Trust me, I’m a dolphin

Climate literacy and the voice of healthcare

“I believe a shared foundation of climate and environmental knowledge builds individual and organisational capability and can accelerate action”

Richard Hixson [2026]

richardhixson@nhs.net
https://www.linkedin.com/in/richardhixson/

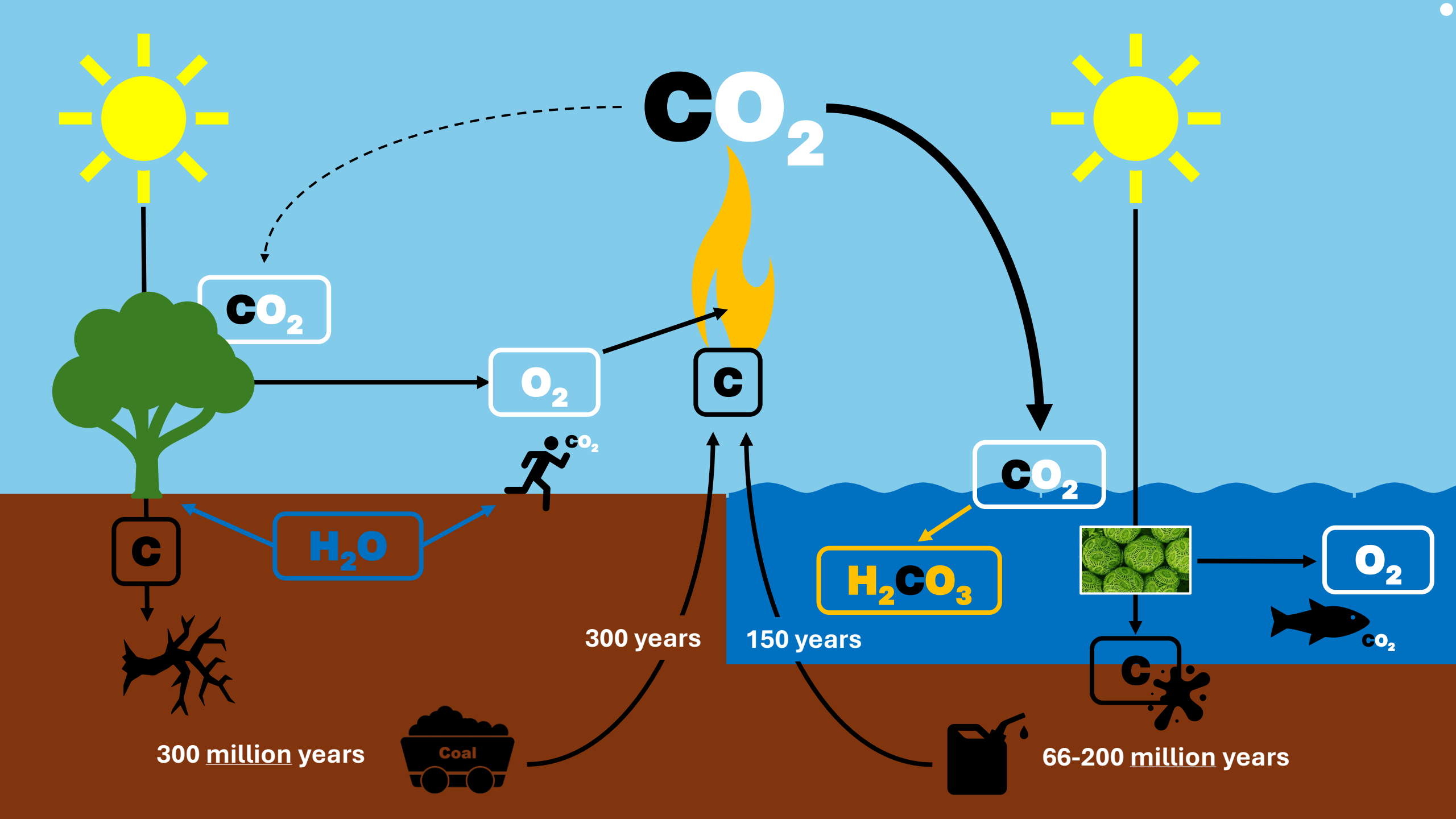
Greener Practice
21-10-26

3 things attendees will learn that they can take away and use in their consultation room

- Connect planetary health with patient health
  - Recognise opportunities to discuss how actions that benefit the environment can also benefit patients—for example prevention, healthier lifestyles and avoiding healthcare that provides little benefit. The presentation explicitly links sustainability with improving health, clinical decision-making and reducing unnecessary healthcare.
- Reduce unnecessary healthcare and resource use
  - Apply a sustainability lens to everyday clinical decisions: consider whether investigations, treatments, medicines and consumables are genuinely needed and recognise that avoiding unnecessary care can reduce both patient burden and environmental harm. The presentation's central principle is that healthcare is essential but not environmentally benign.
- Use your trusted voice
  - Become more confident talking with patients and colleagues about the links between health, climate change, pollution and biodiversity loss. The presentation argues that healthcare's influence extends well beyond its own emissions and that educated healthcare professionals can use their trusted position to inspire wider action.

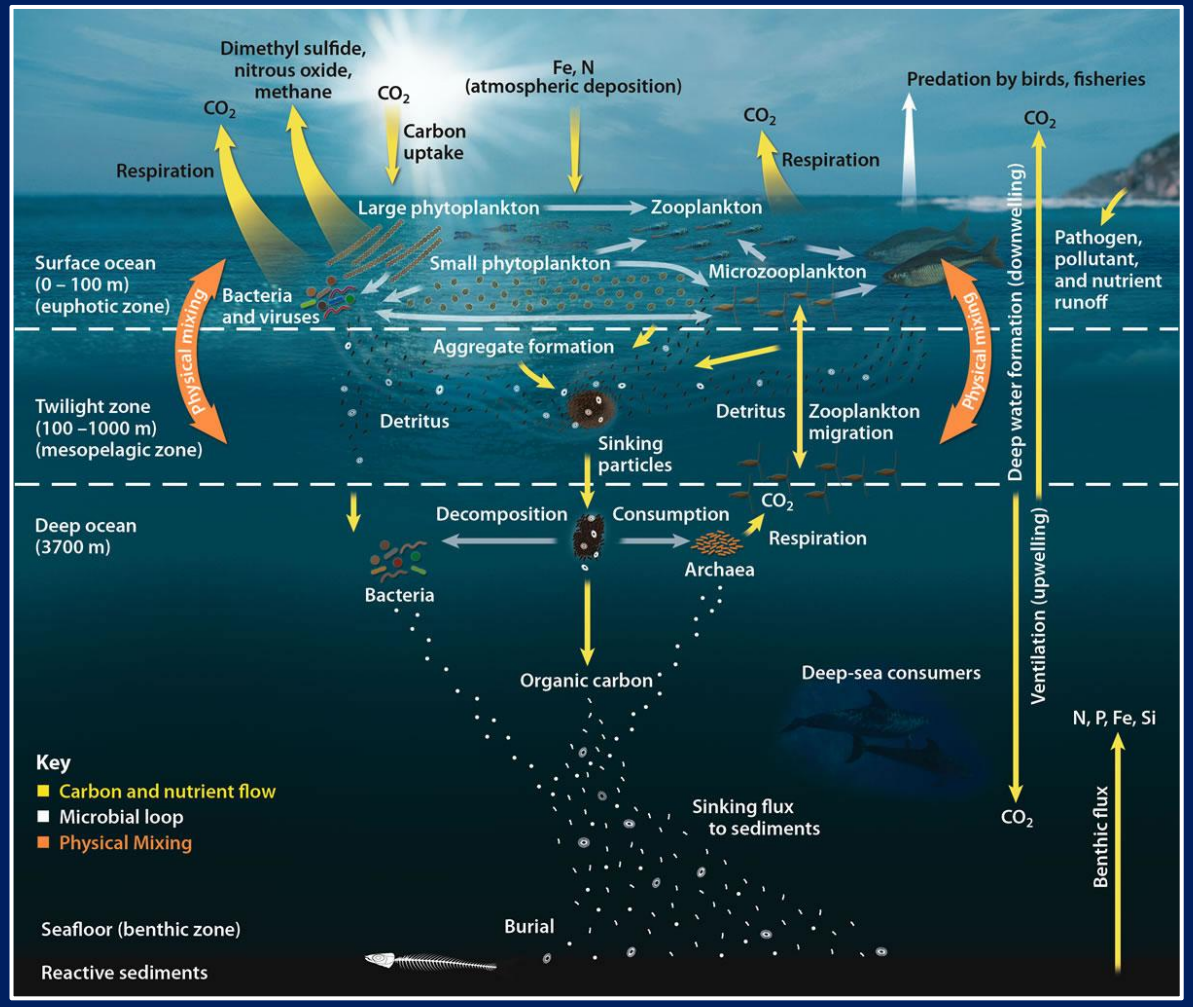
Knowledge check

- What is the Keeling Curve?
- How many Tipping Elements are there?
- What is The Planetary Boundary model?
- What is a mass extinction event?
- How does the present CO_2 rate of change compare to previous mass extinction events?
- What is the size of the National Determined Contribution (NDC) implementation gap?
- How does natures' CO_2 sequestration capacity compare to human CO_2 output?
- How can the delivery of our healthcare products kill whales?
- How many whales would it take to sequester the CO_2 output of the NHS?
- How many pharmaceuticals on the market today have originated from marine organisms?


CO_2
CO_2
O_2
C
CO_2
CO_2
C
H_2O
H_2CO_3
O_2
CO_2
C
300 years
150 years
Coal
300 million years
66-200 million years

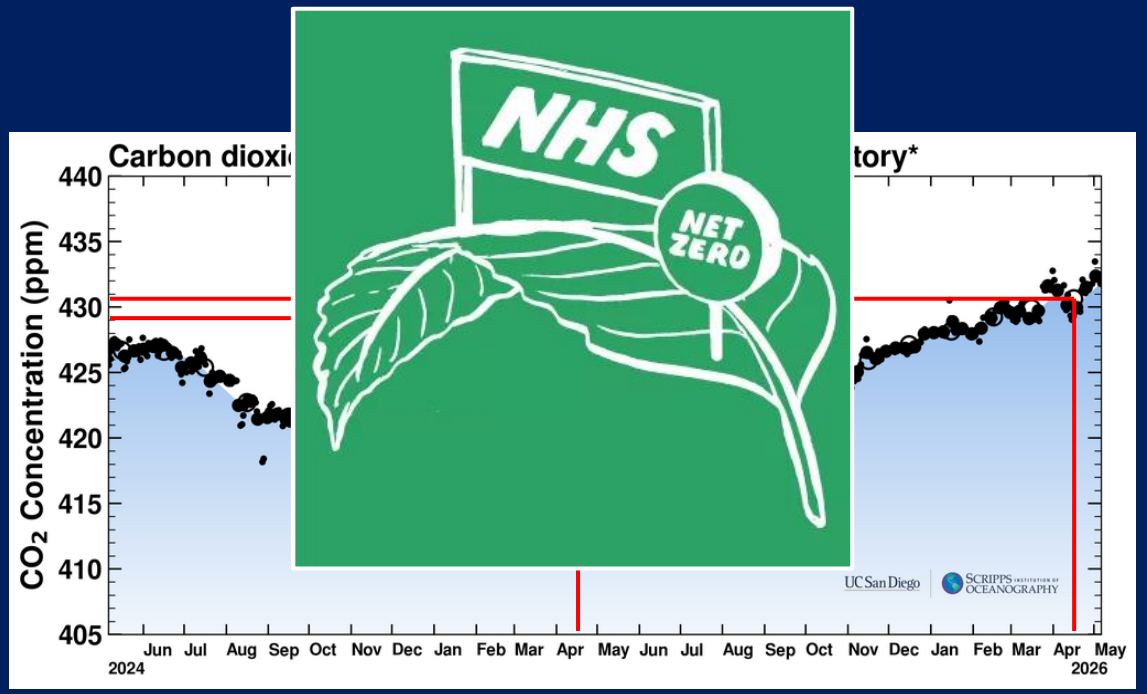
Annual CO_2 biological flux

- **Terrestrial:**
  - Photosynthesis: 440 GT (in)
  - Respiration and decomposition: 437 GT (out)
  - Net land sink: 3 GT
- **Ocean:**
  - Photosynthesis: 183 GT (in)
  - Respiration and decomposition: 176 GT (out)
  - Net ocean sink: 7 GT
- **Total:**
  - Gross biological cycling 623 GT
  - Sequestration capacity 10 GT
  - **Human output** **38 GT**



