Watch each video. First, geolocate the marine ecosystem. Then, using the five key terms, describe the ecological principles presented in each video. Be as specific as you can in your descriptions. If you can use additional terms to describe the video, you may do so.

**Key Terms**
- abiotic
- adaptation
- apex predator
- autotroph
- biodiversity
- biotic
- carnivore
- commensalism
- community
- competition
- consumer
- decomposer
- ecosystem
- endemic species
- energy
- food chain
- food web
- habitat
- herbivore
- human impact
- invasive species
- mutualism
- niche
- omnivore
- parasitism
- population
- producer
- species
- symbiosis
- trophic level

**Geolocation**
convergence of Atlantic, Pacific, and Indian Oceans; also called Southern Ocean

**Video 1: Antarctic Ocean (4 minutes)**

Video Observations and Description using these 5 key terms: **adaptation, autotroph, food web, human impact, trophic level**

Organisms must be **adapted** to extreme temperatures and icy **habitat (abiotic)**. Krill (**herbivores/primary consumers**) transform the sun’s energy gathered by phytoplankton (**autotrophs/producers**) to support the entire Antarctic **food web (niche)**. Blue, fin, minke, right, sei whales (**herbivores/primary consumers/heterotroph**) migrate thousands of kilometers to **consume** krill, which are also the **prey (trophic level)** of many other Antarctic **populations** (penguins, sea birds, fish, seals). Underwater, penguins are streamlined and **well-adapted** to staying warm and swimming fast. Skua birds are large, fierce **predators (carnivores)** who consume penguin chicks and eggs. New research and methods for exploring the deep, dark depths of the Antarctic Ocean are showing that **biodiversity** is much greater than previously thought. Shifting ocean currents and climate change impacts are affecting the Antarctic Ocean (**human impacts**).
## Marine Ecology Video Scavenger Hunt
### Answer Key, continued

<table>
<thead>
<tr>
<th>Video 2: West Indian Ocean (3 minutes, 30 seconds)</th>
<th>Geolocation</th>
<th>East Coast of Africa/Western edge of Indian Ocean (South Africa to Somalia); where Mozambique and Agulhas Currents converge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Observations and Description using these 5 key terms:</strong> biodiversity, competition, ecosystem, human impact, species</td>
<td>Convergence of currents connect warm equatorial waters to cooler water masses to the south, creating upwelling of nutrients that support the Indian Ocean ecosystem and food web and create some of the richest biological (biotic) areas in the sea (habitat). From South Africa to Somalia, biodiversity is rich (&gt;11,000 species). Sandy beach habitats provide nesting sites for several (~70%) of world’s marine turtle populations (leatherbacks, loggerheads, hawksbills, greens). Coral reef fringe the shore, providing diverse habitat for other organisms (communities/populations). Various species of moray eels adapted a second set of jaws to capture and hold their prey. Upwelling of currents brings exotic species from the deep (i.e., coelacanth). Coastal communities have fished these areas for centuries (competition/omnivores/consumers/heterotroph). Seafood farming used for foods, medicines, cosmetics; large-scale commercial fishing operations have depleted waters of fish diversity and numbers (human impact). Areas are now being protected (MPAs).</td>
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<tr>
<th>Video 3: Monterey Bay (4 minutes, 30 seconds)</th>
<th>Geolocation</th>
<th>Monterey Bay, California, United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Observations and Description using these 5 key terms:</strong> abiotic, energy, food chain, habitat, human impact</td>
<td>Monterey Bay is known for its rocky shoreline, fierce waves and undersea canyon (ecosystem/habitat/abiotic). Monterey Canyon supports a richness of life (biodiversity) from tiny shrimp-like krill to the migrating baleen whales that feed on them (consumer/food chain/energy). Deep upwelling currents help krill thrive and provide food for predators (heterotroph, consumer) like gray whales. Humboldt squid uses flashes of color and jet propulsion to evade predators (adaptation). Sea otters have thick fur and high metabolic rate to keep them warm (adaptation). Monterey Bay is the ideal habitat for giant kelp because it provides a rocky seabed, nutrients, and calm waves (abiotic). Kelp forest ecosystems are high in biodiversity (e.g., sea slugs, purple sea urchins, octopus). Seasonal estuary (Elkhorn Slough) support marshes and mudflats, which are critical habitats (ecosystems) for hundreds of species of birds and marine life. In the early 20th century, Monterey’s Cannery Row became known for its vast fishing industry. Overfishing (human impact) nearly wiped out populations of sardines, salmon, and halibut. But in 1992, 7,500 square kilometers of the bay and its seafloor were designated as a marine sanctuary (human impact). The diverse ecosystem of the area has made the bay one of the most studied parts of the ocean.</td>
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<tr>
<td>Video 4: Wood Storks (2 minutes, 30 seconds)</td>
<td>Geolocation</td>
<td>Everglades, South Florida, United States</td>
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<tr>
<td>Video Observations and Description using these 5 key terms: adaptation, human impact, niche, population, carnivore</td>
<td><strong>Colony of wood storks</strong> (population) breeding in Everglades (habitat/abiotic). Tree-top nests help them protect themselves from predators (adaptation). Tactolocation adaptation to hunt prey in murky, shallow water. Adult breeding pairs feed their offspring by regurgitating into the mouths of the chicks. Raccoons are main predators (consumers/carnivores/heterotroph) of wood storks. <strong>Niche/habitat:</strong> storks build nests in tall cypress and mangrove trees surrounded by water to protect their nests. Seasonal floods that wood storks depend on have decreased due to land development and farming (human impact). Endangered due to limited breeding range (coast of Florida to South Carolina). <strong>Population</strong> is endangered and has dropped from 20,000 to 6,000 breeding pairs since 1930s. Everglades restoration is important (human impact).</td>
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