of the fish, which is marketed as Chilean Seabass.

<https://www.youtube.com/watch?v=CztBS7StN48> (3:55)

5. White Shrimp aka Common Shrimp (*Litopenaeus setiferus*): An important U.S. fishery, White shrimp are crustaceans with ten walking legs and five pairs of swimming legs located on the front of the abdomen. Young shrimp live and grow in nursery areas with muddy bottoms and low to moderate salinity. White shrimp commonly inhabit estuaries & coastal areas out to about 100 feet offshore.

<https://www.youtube.com/watch?v=EnHoDBjSimE> (3:37)

6. Striped Marlin (*Kajikia audax*): Found in tropical and warm temperate waters of the Indian and Pacific oceans, the striped marlin is pelagic and seasonally migratory, moving toward the equator during the cold season and away again during the warm season. The most distinguishing characteristic is its high, pointed first dorsal fin, which normally equals or exceeds the greatest body depth.

<https://www.youtube.com/watch?v=1CKjFUVs3Qg> (3:48)

7. Nile Tilapia (*Oreochromis niloticus*): Tilapia is the most aquacultured fish in the world. Tilapia are low in saturated fat, calories, carbohydrates and sodium, and are a good protein source. Tilapia rarely compete with other "pond" fish for food. Instead, because they consume plants and nutrients unused by other fish species and substantially reduce oxygen-depleting detritus; adding tilapia often increases the population, size and health of other fish.

<https://www.youtube.com/watch?v=zZ6pI6AOYtc> (2:58)

8. Polar Bear (*Ursus maritimus*): Polar bears are classified as marine mammals because they spend most of their lives on the sea ice of the Arctic Ocean. Considered talented swimmers, they can sustain a pace of six miles per hour by paddling with their front paws and holding their hind legs flat like a rudder. They were the first species to be classified as endangered solely due to global warming.

<https://www.youtube.com/watch?v=0mgnf6t9VEc> (3:36)

9. Goliath Grouper (*Epinephelus itajara*): Groupers mature as females, but can change their sex after sexual maturity. They normally swallow their prey instead of biting off chunks, and chew it using huge crushing tooth plates in their pharynx. The largest grouper ever recorded weighted 310 kilograms, or 686 pounds.

<https://www.youtube.com/watch?v=y0eCyugm6f0> (1:24)

10. Red Volitan Lionfish (*Pterois volitans*): A lionfish can live without food for 3 months and only lose 10% of their body mass. In fact, obese lionfish are being found with internal organs that are completely covered in fat and suffering from liver damage. Lionfish are being increasingly found in brackish water, where the water salinity is about 6 parts per thousand compared to the ocean at 33 parts per thousand.

<https://www.youtube.com/watch?v=GzaeYzAC8Ro> (3:20)

Top 10 Terms for This Exam

Fisheries
Aquaculture
Ghost Fishing
Pfiesteria
Pollutants

Maximum Sustainable Yield
Bycatch
Invasive Species
Anadromous Species
Biological Magnification

The Gimme Questions for This Exam

1. All of these are common effects of fishing (and overfishing) **except**
 - a. species extinctions
 - b. alteration of size structure and prawn fisheries
 - c. a reduction in species diversity
 - d. alteration of population sex ratio
2. Which of these animal types seems to be most vulnerable to oil spills?
 - a. killer whales
 - b. seabirds
 - c. sea otters
 - d. subtidal organisms
3. Which of these statements best represents the future of the combined marine fisheries?
 - a. the relatively untapped areas of the continental slopes can more than replace the declining fisheries
 - b. underexploited squid resources in the southern oceans can more than compensate for declining fisheries
 - c. the seas cannot and will not be the source of substantial food for an expanding human population
 - d. current stocks of krill can easily meet the increasing needs of an expanding human population
4. The best known example of mammal bycatch is the
 - a. use of cyanide to stun coral reef fishes
 - b. trawling nets of shrimp and prawn fisheries
 - c. tuna purse seine fishery
 - d. phenomenon of "ghost fishing"

Finding Nemo Clips for the Exam

6 – Nemo Lost

25 – Darla!

26 – Fishing Net