Healthcare in perspective

- **2025 CO_2e estimates:**
  - Global = 53,200 MT (53.2 GT)
  - NHS – all scopes = 27.3 MT (0.05 %)
  - Global increase 2024-25 = 600 MT (22 x NHS)



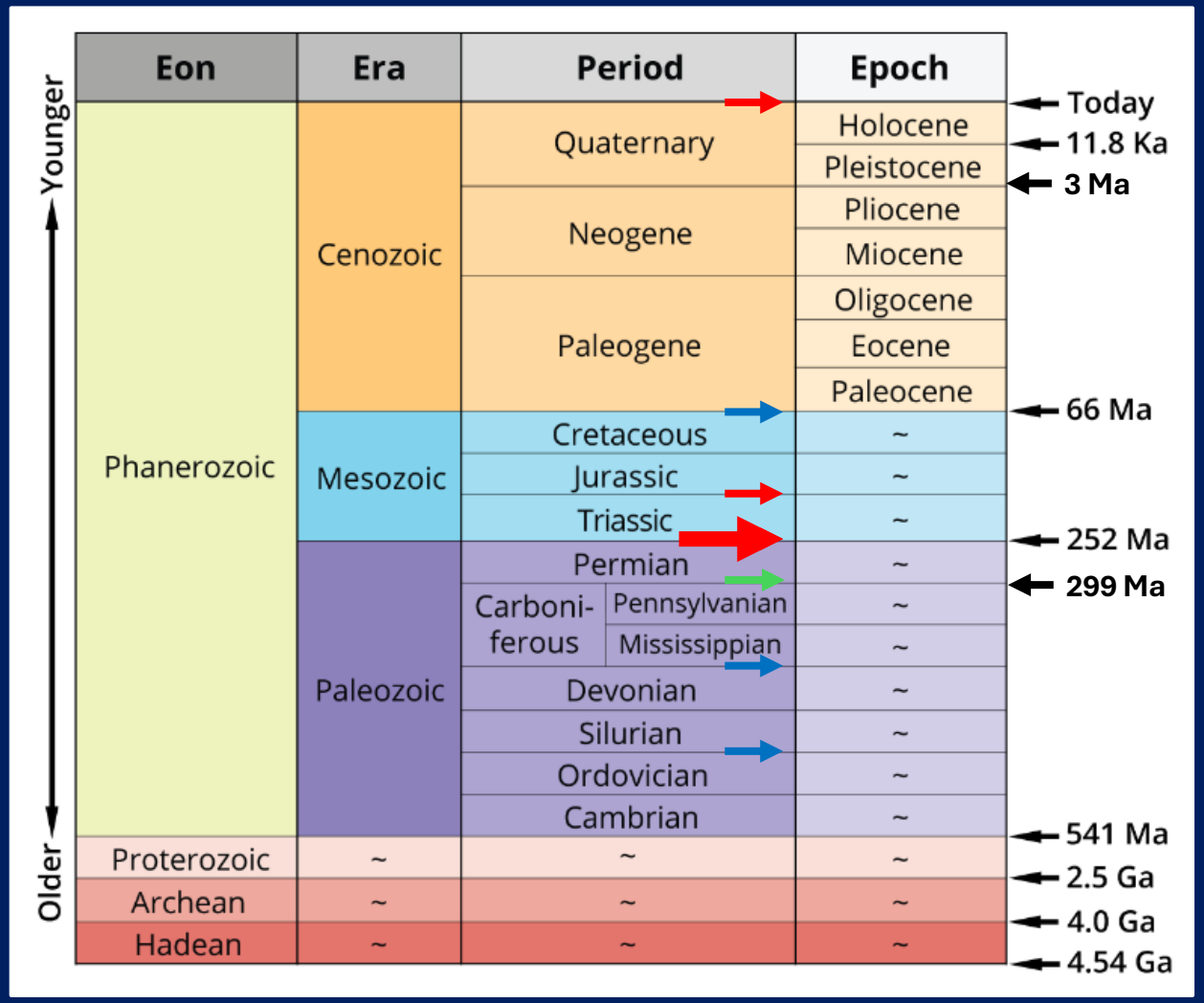
The 1% Club

- 10 million species in existence today
  - <1% of the total species ever existed
- 1 billion animal/plant species have existed
  - 990 million have gone extinct
- Normal species lifespan 1-10 million years
  - Jellyfish, horseshoe crabs & nautilus 500 million
  - Mammals normally about 2 million years
  - Homo sapiens being challenged at 280,000 years



