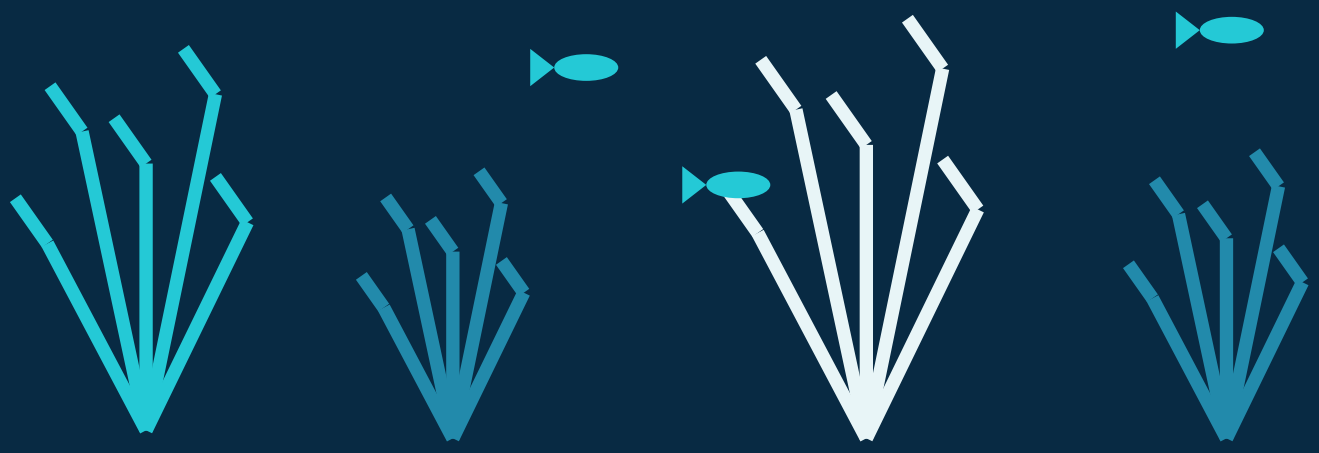
EU4BLUE / COOPERATIVE ESCAPE GAME

THE SILENT REEF

MASTER EDITION

The signal is urgent.
The evidence is incomplete.
Your decisions matter.



Read the reef. Challenge the claim.
Unlock a response that the evidence supports.

AGES 15+ / 3–5 PLAYERS / 60 MIN / B2-C1

A4 / PRINT AT 100% / SINGLE-SIDED

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Prepare the expedition

HOST ONLY / SETUP AND SESSION PLAN

Players: ages 15+, teams of 3–5. **Time:** 60 minutes: 5 briefing, 45 play, 10 discussion.
Learning: interpret a spatial record; explain bleaching; distinguish observation from inference; justify a constrained response.
Print: one P01–P07 set per team, plus this guide for the host. Print A4 at 100%, single-sided. Provide five envelopes, pens and optional scissors, dictionary and calculator.

PACK FIVE FILES

Envelope 1: P03. Envelope 2: P04. Envelope 3: P05. Envelope 4: P06. Envelope 5: P07. Give P01 and P02 at the start. Keep all H pages away from players until the final reveal. The Master contains this guide plus every player page.

Before play

Cut the cards on P04, P05 and P06 along the dashed outlines, or let teams cut them. Keep each page's cards with its own envelope and instruction strip. Cards have IDs; colour never carries essential information.

During play

Release files in order after checking both code and explanation. H03 offers two graduated hints per file. No physical lock is needed; accept the final code verbally or in writing. Give H05 as the ending.

Successful completion

Teams justify the five selections and state one uncertainty. The title does not imply that this game contains audio evidence. No fieldwork, water handling or real conservation clearance is involved.

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Envelope labels

HOST ONLY / CUT AND ATTACH TO FIVE ENVELOPES

FILE 01

STATION MAP

OPEN ONLY WHEN RELEASED BY YOUR HOST

FILE 02

BLEACHING SEQUENCE

OPEN ONLY WHEN RELEASED BY YOUR HOST

FILE 03

EVIDENCE CHECK

OPEN ONLY WHEN RELEASED BY YOUR HOST

FILE 04

RESPONSE BUDGET

OPEN ONLY WHEN RELEASED BY YOUR HOST

FILE 05

AUTHORISATION GRID

OPEN ONLY WHEN RELEASED BY YOUR HOST

Hints from the research desk

HOST ONLY / OFFER HINT 1 BEFORE HINT 2

FILE 01 / HINT 1

Use both direction and habitat symbol.

FILE 01 / HINT 2

Find B in the north, G in the east and B in the south.

