Past-paper walk-through

Human Impacts on Biodiversity ▪ 9.10

eXercise

Questions in this set

- 2025 Set 1 Q1
- 2021 Set 2 Q2
- 2018 Q3

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- // separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = "or words to that effect" – the wording need not match.

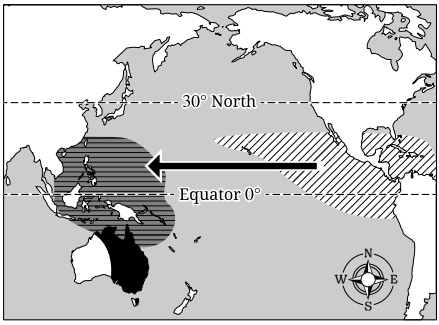
Question 1

2025 Set 1 ▪ Q1

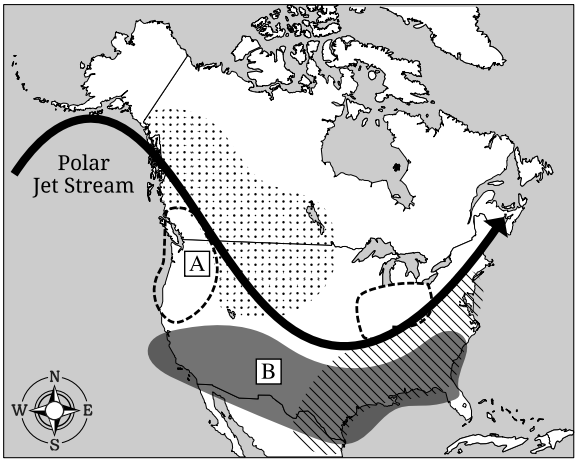
Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(a) Describe one reproductive strategy used by a K-selected species such as the chickadee.

Question 1


30° North
Equator 0°
N
W
E
S
Ocean water cooler than average
Ocean water warmer than average
Increased chance of precipitation
Stronger than normal trade winds

Question 1



Question 1

Site	Species A	Species B	Species C	Species D	Species E	Species F
Urban park	X			X	X	
Grassland	X	X	X	X		X

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(b) Based on the information provided, explain how a decrease in spider populations could affect a lower trophic level.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(c) Based on the data in Figure 1, identify the number of spiders per sample at 25% nonnative plants.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(d) Based on the data in Figure 1, describe the trend in the number of insects per sample in relation to the percentage of nonnative plants.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(e) Scientists hypothesized that the population of chickadees would be stable or growing with fewer than 25% nonnative plants. Describe one way that the data in Figure 2 support this hypothesis.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(f) Insect biodiversity is important to maintain ecosystem health. A group of students was interested in learning about factors that affect ant biodiversity. They located two study sites near their school: a frequently mowed urban park and an unmowed grassland. The students used traps designed to collect ants. They loaded 10 of these traps with the same food and placed them randomly at different locations within each site. Students collected the traps after 24 hours and counted the number of different ant species in each trap to determine species richness.

(f)(i) Identify a likely scientific question for the students' investigation of ant diversity.

(f)(ii) Identify the dependent variable in the students' investigation.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(g) The data from the student investigation of ant diversity are shown in the following table. An "X" in the table indicates that the species was present at that site.

Ant Species Present in an Urban Park and Unmowed Grassland

Site	**Species A**	**Species B**	**Species C**	**Species D**	**Species E**	**Species F**
Urban park	X			X	X	
Grassland	X	X	X	X		X

Question 1

(g)(i) Explain why the ant community of the unmowed grassland would be more likely to recover from a disturbance, such as a flood or fire, than the ant community in the mowed urban park would.

(g)(ii) Explain how the results of the investigation could have been altered if students had measured ant biodiversity at a paved playground rather than in the grassland.

Question 1

2025 Set 1 ▪ Q1

Respond to parts A, B, C, D, E, F, G, and H, and all subparts.

(h) Habitat fragmentation has impacts on a variety of species. Paved roads can lead to habitat fragmentation.

Describe one effect that a paved road in a forest can have on animal species such as deer or bears.