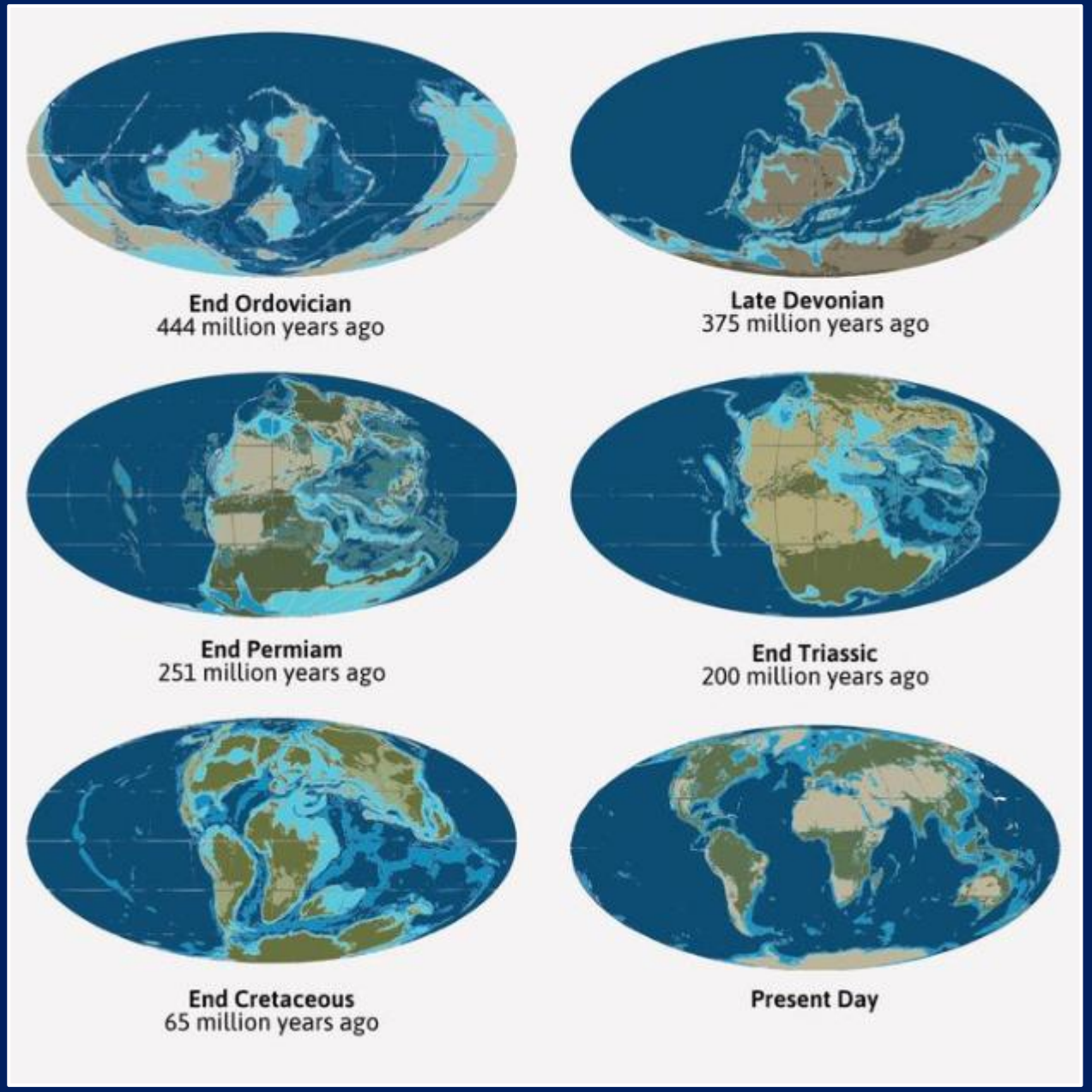


Mass extinction ≥ 75%

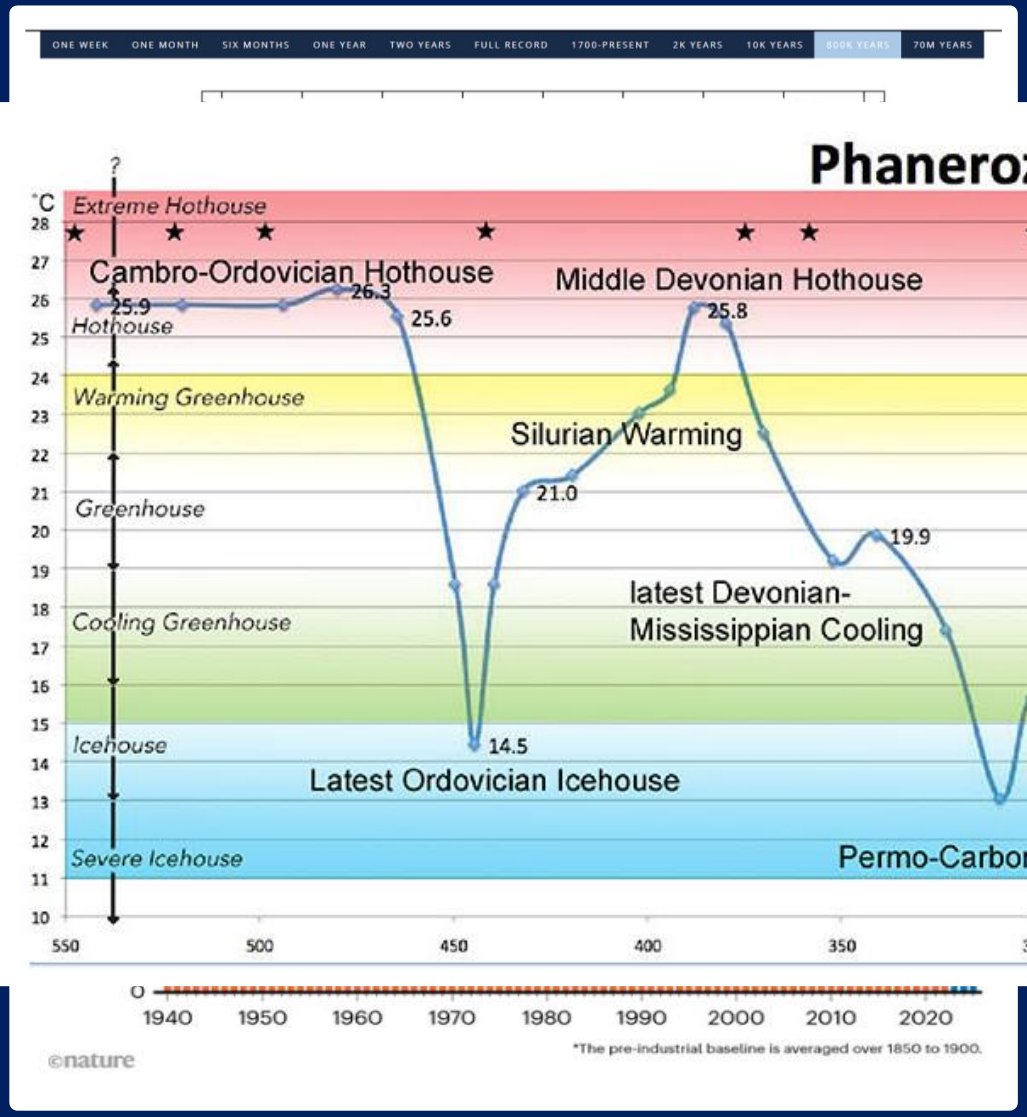


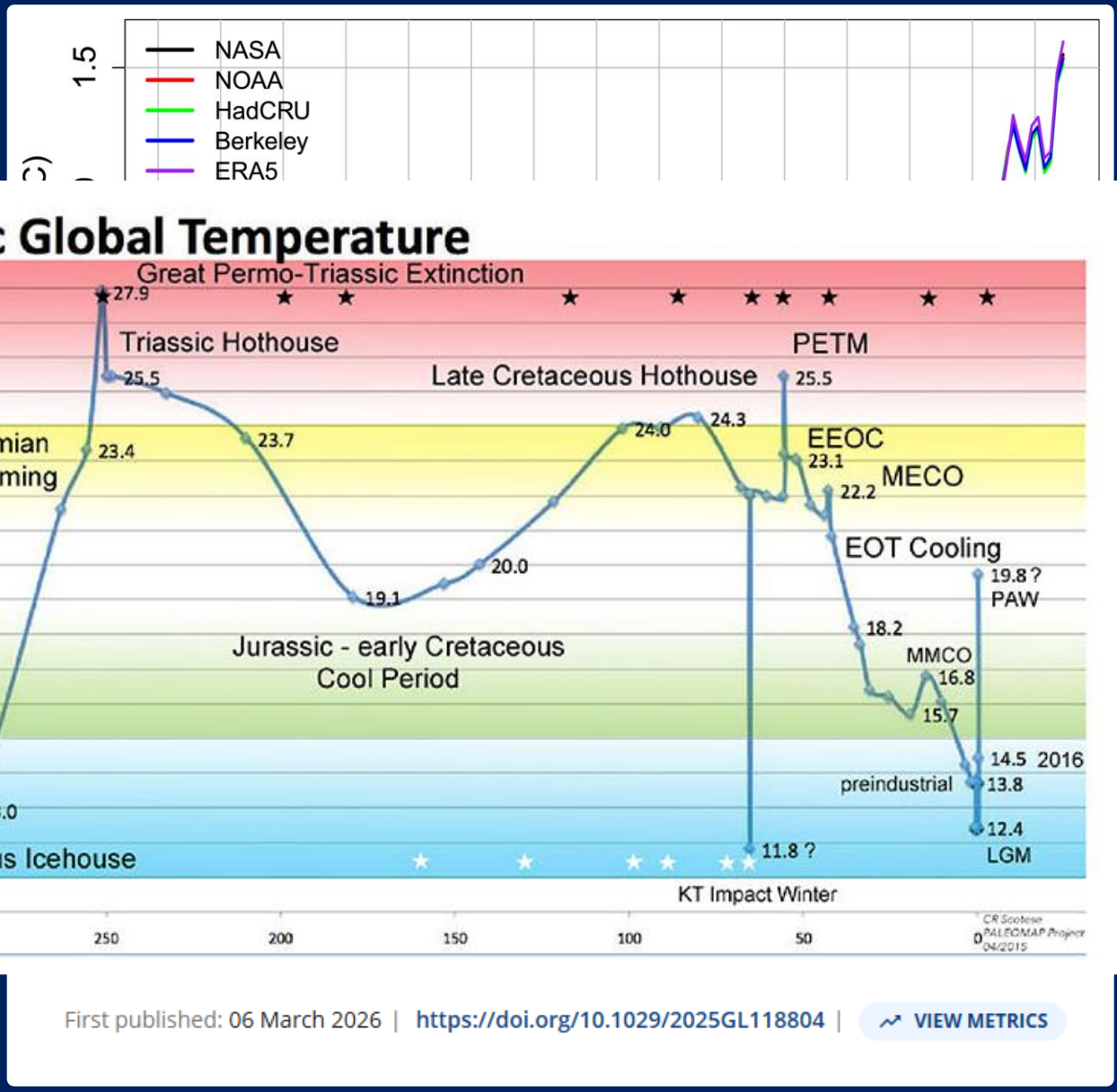


Geology and mass extinctions

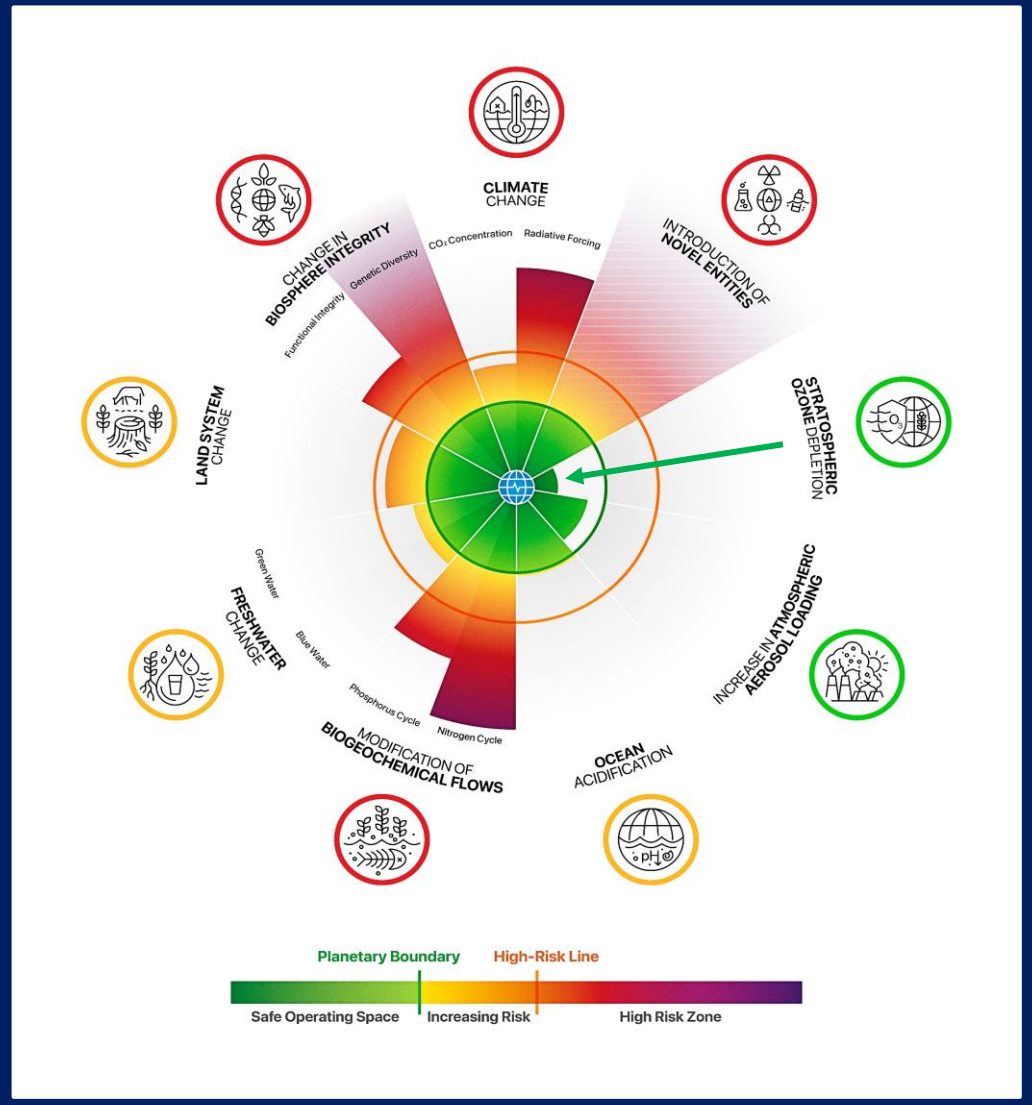


Hothouse Earth

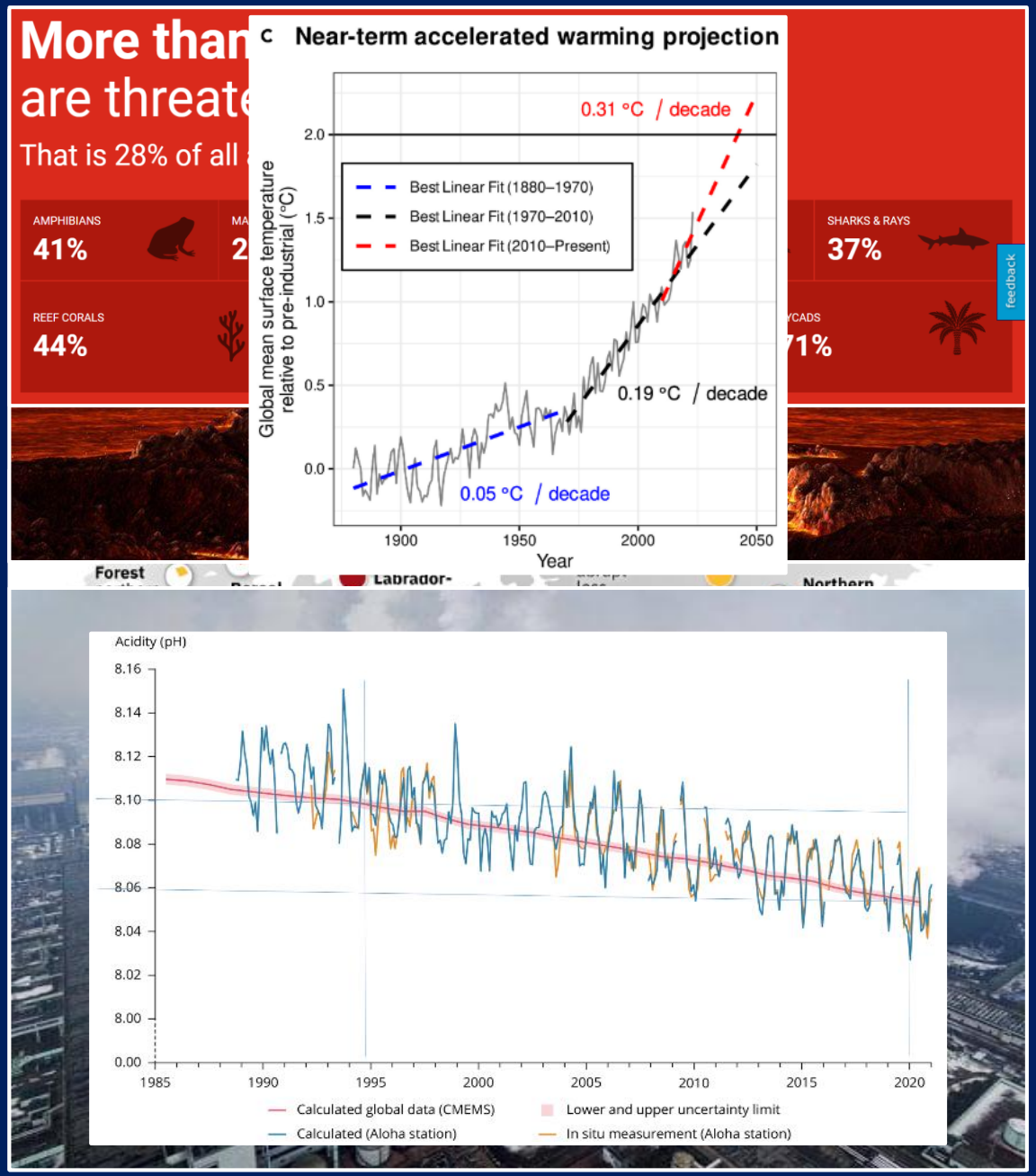




First published: 06 March 2026 | https://doi.org/10.1029/2025GL118804 | VIEW METRICS



