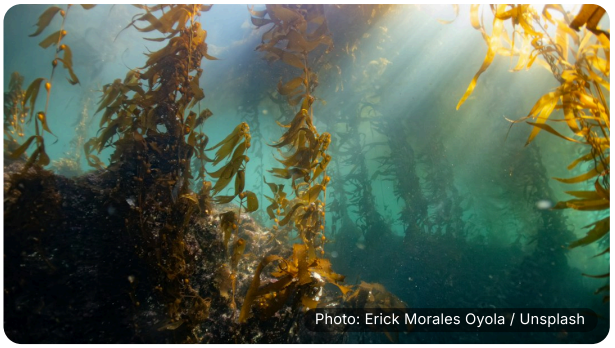
Sunflower sea stars released to rebuild kelp

LEVEL C1


Photo: Erick Morales Oyola / Unsplash

I. WARM-UP

1. What comes to mind when you hear the word kelp?
2. How can one species reshape an ecosystem?
3. Have you ever seen conservation work near the sea?

II. KEY VOCABULARY

restore
to bring something back to its earlier, better condition

invertebrate
an animal without a backbone, such as a sea star or worm

predator
an animal that hunts and eats other animals

ecosystem
a community of living things and their environment

sequester
to capture and store a substance, such as carbon dioxide

habitat
the natural home where a plant or animal lives

deterrent
something that makes others less likely to act

syndrome
a disease or set of symptoms occurring together

III. READING

Off the coast of Monterey, California, researchers from the non-profit Sunflower Star Laboratory are releasing sunflower sea stars to restore a damaged marine ecosystem. Led by co-founder Ashley Kidd, divers place the invertebrates in open cages on the seabed so the animals can roam.

The species is critically endangered and unusual: not five arms but up to 24. Kelp forests once dominated this coast, providing dense habitat that shelters thousands of species and helps power the ocean's engine that produces roughly half of Earth's oxygen.

Worldwide, kelp forests also sequester about 200m tons of carbon dioxide each year. But from around 2013, a marine heatwave driven by the climate crisis accelerated sea star wasting syndrome. More than 90% of sunflower sea stars vanished across the Pacific; there were once 6bn from Alaska to Baja California.

With these predators gone, purple urchin numbers exploded and 95% of California's kelp forests disappeared in 10–12 years. Scientists now aim to rebuild the stars' "halo of fear". Urchins smell a star and hide, eating less up to 16ft away.

A single healthy star can devour three or four urchins a day, and its scent works as a powerful deterrent that gives kelp room to recover.

Reading text adapted from reporting by **The Guardian***: "Scientists deploy a 24-armed secret weapon...". Original article linked at theenglishwire.com.*

IV. COMPREHENSION QUESTIONS

1. Where are the researchers releasing the sea stars?
2. Who is leading the dives, and for which organisation?
3. What events since 2013 caused the sea star collapse?
4. How much of California's kelp disappeared, and over what period?
5. How do sea stars reduce urchin damage to kelp?

V. DISCUSSION

1. Should governments fund kelp restoration at scale? Why or why not?
2. Is reintroducing predators a good conservation strategy?
3. What risks could this project face in the ocean?
4. How could coastal communities support kelp recovery?

VI. GRAMMAR FOCUS

Ellipsis and substitution

Use short forms to avoid repetition: so/neither + auxiliary + subject to say the same is true of someone or something else; do so for a repeated action; so after think/expect for a clause; one/ones for a repeated noun. Keep the auxiliary tense the same as the first clause.

"Urchins hid; **so did nearby fish**.*"*
"A weak star ate none; **neither did the others**.*"*

VII. GRAMMAR EXERCISE

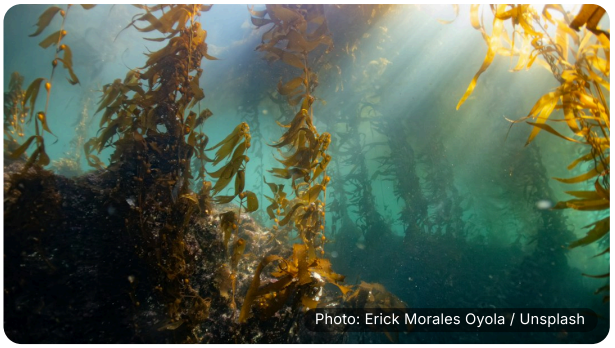
Circle the correct option in each sentence.