Solution 1

(a)

Mark scheme

- Describe one reproductive strategy of a K-selected species (e.g., chickadee). Any one of: provides considerable parental care for offspring; has few offspring; parents expend significant energy per offspring; individuals reproduce more than once in their lifetime (iteroparity); has a long gestation period/reaches reproductive maturity later.

Solution 1

(b)

Mark scheme

- Explain how a decrease in spider populations affects a lower trophic level: insects/insect populations would increase because they are no longer being preyed on/eaten as much by spiders; consequently plant populations would decrease because more insects are now eating the plants (a trophic cascade down through insects to plants).

Solution 1

(c)

Mark scheme

- From Figure 1, the number of spiders per sample at 25% nonnative plants is 2.0 (accept 2).

Solution 1

(d)

Mark scheme

- Trend in Figure 1: as the percentage of nonnative plants increases, the number of insects per sample decreases (equivalently, as nonnative plant percentage decreases, insects increase) — an inverse/negative relationship between nonnative plant percentage and insect abundance.

Solution 1

(e)

Mark scheme

- One way Figure 2 supports the hypothesis that chickadee populations are stable or growing below 25% nonnative plants: below this threshold, the population growth rate shown is at or above replacement level (positive growth), meaning enough reproduction is occurring to replace or grow the population.

Solution 1

(f)

Mark scheme

- This is background/stem text introducing the student investigation of ant biodiversity (10 baited traps placed randomly at a frequently mowed urban park and an unmowed grassland, collected after 24 hours, species counted). It is context for parts (i) and (ii) and carries no scoring point of its own.

Solution 1

(f)(i)

Mark scheme

- A likely scientific question for the investigation: "Does the number of species/species richness/biodiversity differ between an urban park and a grassland?" or "Does mowing affect the number of species/species richness/biodiversity?"

Solution 1

(f)(ii)

Mark scheme

- The dependent variable is the number of ant species / ant species richness / the presence-absence of different ant species observed at each site.

Solution 1

(g)

Mark scheme

- This presents the data table of ant species present (X) at the urban park vs. the unmowed grassland (species A-F). It is context for parts (i) and (ii) and carries no scoring point of its own.

Solution 1

(g)(i)

Mark scheme

- The unmowed grassland's ant community would more likely recover from a disturbance because, with a larger number of species, the grassland is more likely to have some species/individuals with adaptations that allow them to survive the disturbance; the grassland is more diverse, so the loss of any one species is less likely to cause collapse of the whole community/ecosystem.

Solution 1

(g)(ii)

Mark scheme

- If biodiversity had been measured at a paved playground instead of the grassland, the playground would show fewer species than the grassland/urban park, because the paved area is not suitable habitat for many ant species, and/or because humans could trample the ants/ant habitat there.

Solution 1

(h)

Mark scheme

- One effect of a paved road through a forest on animals such as deer or bears: animals can be hit by cars when trying to cross the road while hunting/migrating (roadkill); fragmentation can isolate individuals and reduce genetic diversity; noise pollution can damage hearing, cause stress, or mask sounds used to communicate/hunt; the road/noise can alter migratory routes or prevent movement to access resources; species that thrive in edge habitats might increase. Any one of these earns the point.

Question 2

2021 Set 2 ▪ Q2

Biodiversity around the world is changing as a result of anthropogenic influences.
[World map titled "GLOBAL AMPHIBIAN SPECIES RICHNESS", drawn in an oval (Robinson-style) projection with latitude lines labeled 60°, 30°, 0°, 30°, 60° (top to bottom) and longitude lines labeled 180°, 120°, 60°, 0°, 60°, 120°, 180° (left to right). A legend "Number of species" shows four shading categories: diagonal hatching = 0-20 species; light gray = 21-50 species; medium gray = 51-100 species; black = 101-136 species. The map shows the darkest shading (101-136 species, highest richness) concentrated in a band along the equator (0°) in South America (the Amazon basin) and a small patch in central Africa; medium-gray shading (51-100 species) in a broader band around the tropics in South America, Central America, sub-Saharan Africa, and parts of Southeast Asia/South Asia (e.g., India, Myanmar/Thailand region); lighter shading (21-50 species) in a band through central Africa and parts of South America;

Question 2

and diagonal-hatch shading (0-20 species, lowest richness) at higher latitudes including North America, Europe, northern Asia/Russia, and most of Australia.]