- Tipping Elements and Planetary Boundaries cause for concern



Key judgements

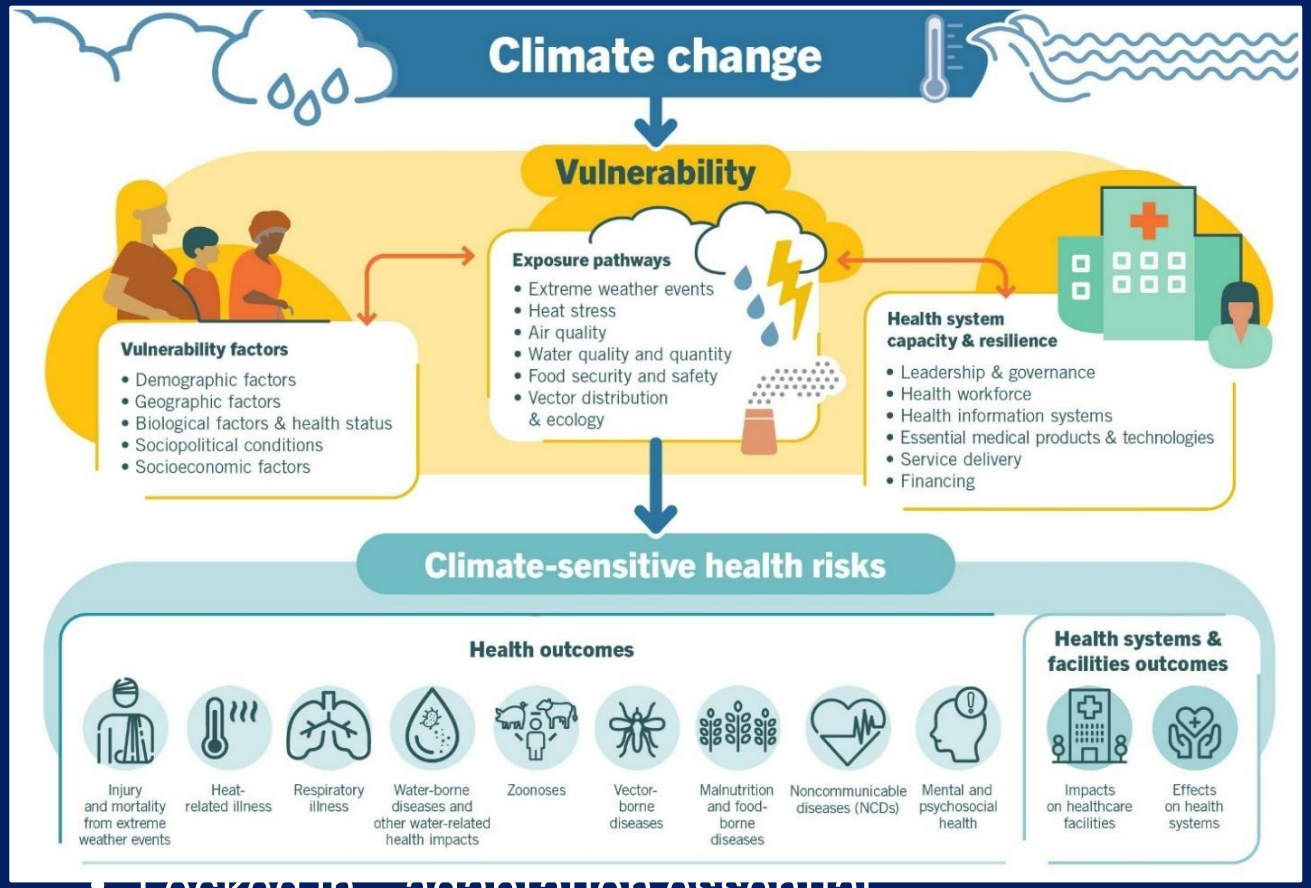
	Analytical Confidence Rating (AnCR)
1. **Global ecosystem degradation and collapse threaten UK national security and prosperity.** The world is already experiencing impacts including crop failures, intensified natural disasters and infectious disease outbreaks. Threats will increase with degradation and intensify with collapse. Without major intervention to reverse the current trend, this is highly likely to continue to 2050 and beyond.	**High**
2. **Cascading risks of ecosystem degradation are likely to include geopolitical instability, economic insecurity, conflict, migration and increased inter-state competition for resources.**	**Moderate**
3. **Critical ecosystems that support major global food production areas and impact global climate, water and weather cycles are the most important for UK national security.** Severe degradation or collapse of these would highly likely result in water insecurity, severely reduced crop yields, a global reduction in arable land, fisheries collapse, changes to global weather patterns, release of trapped carbon exacerbating climate change, novel zoonotic diseases and loss of pharmaceutical resources. The Amazon rainforest, Congo rainforest, boreal forests, the Himalayas and South East Asia's coral reefs and mangroves are particularly significant for the UK.	**High**
4. **Ecosystem degradation is occurring across all regions. Every critical ecosystem is on a pathway to collapse** (irreversible loss of function beyond repair).	**High**
5. **There is a realistic possibility that some ecosystems (such as coral reefs in South East Asia and boreal forests) start to collapse from 2030, and others (rainforests and mangroves) start to collapse from 2050.**	**Low**
6. **All countries are exposed to the risks of ecosystem collapse within and beyond their borders.** Some will be exposed sooner than others and are likely to act to secure their interests, particularly water and food security.	**Moderate**
7. **Without significant increases in UK food system and supply chain resilience, it is unlikely the UK would be able to maintain food security if ecosystem collapse drives geopolitical competition for food.** The UK relies on imports for a proportion of both food and fertiliser and cannot currently produce enough food to feed its population based on current diets. Countries best placed to adapt are those that invest in ecosystem protection and restoration, and resilient and efficient food systems.	**Moderate**



January 26th, 2026

"There is a realistic possibility that some ecosystems start to collapse from 2030"

The rate of extinction is tens to hundreds of times higher than the average over the past 10 million years. It suggests that a sixth mass extinction may be underway.[2, 5]



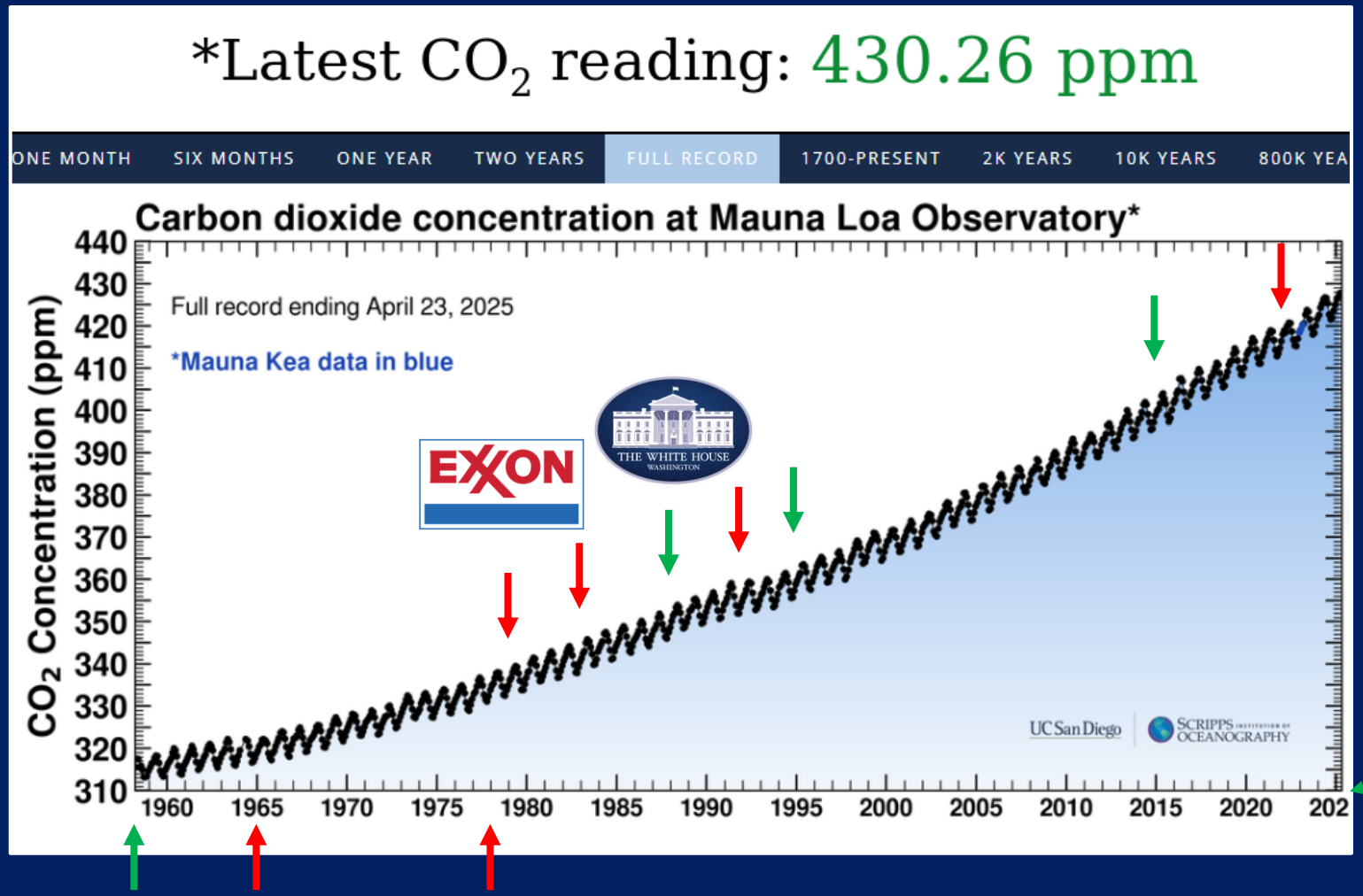
- Locked in – adaptation essential

The new "medium" scenario that is analogous to policies in place today reaches 2.9C in 2100, crossing 2C around 2050 and 3C around 2110, with a one-in-four chance of exceeding 4C by 2150.

The lowest scenarios have shifted modestly upwards, as a future that avoids any overshoot of 1.5C is no longer considered plausible. The very-low scenario peaks at around 1.8C mid-century before falling back close to 1.5C by 2100.



How did we get here?





Can the world change?

- Ozone layer destruction and ‘re
  - 1928 CFCs invente
  - 1974 CFC
  - 1977 8
-
-
-

Yes



rated

roduction and consumption of major CFCs and halons

s most successful international environmental agreement

My sustainability journey








CDDFT Sustainability Development Group

Northeast Integrated Care System SDG

County Durham Climate Change Board

Trustee of Centre for Sustainable Healthcare

Intensive Care Society SWG

Founder of CPDmatch

Internal CDDFT workstreams

Co-founder Healthcare Ocean

NHS England Sustainable Procurement Forum

COP26 then the Minderoo Monaco Commission

Ocean Decade Committee

Proteus Ocean Group

Veer Voyage Advisory Board

Honorary Associate Professor University of Exeter

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665
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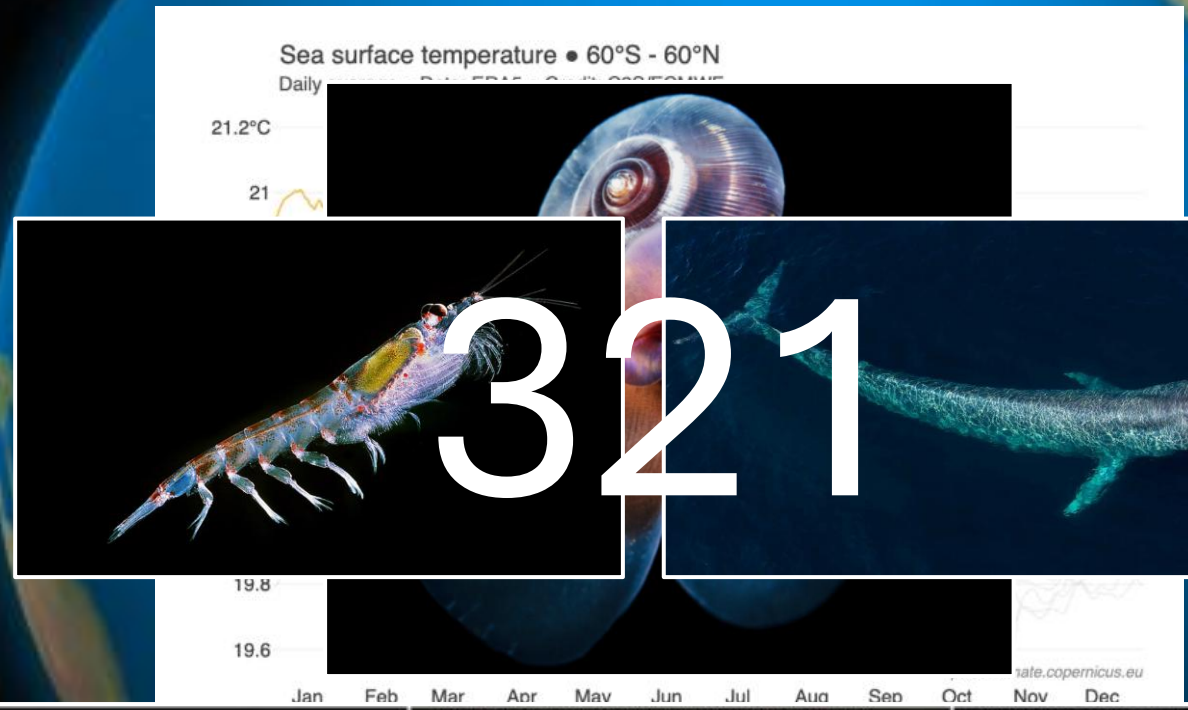