1. If asked to help, most divers would (so do / do so) gladly. _____
2. Sea stars vanished; (so did the kelp / so does the kelp). _____
3. This cage is open; the other (ones / one) is closed. _____
4. Teams expect recovery; officials (think so / think it) too. _____
5. Experts predicted recovery; locals (thought so / thought that). _____

Teacher's Notes

TEACHERS ONLY

These notes are designed to help you get the most out of this lesson. Please do not share this page with students.


Photo: Erick Morales Oyola / Unsplash

I. LESSON GUIDE

- Timing: 8–10 minutes warm-up, 10 minutes vocabulary, 12–15 minutes reading and comprehension, 8–10 minutes grammar, 12–15 minutes discussion.
- Pre-teach or board key terms that aid comprehension: kelp forest, urchin, predator, deterrent, restore, syndrome.
- Run a gist read first (what happened, where, why), then scan for numbers and names; pair-check before open class.
- Differentiate: stronger students summarise the ‘halo of fear’ mechanism; others match causes and effects using lines from the text.

II. DISCUSSION FACILITATION TIPS

1. Take a quick show of hands, then pair opponents to exchange two reasons each.
2. Elicit local examples of reintroductions, then compare benefits versus unintended impacts.
3. Board three concrete risks (disease, heatwaves, storms) and ask for one mitigation each.
4. Create a class list of low-cost actions; ask groups to prioritise their top three.

III. EXTENSION ACTIVITIES

Debate: In teams, argue for or against funding a five-year kelp plan; deliver 90-second speeches.

Writing: Write a 120-word field note from a diver describing one release and its early results.

IV. ANSWER KEY OVERVIEW

Comprehension questions: short factual answers from the text.

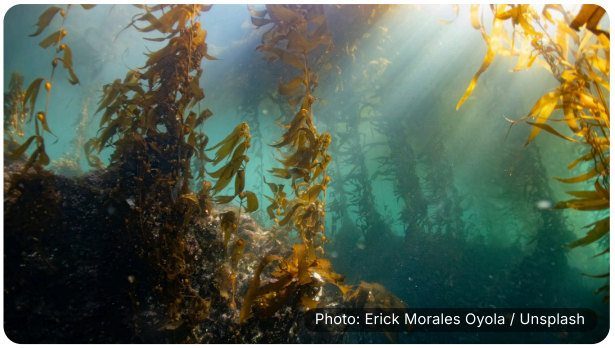
Grammar exercise: Ellipsis and substitution

Discussion: open-ended. Accept any reasonable ideas supported by examples and reasoning.

Answer Key

TEACHERS ONLY

These answers are for teachers only. Please do not share this page with students.


Photo: Erick Morales Oyola / Unsplash

IV. COMPREHENSION QUESTIONS

1. Where are the researchers releasing the sea stars?
   Off Monterey, California, in the Pacific Ocean.
2. Who is leading the dives, and for which organisation?
   Ashley Kidd, for the Sunflower Star Laboratory.
3. What events since 2013 caused the sea star collapse?
   A marine heatwave that sped up sea star wasting syndrome.
4. How much of California's kelp disappeared, and over what period?
   95% of its kelp forests, in 10–12 years.
5. How do sea stars reduce urchin damage to kelp?
   They eat urchins and create a 16ft "halo of fear" so urchins hide and eat less.

V. DISCUSSION

Open answers. Accept any reasonable ideas supported by examples and reasoning.

VII. GRAMMAR EXERCISE

Circle the correct option in each sentence.

1. If asked to help, most divers would (so do / do so) gladly. **do so**
2. Sea stars vanished; (so did the kelp / so does the kelp). **so did the kelp**
3. This cage is open; the other (ones / one) is closed. **one**
4. Teams expect recovery; officials (think so / think it) too. **think so**
5. Experts predicted recovery; locals (thought so / thought that). **thought so**

VI. GRAMMAR FOCUS

Key point: Use short forms to avoid repetition: so/neither + auxiliary + subject to say the same is true of someone or something else; do so for a repeated action; so after think/expect for a clause; one/ones for a repeated noun. Keep the auxiliary tense the same as the first clause. (Examples constructed.)

"Urchins hid; **so did nearby fish**.*"*

"A weak star ate none; **neither did the others**.*"*