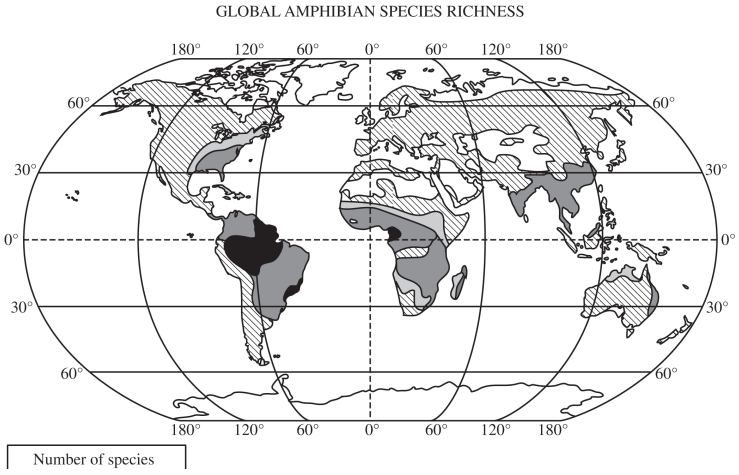
(a)(i) The map represents species richness of amphibians around the globe. Use the map to answer the following questions.

Identify the latitudinal range with the greatest amphibian species richness.

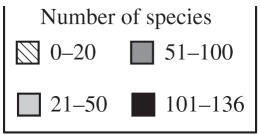
(a)(ii) Identify what biome this range most likely represents.

(a)(iii) Describe one reason amphibian species richness would tend to be highest in this region.

Question 2


GLOBAL AMPHIBIAN SPECIES RICHNESS
180° 120° 60° 0° 60° 120° 180°
60°
30°
0°
30°
60°
Number of species

Question 2



Question 2

2021 Set 2 ▪ Q2

Biodiversity around the world is changing as a result of anthropogenic influences.

[World map titled “GLOBAL AMPHIBIAN SPECIES RICHNESS”, drawn in an oval (Robinson-style) projection with latitude lines labeled 60°, 30°, 0°, 30°, 60° (top to bottom) and longitude lines labeled 180°, 120°, 60°, 0°, 60°, 120°, 180° (left to right). A legend “Number of species” shows four shading categories: diagonal hatching = 0-20 species; light gray = 21-50 species; medium gray = 51-100 species; black = 101-136 species. The map shows the darkest shading (101-136 species, highest richness) concentrated in a band along the equator (0°) in South America (the Amazon basin) and a small patch in central Africa; medium-gray shading (51-100 species) in a broader band around the tropics in South America, Central America, sub-Saharan Africa, and parts of Southeast Asia/South Asia (e.g., India, Myanmar/Thailand region); lighter shading (21-50 species) in a band through central Africa

Question 2

and parts of South America; and diagonal-hatch shading (0-20 species, lowest richness) at higher latitudes including North America, Europe, northern Asia/Russia, and most of Australia.]

(b) There are many environmental threats facing amphibians today, such as deforestation. Describe one possible anthropogenic reason for deforestation.

Question 2

2021 Set 2 ▪ Q2

Biodiversity around the world is changing as a result of anthropogenic influences.

[World map titled “GLOBAL AMPHIBIAN SPECIES RICHNESS”, drawn in an oval (Robinson-style) projection with latitude lines labeled 60°, 30°, 0°, 30°, 60° (top to bottom) and longitude lines labeled 180°, 120°, 60°, 0°, 60°, 120°, 180° (left to right). A legend “Number of species” shows four shading categories: diagonal hatching = 0-20 species; light gray = 21-50 species; medium gray = 51-100 species; black = 101-136 species. The map shows the darkest shading (101-136 species, highest richness) concentrated in a band along the equator (0°) in South America (the Amazon basin) and a small patch in central Africa; medium-gray shading (51-100 species) in a broader band around the tropics in South America, Central America, sub-Saharan Africa, and parts of Southeast Asia/South Asia (e.g., India, Myanmar/Thailand region); lighter shading (21-50 species) in a band through central Africa

Question 2

and parts of South America; and diagonal-hatch shading (0-20 species, lowest richness) at higher latitudes including North America, Europe, northern Asia/Russia, and most of Australia.]