Trust me
I'm a dolphin



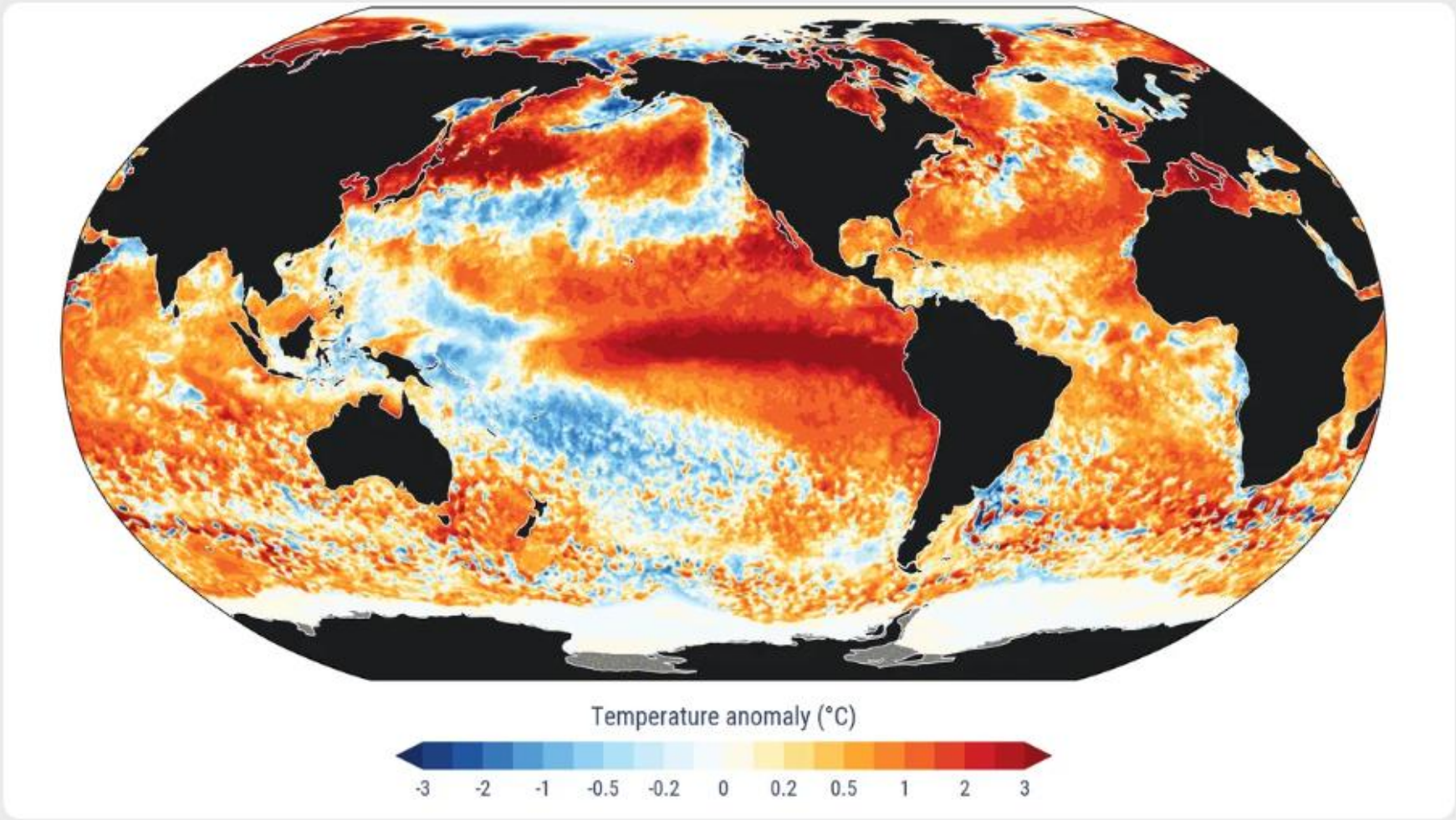


Why The Ocean?

- Covers 71% earth's surface
- Contains 97% earth's water
- Provides 99% of living space
- Home to 80% of animal life
- Stores 40 trillion tonnes carbon
- Absorbs 30-50% of CO_2
- Produces at least 50% of oxygen
- Absorbs 90% of excess heat
- Is *not* too big to fail





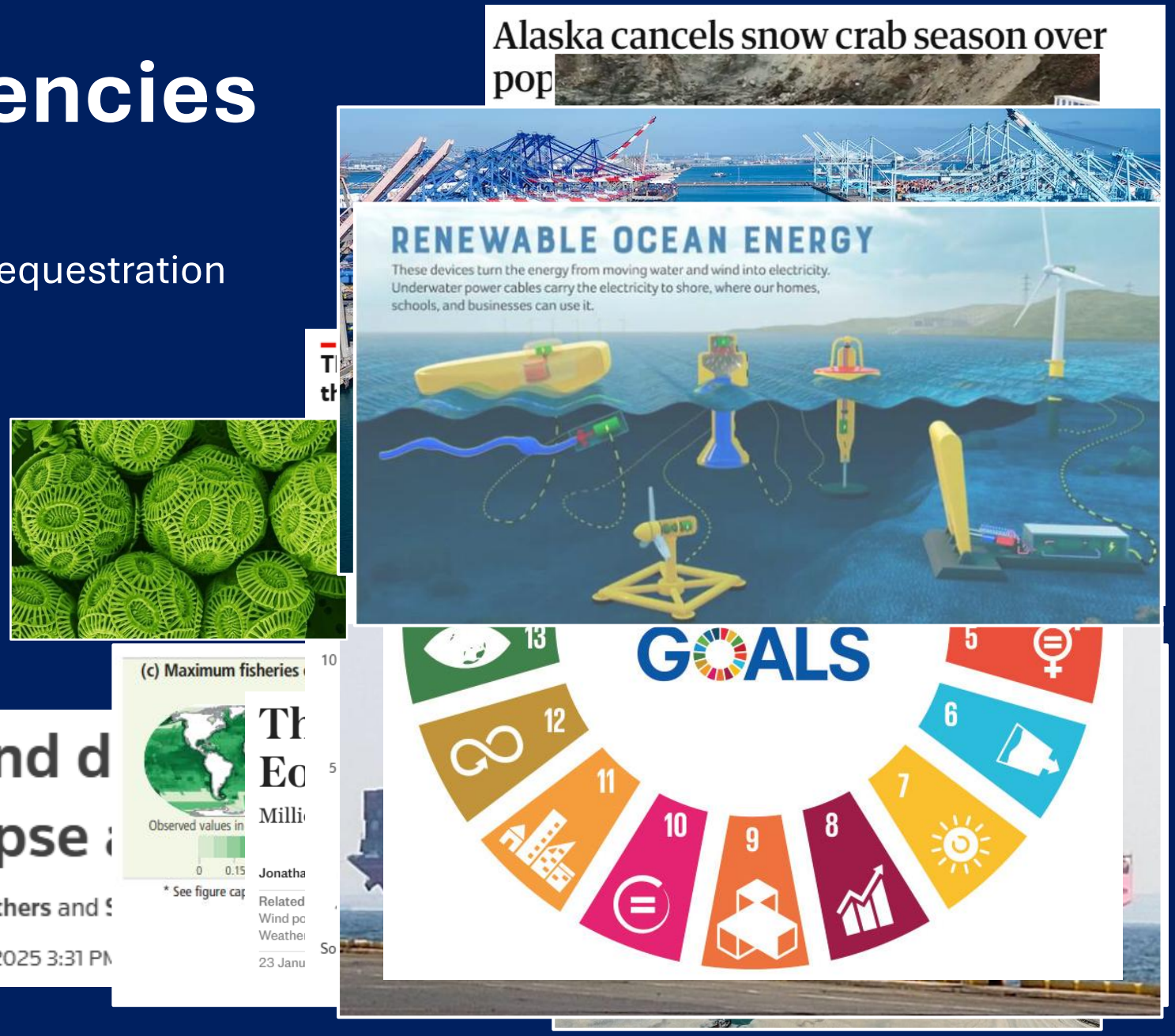


The sea-surface temperature anomaly on August 22, 2026, compared with a 1991–2020 reference period. ERA5/C3S/ECMWF

“The world’s oceans hit 21 · 1 degrees Celsius last Saturday, breaking a record set in 2024”

Ocean dependencies

- Primary production and carbon sequestration
- Climate regulation
- Food security
- Livelihoods
- Physical health
- Mental health and wellbeing
- Discovery of new medici
- The internet
- Renewable energy
- Supply chains