FILE 02 / HINT 1

Choose the cause, the tissue change and the immediate result.

FILE 02 / HINT 2

Recovery is a later possibility. White does not automatically mean dead.

FILE 03 / HINT 1

Ask whether the observation proves the whole claim.

FILE 03 / HINT 2

A: visibility changed. B: two events coincide. C: living tissue is present.

FILE 04 / HINT 1

Apply every requirement before comparing costs.

FILE 04 / HINT 2

The cheap HEAT and RUNOFF options omit a required task. Compare the two ANCHORS prices.

FILE 05 / HINT 1

Recover station IDs and the HEAT action ID.

FILE 05 / HINT 2

Use three rows in field-note order and one column. Do not use action cost.

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Codes and reasoning

HOST ONLY / COMPLETE SOLUTIONS

01 / 684 / KEEP 8

North + B = station 6; east + G = station 8; south + B = station 4. Retain the three separate station IDs.

02 / 291 / KEEP 9

2: warm-water stress. 9: loss of symbiotic algae. 1: paling without automatic death. Card 4 is possible later recovery; 7 and 6 are false. This is a simplified heat-related mechanism, not every possible bleaching cause.

03 / 735 / KEEP 3

A = 7: poorer visibility can affect detection; the count is not a mortality measure. B = 3: heat is plausible but not proven to be the sole cause. C = 5: living tissue confirms life at observation, not future recovery.

04 / 426 / KEEP 2

HEAT 4 costs 3; RUNOFF 2 costs 4; ANCHORS 6 costs 2. Total = 9. Cards 8 and 9 fail the required tasks. Card 1 meets the anchoring requirement but brings the total to 11. The unique valid portfolio is 4, 2, 6. Retain HEAT ID 4.

05 / 859 / KEEP 5

Rows 6, 8, 4; column 4. Read intersections: 8, 5, 9. The first-stage station code supplies the row order, while the chosen HEAT action supplies the column.

FINAL / 89325

Read middle digits in order: 8, 9, 3, 2, 5. Ask for one supported finding and one limitation before giving H05. Example: “The pale colonies had living tissue. We cannot infer reef-wide fish mortality from these counts.”

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Response authorised

FINAL REVEAL / SHARE AFTER THE LAST LOCK

MISSION COMPLETE

You have unlocked a response. The reef still needs time.

THE RESEARCH ORDER

Survey stations 6, 8 and 4.
Monitor temperature and repeat coral observations.
Control sediment at the work site before rain.
Use existing approved moorings and brief boat crews.
Total response budget: 9 credits.

Your team resisted a dramatic but unsupported conclusion. Pale coral can still be alive. Fewer fish sightings do not automatically mean fewer living fish. A plausible cause still needs investigation.

Monitoring does not remove heat stress. Local action can reduce some pressures, but it does not replace climate action or guarantee recovery. [1, 2] This is a fictional first-response plan, not a professional management prescription.

Your final radio message
Share two sentences with the host: one finding supported by the records, and one uncertainty to investigate next. Different accurate messages are welcome.

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From game to ocean literacy

Language edition: B2-C1
Ask learners to justify each rejected alternative and distinguish an observation from an explanation. Support inference vocabulary as needed.

The core evidence and codes are shared across editions; instruction and inference language differ. Offer enlarged print, seated roles, a glossary and written explanations. Do not grade speed or accent.

DISCUSS / 10 MINUTES

Which clue changed your initial assumption? What would make the fish surveys more comparable? Why can local reef protection help without solving ocean warming? Who should participate in a real reef-management decision?

Coral reefs support diverse organisms and coastal livelihoods. Heat, pollution and unsustainable fishing can threaten them. [2] The game highlights evidence quality and connected pressures, but its nine-credit budget is not a real estimate of conservation costs.

Sources and reuse
Original fictional game, map, cards and vector artwork. All sites, observations, prices and response rules are invented for teaching. Free educational use and adaptation; not for resale. Supplied logo rights remain unchanged. No external photographs or copied source illustrations are used.

[1] NOAA. What is coral bleaching?
https://oceanservice.noaa.gov/facts/coral_bleach.html

[2] NOAA. Coral reefs: Essential and threatened.
https://www.noaa.gov/explainers/coral-reefs-essential-and-threatened

Last visited: 14 October 2026.

An urgent reef signal

START HERE / FICTIONAL RESEARCH MISSION

An urgent message reaches your research team: pale corals and fewer fish sightings have raised concerns at a reef station. Before the next research boat departs, reconstruct the evidence and propose a defensible response. This reef and its survey records are fictional.