(c)(i) Many factors influence biodiversity.
Explain how the species richness of an ecosystem influences its response to environmental stressors.

(c)(ii) Explain why amphibian biodiversity is declining globally, other than from deforestation.

Question 2

2021 Set 2 ▪ Q2

Biodiversity around the world is changing as a result of anthropogenic influences.

[World map titled “GLOBAL AMPHIBIAN SPECIES RICHNESS”, drawn in an oval (Robinson-style) projection with latitude lines labeled 60°, 30°, 0°, 30°, 60° (top to bottom) and longitude lines labeled 180°, 120°, 60°, 0°, 60°, 120°, 180° (left to right). A legend “Number of species” shows four shading categories: diagonal hatching = 0-20 species; light gray = 21-50 species; medium gray = 51-100 species; black = 101-136 species. The map shows the darkest shading (101-136 species, highest richness) concentrated in a band along the equator (0°) in South America (the Amazon basin) and a small patch in central Africa; medium-gray shading (51-100 species) in a broader band around the tropics in South America, Central America, sub-Saharan Africa, and parts of Southeast Asia/South Asia (e.g., India, Myanmar/Thailand region); lighter shading (21-50 species) in a band through central Africa

Question 2

and parts of South America; and diagonal-hatch shading (0-20 species, lowest richness) at higher latitudes including North America, Europe, northern Asia/Russia, and most of Australia.]

(d)(i) Currently, wildlife species are going extinct at an alarming rate. To combat this threat, governments around the world have enacted legislation and signed treaties to protect species threatened by extinction.

Identify one specific piece of legislation that has been designed to protect species threatened by extinction.

(d)(ii) Explain how the requirements of the legislation identified in part (d)(i) specifically protect species threatened by extinction.

Question 2

2021 Set 2 ▪ Q2

Biodiversity around the world is changing as a result of anthropogenic influences.

[World map titled “GLOBAL AMPHIBIAN SPECIES RICHNESS”, drawn in an oval (Robinson-style) projection with latitude lines labeled 60°, 30°, 0°, 30°, 60° (top to bottom) and longitude lines labeled 180°, 120°, 60°, 0°, 60°, 120°, 180° (left to right). A legend “Number of species” shows four shading categories: diagonal hatching = 0-20 species; light gray = 21-50 species; medium gray = 51-100 species; black = 101-136 species. The map shows the darkest shading (101-136 species, highest richness) concentrated in a band along the equator (0°) in South America (the Amazon basin) and a small patch in central Africa; medium-gray shading (51-100 species) in a broader band around the tropics in South America, Central America, sub-Saharan Africa, and parts of Southeast Asia/South Asia (e.g., India, Myanmar/Thailand region); lighter shading (21-50 species) in a band through central Africa

Question 2

and parts of South America; and diagonal-hatch shading (0-20 species, lowest richness) at higher latitudes including North America, Europe, northern Asia/Russia, and most of Australia.]

(e)(i) A town is considering selling an undeveloped parcel of land along its border for residential developments. The square parcel of land consists of approximately 30% wetland and 70% pasture. The wetland runs through the middle of the property for its entire width and is home to three native frog species.

Propose a viable solution that will result in the protection of the native frog species while still allowing for maximum profit of the property development.

(e)(ii) Justify the solution proposed in (e)(i) by describing a potential advantage of the plan, other than frog protection.

Solution 2

(a)(i)

Mark scheme

- The greatest amphibian species richness occurs in the latitudinal range between the Tropic of Cancer and the Tropic of Capricorn (equivalently, roughly 30 degrees N to 30 degrees S, or more narrowly about 10 degrees N to 15 degrees S).

(a)(ii)

Mark scheme

- This latitudinal range most likely represents the tropical rainforest biome.

Solution 2

(a)(iii)

Mark scheme

- Amphibian species richness tends to be highest here because year-round rainfall and warm temperatures are the preferred conditions for amphibians, and greater biodiversity/higher net primary productivity (NPP) provides more habitat, food sources, and niches.