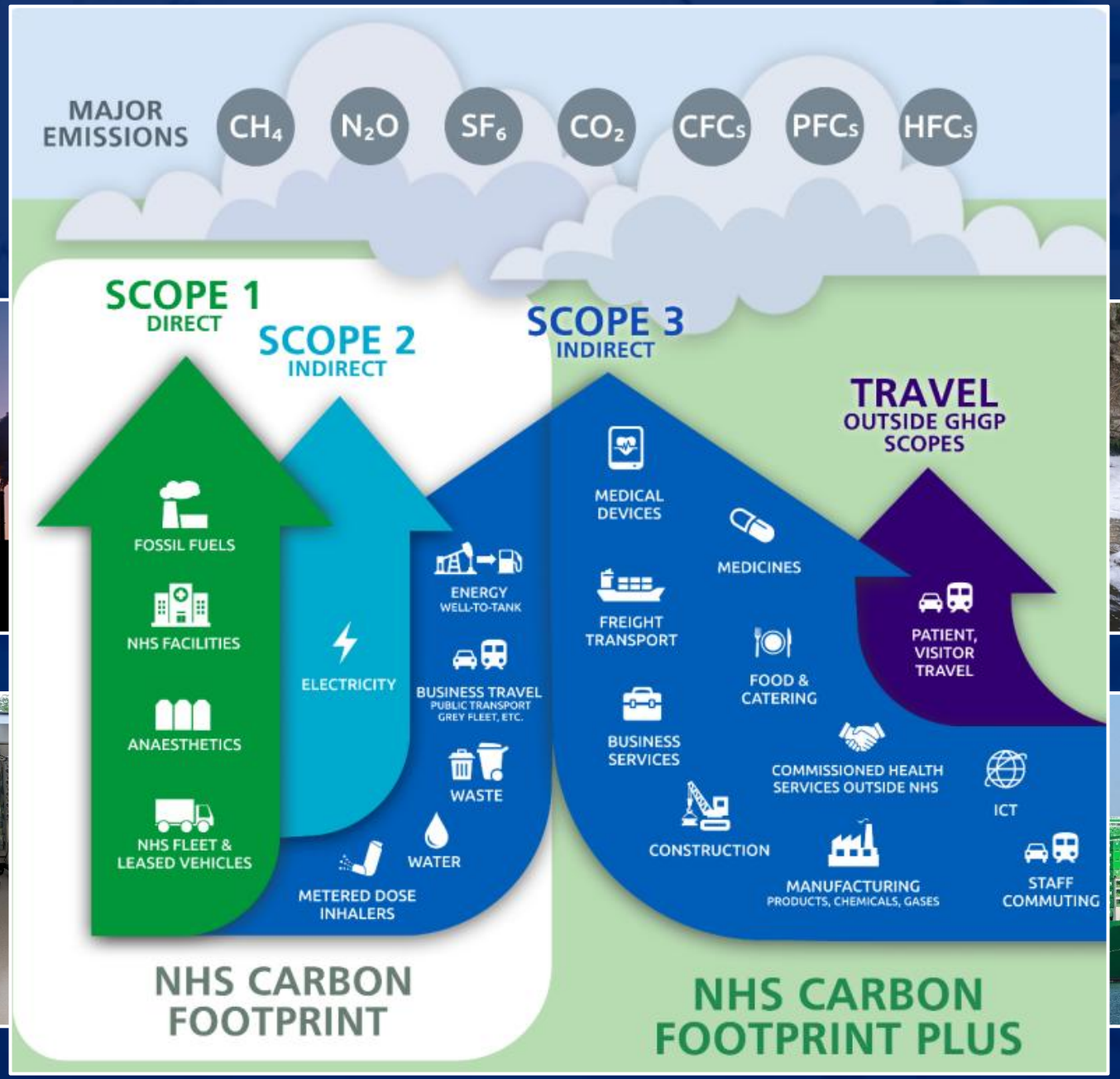
NHS





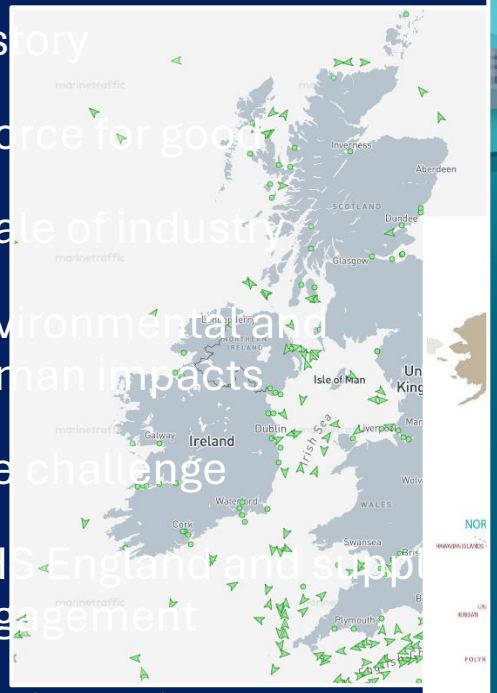





MAJOR EMISSIONS
CH_4
N_2O
SF_6
CO_2
CFCs
PFCs
HFCs
SCOPE 1
DIRECT
SCOPE 2
INDIRECT
SCOPE 3
INDIRECT
TRAVEL
OUTSIDE GHGP SCOPES
FOSSIL FUELS
NHS FACILITIES
ANAESTHETICS
NHS FLEET & LEASED VEHICLES
ELECTRICITY
METERED DOSE INHALERS
ENERGY WELL-TO-TANK
BUSINESS TRAVEL
PUBLIC TRANSPORT
GREY FLEET, ETC.
WASTE
WATER
MEDICAL DEVICES
MEDICINES
FREIGHT TRANSPORT
FOOD & CATERING
PATIENT, VISITOR TRAVEL
BUSINESS SERVICES
COMMISSIONED HEALTH SERVICES OUTSIDE NHS
ICT
CONSTRUCTION
MANUFACTURING
PRODUCTS, CHEMICALS, GASES
STAFF COMMUTING
NHS CARBON FOOTPRINT
NHS CARBON FOOTPRINT PLUS

Container shipping?

- History
- A force for good
- Scale of industry
- Environmental and human impacts
- The challenge
- NHS England and stakeholder engagement
- Inspire action



SHIPPING HEALTH

Shipping is vital to global healthcare, delivering food, medicines, and equipment, but it has significant environmental and health impacts. Healthcare relies heavily on shipping, but rising maritime emissions threaten environmental goals that are vital to prevent uncontrolled climate change and other environmental damage. Achieving a clean transition requires urgent large-scale action, such as changes in ship design, efficiency, fuels, and infrastructure.

This graphic presents the most severe environmental impacts of shipping. The coloured symbols next to these show the linked outcomes these have on the ocean, atmosphere, ecosystems, biodiversity and, ultimately, our own health.

- Climate change
- Ocean acidification
- Acid rain
- Eutrophication and hypoxia
- Damage to habitat and loss of biodiversity
- Behavioural change, entanglement, ingestion
- Polar ice melt
- Novel and toxic compounds to ecosystem and food chain
- Human respiratory disorders
- Other human health impacts

Healthcare Ocean

CO_2 Carbon dioxide

SOx Sulphur oxides

CH_4 Methane

PM Particulate matter including black carbon

NOx Nitrogen oxides

VOC Volatile organic compounds

AIR EMISSIONS

PHYSICAL IMPACTS

WATER POLLUTION

EROSION AND SEDIMENT Costal erosion and sediment suspension from port expansion, dredging and ship operations

ARTIFICIAL LIGHT Marine species and bird behaviour

OPERATIONAL DISCHARGES Bilge and ballast water, sewage and greywater

CARGO LOSS Container, dry bulk, oil and chemicals

SPECIES TRANSFER Transfer of non-indigenous and invasive species

LITTER Marine litter including plastic

WILDLIFE COLLISIONS Marine mammals, turtles, sharks and rays

NOISE Underwater radiated noise

SCRUBBER DISCHARGE From exhaust gas cleaning systems

ANTIFOULING COATINGS Bioaccumulation and toxicity

VESSELS Vessel sinking, grounding and scrapping

Read more about shipping and health: https://healthcareocean.org

DESIGNED IN 2025 BY WILL STAHL-TIMMINS

My communication journey

Bringing ships into healthcare and taking health into shipping



CO ZEV
CARGO OWNERS FOR ZERO EMISSION VESSELS

Healthcare and Maritime Shipping Decarbonization

NHS England recognizes that climate change poses a major threat to both human and planetary health and wellbeing.

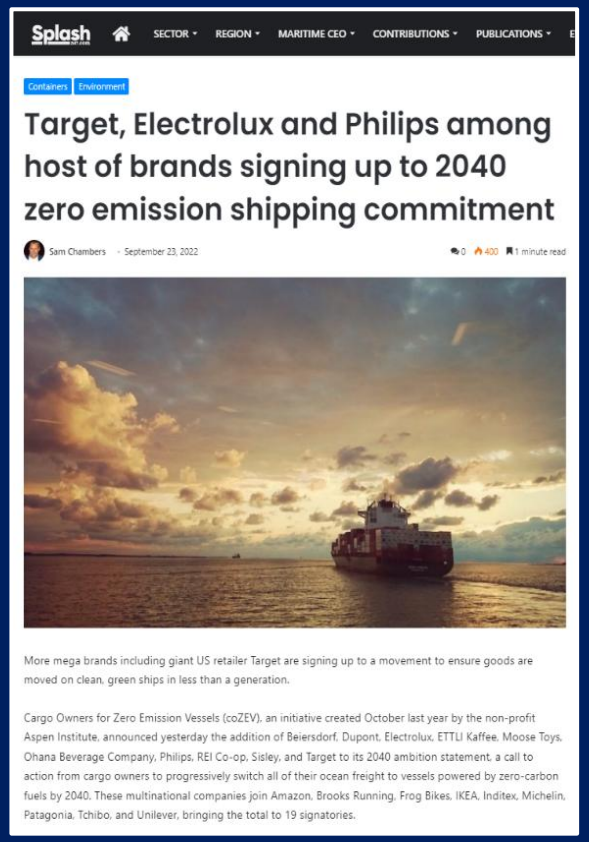
In particular, there is an inextricable link between ocean health and human health; poor oceanic health can lead to wide ranging health impacts from ingestion of microplastics and persistent organic pollutants, increasing antimicrobial resistance, and interruptions to supply chains and medical services. Seeking to address the threat of climate change, as part of the Greener NHS programme, NHS England has set net-zero goals for its Scope 1, 2, and 3 emissions.

The Scope 3 net-zero goal is essential since NHS England's global supply chain emissions represent 62% of their overall greenhouse gas (GHG) footprint. Addressing emissions from the maritime shipping sector is crucial to the achievement of NHS England's Scope 3 net zero goal as 80% of its procured goods travel to England via container ship. Currently, however, emissions from the maritime sector are projected to continue rising under business as usual, putting NHS England's and society's climate goals at risk. The world cannot achieve 1.5 degree Paris Alignment without addressing emissions from the maritime shipping sector.

Achieving a 1.5 Paris Agreement-aligned decarbonization in the maritime sector requires collaboration from across the maritime value chain, including cargo owners like NHS England and its suppliers. Such collaboration is particularly essential since a clear regulatory framework to drive the required transition in this sector is still missing. Cargo owners that rely on maritime shipping have a clear stake in the transition to zero emission shipping: their businesses depend on reliable and affordable maritime transport. Cargo owners also have a crucial role to play in driving ambition and catalyzing adoption and scaling of zero emission solutions as many are striving to meet society's corporate responsibility expectations and achieve their own ambitious corporate climate goals.

Achieving a 1.5 Paris Agreement-aligned decarbonization in the maritime sector requires collaboration from across the maritime value chain, including cargo owners like NHS England and its suppliers.

For more information visit www.cozev.org and contact us at cozev@aspeninstitute.org.



Splash SECTOR REGION MARITIME CEO CONTRIBUTIONS PUBLICATIONS

Containers Environment

Target, Electrolux and Philips among host of brands signing up to 2040 zero emission shipping commitment

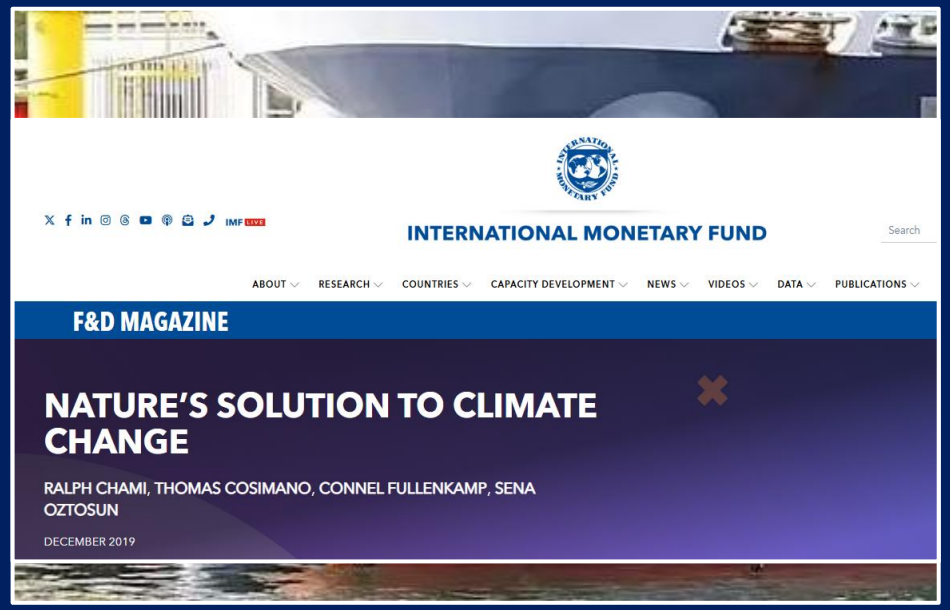
Sam Chambers · September 23, 2022 0 400 1 minute read