RESEARCH DIRECTOR / YOUR MISSION

Locate the survey stations. Explain bleaching. Check what the observations justify. Allocate the response budget and unlock the authorisation grid. You are approving a first response, not declaring the reef saved.

How to play

Open five files in order. Each gives a three-digit code. Show the host your code and reasoning before receiving the next file. Keep the middle digit of each code: five middle digits form the final lock. Keep all earlier evidence.

Your team

Rotate reader, mapper, evidence checker and recorder. Use a dictionary or calculator if useful. Ask for hints without penalty. All clues are on paper; do not search real equipment. Nobody is locked in.

BEFORE YOU DIVE IN

Corals are animals. Many reef-building corals host microscopic algae in their tissues. Bleaching involves loss of these algae; it does not automatically mean death. [1] “Silent” is the mission title, not a sound-based diagnosis.

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Your research ledger

KEEP THIS PAGE / RECORD VERIFIED CODES

TEAM NAME

01	Station map				KEEP
02	Bleaching sequence				KEEP
03	Evidence check				KEEP
04	Response budget				KEEP
05	Authorisation grid				KEEP

FINAL LOCK

Read middle digits in File 1–5 order. Prepare a two-sentence research update: one supported finding and one uncertainty that still needs investigation.

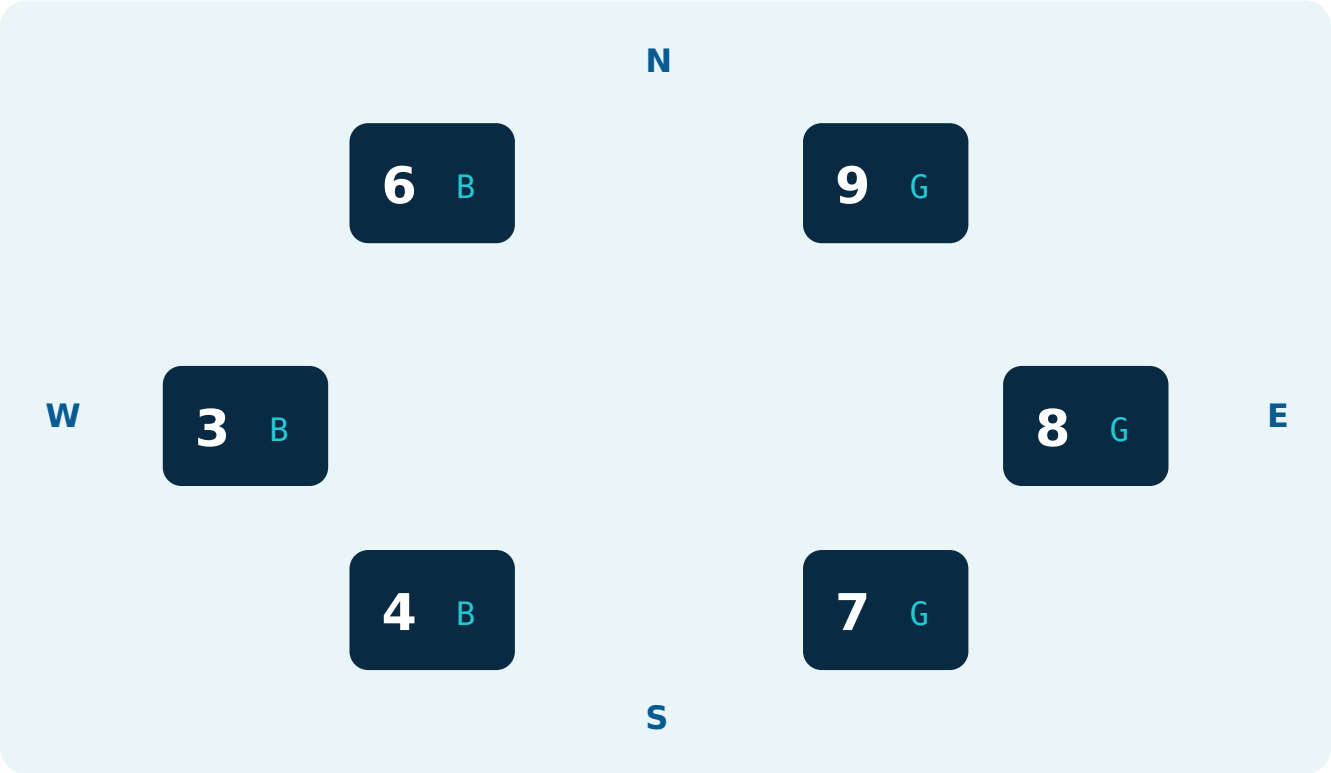
Locate the survey stations

FILE 01 / MAP AND FIELD NOTES / NOT TO SCALE

Reconcile the field notes with the mapped stations, matching both position and habitat symbol. Record IDs in NORTH, EAST, SOUTH order and retain them for the final file.