Solution 2

(b)

Mark scheme

- A possible anthropogenic reason for deforestation is human demand for agriculture, housing, firewood, or other forest products (e.g., medicine, food, lumber).

Solution 2

(c)(i)

Mark scheme

- An ecosystem with greater species richness/diversity is more resilient/resistant to environmental stressors, because even if some species are harmed, other species will survive and help restore/stabilize the ecosystem.

Solution 2

(c)(ii) Mark scheme

- Amphibian biodiversity is declining globally (aside from deforestation) for reasons such as: increasing water pollution (pharmaceutical pollution harming reproduction, pesticide pollution absorbed through the skin being toxic, endocrine disruptors such as atrazine altering reproductive development); pesticide use reducing insect food sources; microclimatic changes from global climate change (warmer/drier conditions, loss of wetlands) reducing available habitat; illegal amphibian trafficking removing individuals from populations; introduced invasive species competing for niche space; habitat fragmentation limiting range and access to resources; or fungal infections such as chytridiomycosis causing skin to dry out so amphibians cannot breathe. Any one such reason earns the point.

Solution 2

(d)(i)

Mark scheme

- One specific piece of legislation designed to protect species threatened by extinction: the Endangered Species Act (ESA), the Convention on International Trade in Endangered Species (CITES), or the Lacey Act.

Solution 2

(d)(ii) Mark scheme

- Explanation depends on the legislation named in (d)(i). ESA: lists endangered/threatened plant and animal species and prevents them from being killed or harmed; designates/protects critical habitat to promote survival and recovery; creates plans to restore populations to healthy sizes; identifies species as threatened before they become endangered. CITES: a global agreement that protects endangered/threatened plants and animals (including goods such as ivory, shark fins, or rhinoceros' horns) by banning/regulating their trade. Lacey Act: prohibits the trade of wildlife, fish, and plants that have been illegally taken, possessed, transported, or sold.

Solution 2

(e)(i)

Mark scheme

- A viable solution: move/transplant the frog populations to an adjacent undeveloped area before development; designate a portion of the wetland as a park/preserve; build wildlife corridors (land or bridges) across a portion of the wetland; restrict development within a minimum setback away from the wetland; or group/cluster the buildings together (build up, not out) to leave the wetland undisturbed.

Solution 2

(e)(ii) Mark scheme

- Justification depends on the solution proposed in (e)(i). Move/transplant frogs: only a one-time disruption during removal rather than continued disruption (e.g., population growth, fertilizer/pesticide use), and the developer gets the maximum amount of usable land. Park/preserve: more food and space availability increases wildlife survival rates; a nearby park/preserve is an educational/environmental draw that may let the developer charge higher rents; the wetland has aesthetic value for residents; and the preserved wetland helps prevent flooding. Wildlife corridors: other species are less affected by habitat fragmentation and can keep moving for food, shelter, and reproduction. Setback: creates a buffer zone that filters runoff into the wetland and adds resident privacy. Clustered/grouped

Solution 2

development: species are less affected by multiple habitat fragments because the apartments are developed in groups while wetlands are preserved.

Question 3

2018 ▪ Q3

An Arctic food web includes the following organisms.

[Food-web diagram showing organisms connected by arrows pointing from prey to predator (from what is eaten to what eats it), labeled: "Orca", "Polar Bear", "Arctic Cod", "Ringed Seal", "Krill (zooplankton)", "Diatom (phytoplankton)". Arrows: Diatom (phytoplankton) → Krill (zooplankton); Diatom (phytoplankton) → Ringed Seal; Krill (zooplankton) → Arctic Cod; Arctic Cod → Orca; Arctic Cod → Polar Bear; Ringed Seal → Polar Bear; Ringed Seal → Orca; Polar Bear → Orca. Note: Figures not drawn to scale.]

(a)(i) Refer to the food web above to complete the following table.