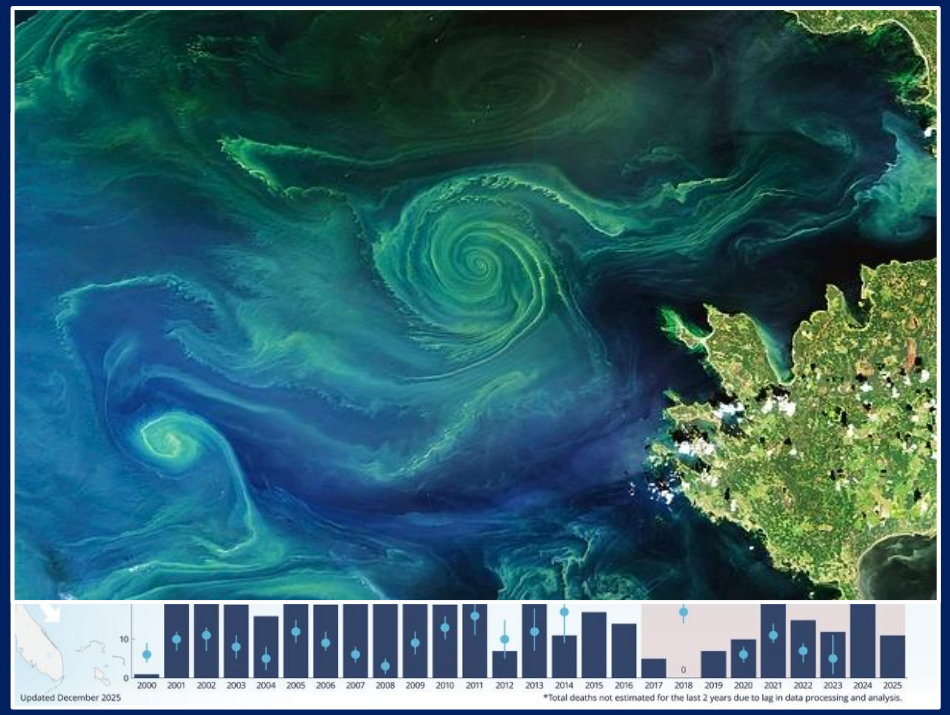
More mega brands including giant US retailer Target are signing up to a movement to ensure goods are moved on clean, green ships in less than a generation.

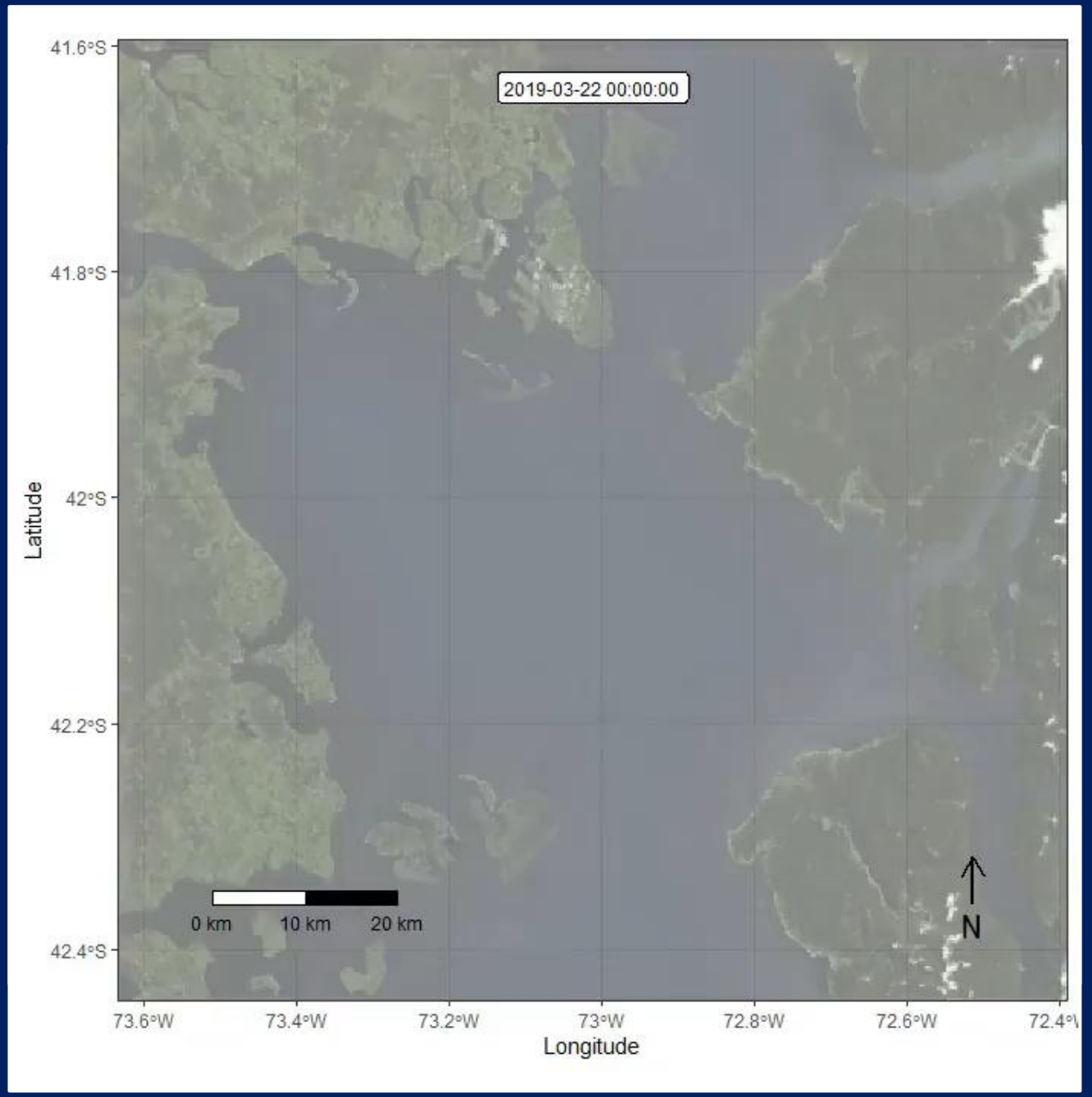
Cargo Owners for Zero Emission Vessels (coZEV), an initiative created October last year by the non-profit Aspen Institute, announced yesterday the addition of Beiersdorf, Dupont, Electrolux, ETTLI Kaffee, Moose Toys, Ohana Beverage Company, Philips, REI Co-op, Sisley, and Target to its 2040 ambition statement, a call to action from cargo owners to progressively switch all of their ocean freight to vessels powered by zero-carbon fuels by 2040. These multinational companies join Amazon, Brooks Running, Frog Bikes, IKEA, Inditex, Michelin, Patagonia, Tchibo, and Unilever, bringing the total to 19 signatories.



Work to do – please reach out


INTERNATIONAL MONETARY FUND
Search
ABOUT
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COUNTRIES
CAPACITY DEVELOPMENT
NEWS
VIDEOS
DATA
PUBLICATIONS
F&D MAGAZINE
NATURE'S SOLUTION TO CLIMATE CHANGE
RALPH CHAMI, THOMAS COSIMANO, CONNEL FULLENKAMP, SENA OZTOSUN
DECEMBER 2019


2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
Updated December 2025
*Total deaths not estimated for the last 2 years due to lag in data processing and analysis.


2019-03-22 00:00:00
41.6°S
41.8°S
42°S
42.2°S
42.4°S
Latitude
0 km
10 km
20 km
N
73.6°W
73.4°W
73.2°W
73°W
72.8°W
72.6°W
Longitude

Publication - Strategy/plan

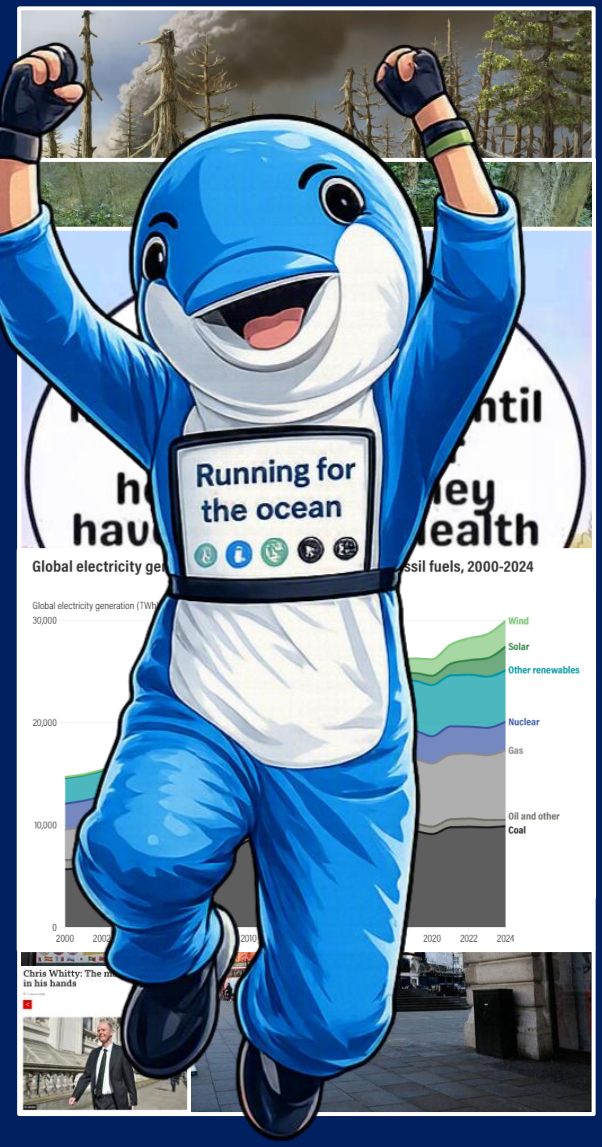
UK cetacean conservation strategy: technical report

Published: **3 December 2025**
Directorate: Marine Directorate
Topic: Economy, Environment and climate change, Marine and fisheries
ISBN: **9781806431311**

This publication describes the process undertaken to assess the vulnerability of the cetacean species covered in the UK Cetacean Conservation Strategy to the key pressures acting on cetaceans in UK waters.