FIELD NOTES

NORTH / branching coral, not seagrass.
EAST / seagrass, not branching coral.
SOUTH / branching coral, not seagrass.



B = branching coral / G = seagrass

ACCESS CODE

Show your code and evidence to the host. Keep its middle digit.

What happened to the coral?

FILE 02 / CUT THE SIX CARDS / KEEP THREE IN SEQUENCE

Reconstruct the three-stage mechanism of heat-related bleaching: stress, loss of symbiotic algae, then the immediate consequence. Exclude inaccurate statements and the separate recovery scenario. Concatenate the selected card IDs.

1 PROCESS CARD

COLONY RECORD

Coral becomes pale or white. It is stressed but not necessarily dead.

7 PROCESS CARD

FIELD THEORY

White coral always means that the coral animal has already died.

2 PROCESS CARD

CONDITION LOG

Unusually warm water places the coral under stress.

4 PROCESS CARD

FOLLOW-UP SCENARIO

If conditions improve, surviving corals may regain algae and recover.

9 PROCESS CARD

TISSUE RECORD

The coral loses many of the symbiotic algae living in its tissues.

6 PROCESS CARD

FIELD THEORY

Corals are plants, so bleaching means that their leaves fall off.

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Evidence under pressure

FILE 03 / SELECT ONE CONCLUSION PER NOTE

For each evidence note, select the conclusion that stays within the evidence. Read IDs in A, B, C order. Distinguish observations, possible explanations and claims of certainty.

THREE OBSERVATIONS / FICTIONAL SURVEY

A / Same route and survey duration: 40 fish seen last month, 20 now. Visibility fell from 12 m to 3 m.
B / Unusually warm water and new coral paling occurred in the same week.
C / Pale colonies still had living tissue when examined.

7 CONCLUSION

NOTE A

Reduced visibility may affect sightings; the lower count warrants a comparable repeat survey.

2 CONCLUSION

NOTE A

The count establishes that half the reef's entire fish population has died.

3 CONCLUSION

NOTE B

The records support heat as a possible contributor without establishing it as the sole cause.

8 CONCLUSION

NOTE B

The temperature record excludes pollution and all other possible stressors.

5 CONCLUSION

NOTE C

Living tissue confirms survival at observation, but does not guarantee subsequent recovery.

9 CONCLUSION

NOTE C

The white appearance establishes mortality despite the observation of living tissue.

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Choose your first response

FILE 04 / CUT SIX ACTION CARDS / BUDGET: 9 CREDITS

Allocate at most 9 credits to exactly three actions: one each for HEAT, RUNOFF and ANCHORS. Meet every stated requirement. Read the action IDs in that order; retain the HEAT ID.

REQUIRED TASKS / ONE ACTION PER CATEGORY

HEAT / Track temperature AND repeat the coral survey.
RUNOFF / Put a physical sediment control in place before rain.
ANCHORS / Use existing approved moorings AND brief boat crews.

8 RESPONSE ACTION

HEAT / 2 CREDITS

Record temperature only. No repeat coral survey.

4 RESPONSE ACTION

HEAT / 3 CREDITS

Record temperature AND repeat the coral survey. Does not cool the ocean.

2 RESPONSE ACTION

RUNOFF / 4 CREDITS

Install a sediment barrier at the active work site before the next rainfall.

9 RESPONSE ACTION

RUNOFF / 2 CREDITS

Design a poster. No barrier or other sediment control is installed.

6 RESPONSE ACTION

ANCHORS / 2 CREDITS

Direct boats to existing approved moorings and brief crews: no anchoring on coral.

1 RESPONSE ACTION

ANCHORS / 4 CREDITS

Same approved-mooring and crew-briefing service, plus a decorative sign.

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Authorise the response

FILE 05 / EARLIER EVIDENCE REQUIRED

Cross-reference the station IDs from File 1 with the HEAT action ID from File 4. Stations determine the rows in their original order; the action determines the column. Read the intersections.

Station / action	4	8	2	6
4	9	2	5	1
6	8	4	7	3
8	5	6	1	7
9	3	7	2	6

READ THE LABELS

Rows are station IDs, not the complete code from File 1. Your column is the HEAT action ID, not its cost. Keep the NORTH, EAST, SOUTH row order.

ACCESS CODE

Show your code and evidence to the host. Keep its middle digit.

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