Question 3

	Organism from Arctic food web
(i) Identify a primary producer	
(ii) Identify a primary consumer	
(iii) Identify a secondary consumer	

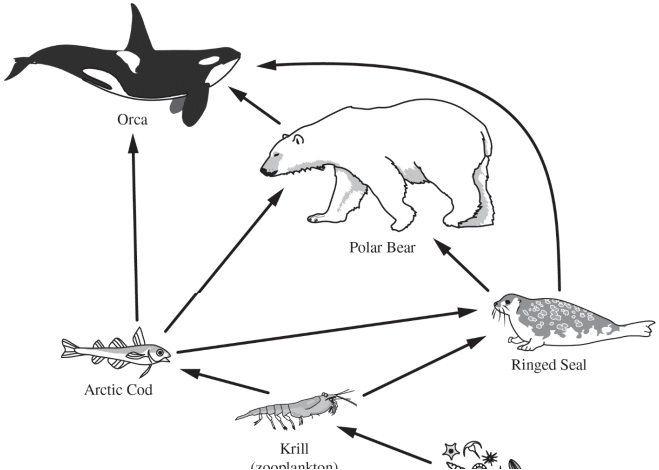
Identify a primary producer.

(a)(ii) Identify a primary consumer.

Question 3

(a)(iii) Identify a secondary consumer.

Question 3



Question 3

(zooplankton)

Diatom
(phytoplankton)

Note: Figures not drawn to scale.

Question 3

	Organism from Arctic food web
(i) **Identify** a primary producer	
(ii) **Identify** a primary consumer	
(iii) **Identify** a secondary consumer	

Question 3

2018 ▪ Q3

An Arctic food web includes the following organisms.

[Food-web diagram showing organisms connected by arrows pointing from prey to predator (from what is eaten to what eats it), labeled: "Orca", "Polar Bear", "Arctic Cod", "Ringed Seal", "Krill (zooplankton)", "Diatom (phytoplankton)". Arrows: Diatom (phytoplankton) → Krill (zooplankton); Diatom (phytoplankton) → Ringed Seal; Krill (zooplankton) → Arctic Cod; Arctic Cod → Orca; Arctic Cod → Polar Bear; Ringed Seal → Polar Bear; Ringed Seal → Orca; Polar Bear → Orca. Note: Figures not drawn to scale.]

(b) Other than showing which organisms are consumed by other organisms, describe what is indicated by the direction of the arrows in the diagram.

Question 3

2018 ▪ Q3

An Arctic food web includes the following organisms.

[Food-web diagram showing organisms connected by arrows pointing from prey to predator (from what is eaten to what eats it), labeled: “Orca”, “Polar Bear”, “Arctic Cod”, “Ringed Seal”, “Krill (zooplankton)”, “Diatom (phytoplankton)”. Arrows: Diatom (phytoplankton) → Krill (zooplankton); Diatom (phytoplankton) → Ringed Seal; Krill (zooplankton) → Arctic Cod; Arctic Cod → Orca; Arctic Cod → Polar Bear; Ringed Seal → Polar Bear; Ringed Seal → Orca; Polar Bear → Orca. Note: Figures not drawn to scale.]

(c) As the amount of sea ice has decreased, larger expanses of the Arctic Ocean are now completely free of sea ice for several weeks each summer. Ringed seals, the preferred prey of polar bears, come to holes in the sea ice to breathe.

Describe how the change in sea ice habitat is affecting polar bears’ ability to hunt and feed.

Question 3

2018 ▪ Q3

An Arctic food web includes the following organisms.

[Food-web diagram showing organisms connected by arrows pointing from prey to predator (from what is eaten to what eats it), labeled: “Orca”, “Polar Bear”, “Arctic Cod”, “Ringed Seal”, “Krill (zooplankton)”, “Diatom (phytoplankton)”. Arrows: Diatom (phytoplankton) → Krill (zooplankton); Diatom (phytoplankton) → Ringed Seal; Krill (zooplankton) → Arctic Cod; Arctic Cod → Orca; Arctic Cod → Polar Bear; Ringed Seal → Polar Bear; Ringed Seal → Orca; Polar Bear → Orca. Note: Figures not drawn to scale.]

(d) Explain how melting sea ice leads to a feedback loop that increases Arctic warming.

Question 3

2018 ▪ Q3

An Arctic food web includes the following organisms.