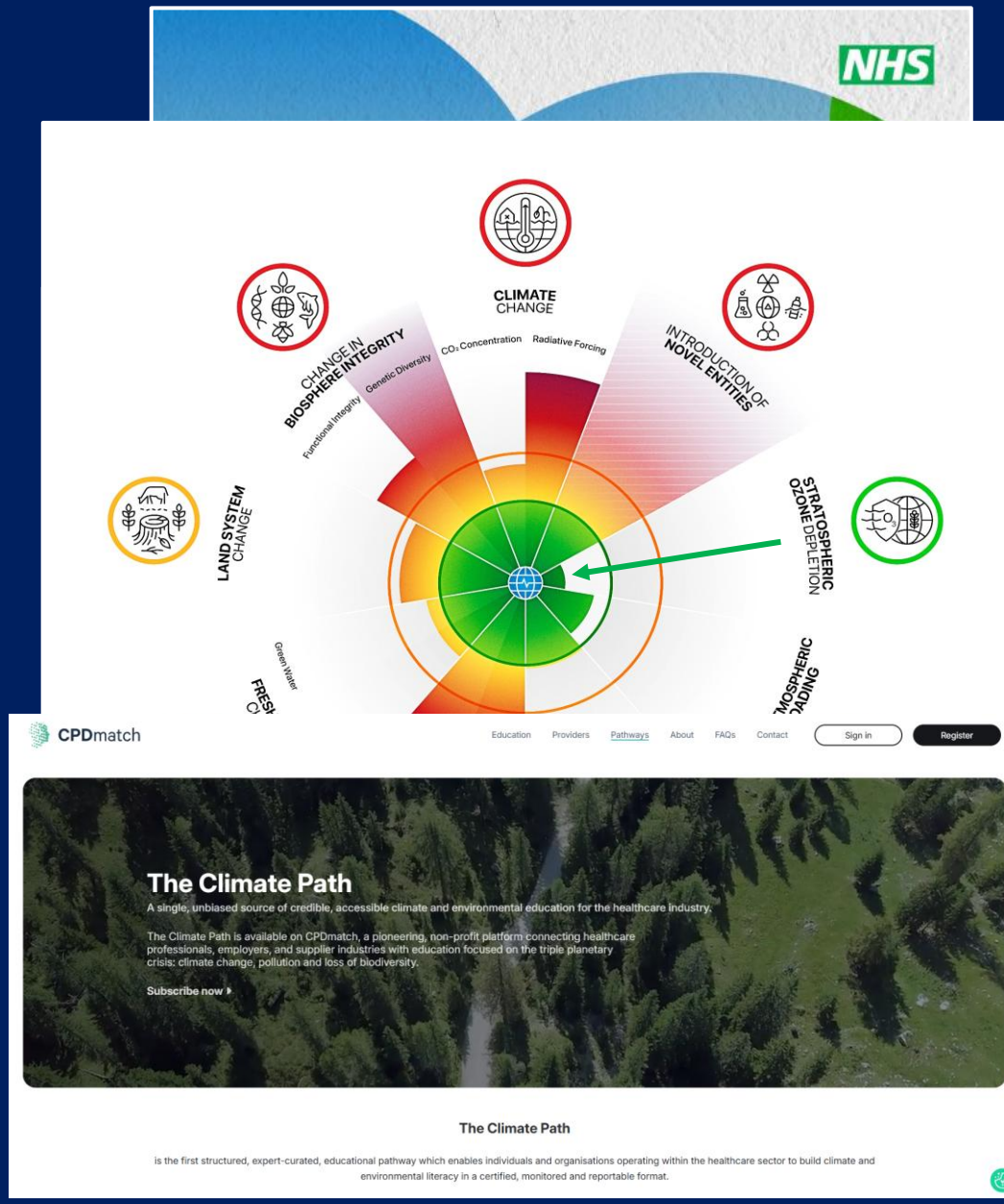
Thoughts moving forward

- We are in a fight to save our lives
- Sustainability is to meet the needs of the present without compromising the ability of future generations to meet their own needs
- **Love and health** is why we care and the healthcare industry is therefore both essential and powerful
- We are good people and 95% of CO_2 emissions are NOT caused by healthcare (NHS = 0.05%)
- We must set an example and use the **trusted voices** of nurses, other healthcare professionals, scientists and teachers to inspire **action**



Sustainable healthcare…
…what, how and why

- What – net zero
- How – decarbonise and reduce planetary impact
- Why – often needs explaining
  - Understanding why creates engagement and builds capability
  - Goal is to motivate, not paralyse (remember ozone)
  - Can be hard to find the right education
- This is why we built **The Climate Path** on **www.CPDmatch.co.uk**



Continuing Professional Development (CPD)

- Maintain and improve performance
  - Traditionally a clinical focus

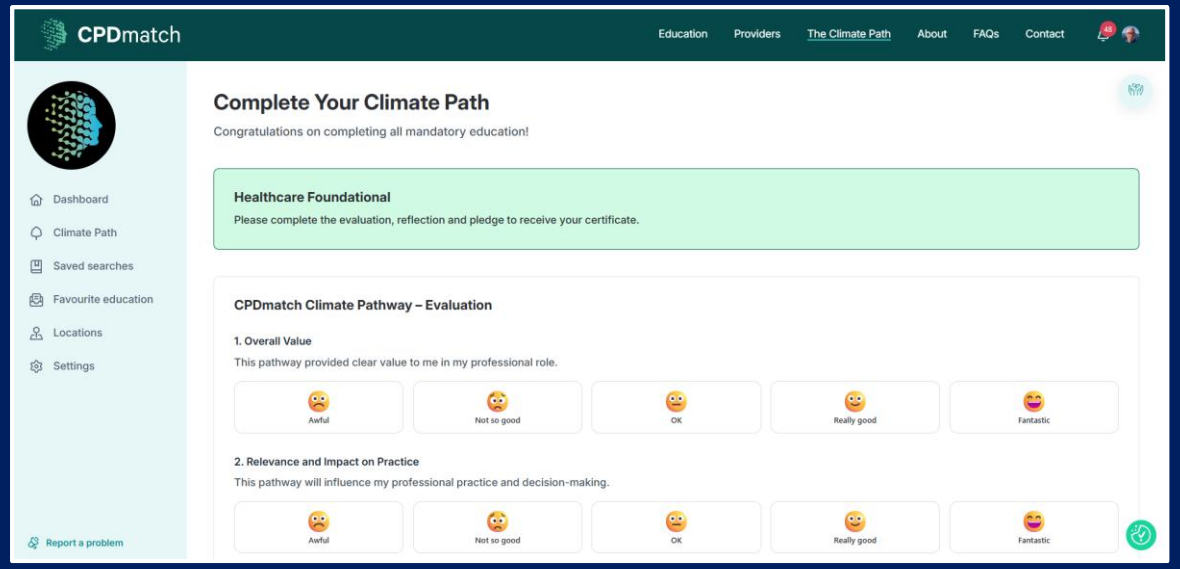
- The health of the planet impacts upon the health of people and healthcare systems
  - Think of the impact of Covid – one virus
  - CPD must include climate and environment

- How do you find relevant, credible, accessible and affordable sustainability education?
  - **https://cpdmatch.co.uk/**
  - Simplicity, clarity and common sense



The Climate Path

- Reduce cognitive overload
  - Collection of essential, credible education
  - Virtual on-demand, free at the point of access
- Independent
  - Expert-curated – visible faculty
  - **Content continuously reviewed**
- Subscription from £6/member/year
  - One subscription = access to all pathways
  - Support for lower HDI countries
- Reflection, content metrics, pledge and action
  - Organisational monitoring (and soon, reporting)
  - Certification for members **and subscribers**
  - You own your educational progress





Trello
Project and task management
- Plans and tracks development work
- Manages issues and feature requests

Figma
Design and prototyping
- Creates and shares website designs
- Collaborates on user interface and experience

GitHub
Holds the website code
- Stores all source code (Nuxt frontend, Laravel backend, (Nova, etc.)
- Stores configuration files, documentation and version history

GitHub Actions (CI/CD)
Tests, builds and deploys
- Automatically tests the code
- Builds Docker images
- Deploys updates to DigitalOcean App Platform when code changes

Docker
Builds container images
- Packages the website software into containers (Nuxt, Laravel, etc.)
- Ensures a consistent environment from development to live site

Deploys container images to DigitalOcean App Platform

DigitalOcean App Platform

Users
People visiting CPDmatch

Website users (browse, register, access resources, complete pathways)

Organisation and individual members

Global audience (accessed via web browser on any device)

SSL encryption (HTTPS)

Meet our team

CPDmatch is powered by a small but passionate team who believe education is one of the most powerful tools for improving both human and planetary health. Drawing on expertise in healthcare, sustainability, education, technology and communications, we make trusted learning easier to find, more accessible, and freely available wherever possible. Independent, values-driven and committed to impact over profit, we are helping build a more informed, empowered and sustainable global healthcare community.

View their experience



- Stores all application data:
  - Users, organisations and member details
  - Resources and pathway content
  - Learning progress and certificates
  - Subscriptions, transactions and other records
- Backups, monitoring and maintenance managed by DigitalOcean

- Stores files (e.g. user uploads, images, documents)
- Separate from the database
- Managed by DigitalOcean
- Secure, scalable and cost-effective object storage

lookup (via API)

Postmark
Sends transactional emails
- Invites and notifications
- Certificates and updates
- Reliable delivery and tracking

OneSignal
Sends push notifications
- Browser and mobile notifications
- Engagement and re-engagement
- Tracks opens and clicks

Stripe
Processes payments
- Subscription payments
- Secure online transactions
- Manages billing and webhooks

ideal postcodes
Postcode lookup
- Validates UK postcodes
- Retrieves address details
- Helps with organisation and member addresses

1 Users
People visit CPDmatch on their web browser to browse resources, register, complete pathways and access their account.

2 Cloudflare
Manages the domain, security and global network. Routes visitors to the site on DigitalOcean App Platform and helps keep the site fast and protected.

3 Development (Trello, Figma, GitHub)
Trello manages tasks, Figma creates designs, and GitHub stores the code (Nuxt, Laravel, Nova, etc.).

4 CI/CD and Docker
GitHub Actions tests the code, builds Docker images and deploys updates to DigitalOcean App Platform when code changes.

5 Hosting (DigitalOcean)
DigitalOcean App Platform runs the Docker containers (Nuxt frontend, Laravel backend). Data is stored in DigitalOcean Managed MySQL and files in DigitalOcean Spaces.

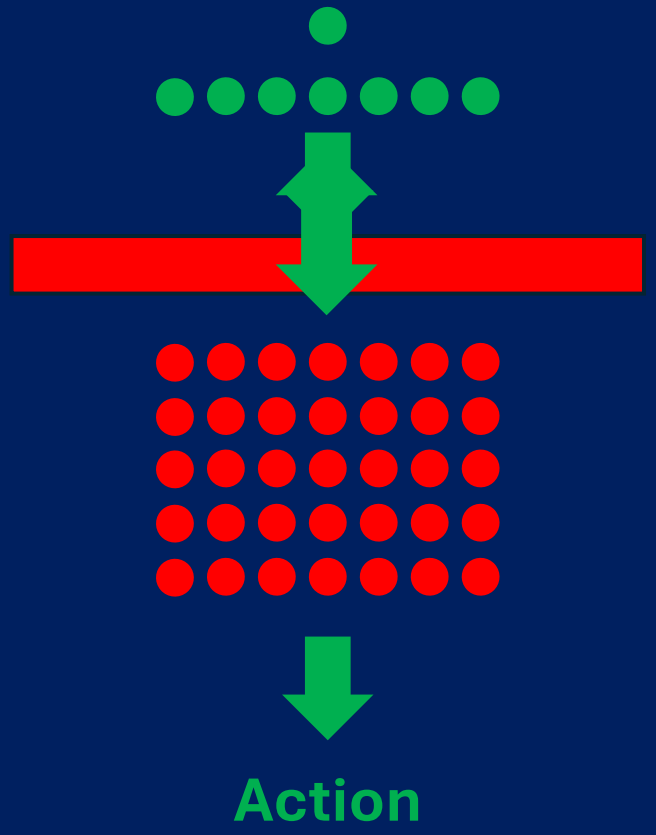
6 External integrations
The website connects to Postmark (emails), OneSignal (notifications), Stripe (payments) and Ideal Postcodes (address lookup) via secure APIs.

Can education accelerate action?

- There is evidence that sustainability education can:
  - Build knowledge and understanding
  - Increase confidence and engagement
  - Develop individual and organisational capability
  - Help translate **strategy into action**
  - Support sustainability across organisations and supply chains

- A shared foundation of knowledge → attitudes → capability
  - Capability → behaviour → action (refs)

    (Capability needs resource to deliver action)



Knowledge reflection

- What is the Keeling Curve? ☑
- How many Tipping Elements are there? ☑
- What is The Planetary Boundary model? ☑
- What is a mass extinction event? ☑
- How does the present CO_2 rate of change compare to previous mass extinction events? ☑
- What is the size of the National Determined Contribution (NDC) implementation gap? ☑
- How does natures' CO_2 sequestration capacity compare to human CO_2 output? ☑
- How can the delivery of our healthcare products kill whales? ☑
- How many whales would it take to sequester the CO_2 output of the NHS? ☑
- How many pharmaceuticals on the market today have originated from marine organisms? ☑

Call To Action

I’m asking you and your practices to explore CPDmatch and consider subscribing to The Climate Path = an easy action.

Together, we can build a shared understanding of why change is needed, empower individuals and teams to take meaningful action, and harness the trusted voices of healthcare professionals to inspire change far beyond our own practices.