[Food-web diagram showing organisms connected by arrows pointing from prey to predator (from what is eaten to what eats it), labeled: “Orca”, “Polar Bear”, “Arctic Cod”, “Ringed Seal”, “Krill (zooplankton)”, “Diatom (phytoplankton)”. Arrows: Diatom (phytoplankton) → Krill (zooplankton); Diatom (phytoplankton) → Ringed Seal; Krill (zooplankton) → Arctic Cod; Arctic Cod → Orca; Arctic Cod → Polar Bear; Ringed Seal → Polar Bear; Ringed Seal → Orca; Polar Bear → Orca. Note: Figures not drawn to scale.]

(e)(i) Many species, including some whales and birds, will travel thousands of kilometers during annual migrations.

Provide one reason a species may migrate a long distance.

(e)(ii) The North Atlantic right whale migrates between subtropical and polar waters annually. Nearly 50 percent of right whale deaths are due to human activities.

Question 3

Describe one commercial activity, other than whaling, that may result in the death of right whales.

(e)(iii) Describe one strategy that could reasonably be implemented to decrease right whale deaths caused by the commercial activity you described in part (ii).

Solution 3

(a)(i)

Mark scheme

- 1 point for correctly identifying a primary producer from the Arctic food web: Diatom (phytoplankton).

(a)(ii)

Mark scheme

- 1 point for correctly identifying a primary consumer from the Arctic food web: Krill (zooplankton).

Solution 3

(a)(iii)

Mark scheme

- 1 point for correctly identifying a secondary consumer from the Arctic food web: Cod or seal.

Solution 3

(b)

Mark scheme

- 1 point for a correct description of what the arrow direction indicates, other than which organisms are consumed by others. Accept: shows the flow of energy among trophic levels; OR shows the flow of matter through trophic levels.

Solution 3

(c) Mark scheme

- 1 point for a correct description of how the changing sea ice habitat affects polar bears' ability to hunt/feed. Accept any one of: decreasing area of hunting ground (fewer seal breathing holes/less ice for hauling out) makes it more difficult for polar bears to get food; increasing distance between hunting grounds means polar bears must exert more energy to swim to find food, causing physical exhaustion and less energy available for hunting; increasing physiological stress (dehydration, exhaustion, cub mortality) because polar bears are not physiologically adapted to warmer temperatures; increasing the time between successful kills means bears spend more time waiting/hunting for prey.

Solution 3

(d)

Mark scheme

- 2 points: 1 point for explaining the connection between melting ice and increased absorption of the sun's energy, and 1 point for explaining that this increased absorption leads to further ice melt (completing the positive feedback loop). Melting of sea ice leads to a decrease in albedo/reflectivity, causing water surfaces to absorb more of the sun's energy; AND this increasing absorption of the sun's energy warms the water surface further, which leads to further ice melt (completes the positive feedback loop).

Solution 3

(e)(i)

Mark scheme

- 1 point for a correct reason a species may migrate a long distance. Accept any one of: limited food/water supply leads to migration to locations with more food/water supply; food supply migrates and the species follows its prey; more hospitable climate during certain seasons; availability of mates/breeding/birthing occurs in a different location; protection of offspring from predators.

Solution 3

(e)(ii)

Mark scheme

- 1 point for a correct description of a commercial activity, other than whaling, that may result in right whale deaths. Accept any one of: fishing nets entangle whales as by-catch/fishing gear can accidentally trap whales; ships and whales use the same channels, which can increase the number of ship strikes; noise pollution from seismic surveys/sonar/engine noise can disrupt a whale's internal navigational system.

Solution 3

(e)(iii) Mark scheme

- 1 point for a correct strategy linked to the activity named in part (ii). If fishing gear/by-catch was named: require a change of fishing method (location, timing, or materials) that traps whales, to reduce the number of whales trapped in nets/gear; OR fines for discarded fishing gear so less gear is discarded, reducing whales trapped in gear. If ship strikes were named: improved navigational technology to spot whales close to ships to avoid collisions; OR increased education of ship captains/crews about whale habitat/migration routes/feeding behaviors; OR expansion of low-speed navigational zones around ports. If noise pollution was named: reduction of seismic survey activity/sonar use in coastal areas; OR installation of quieter motors to reduce/eliminate noise pollution.