Issue 27
June 30, 2025

NEWSLETTER

Smart & Net-Zero Project

The Smart Net-Zero (SNZ) project team under the Food and Fertilizer Technology Center (FFTC) for the Asian and Pacific Region regularly collects and shares information related to sustainable agrifood systems and climate-smart agriculture, including research, news, policy, data and event updates around the world on the project website.

Overview

Harnessing Blue Carbon: Pathways to Climate Mitigation and Ecosystem Restoration

Around 50% of global **"blue carbon" ecosystems (BCEs)** — including mangroves, salt marshes, seagrasses, and marine fisheries — have been lost, diminishing their carbon storage and climate resilience. Although covering just 0.5% of ocean floors, BCEs contribute over 50% of marine carbon burial. Their protection and restoration could mitigate roughly 3% of global GHG emissions.

Research of this issue highlights BCEs' potential as critical natural climate solutions, identifying key knowledge gaps, including fisheries-related carbon sequestration and seabed carbon dynamics. Case studies emphasize effective fisheries management, practical techniques and indicators for salt marsh restoration, quantification of mangrove emissions scenarios, and innovative shellfish farming as a promising negative emissions technology.

News spotlights global blue carbon actions—from ASEAN–Japan finance initiatives and Japan's offshore studies to Australia's seaweed methane cuts and Taiwan's seagrass restoration. **Policy** highlights EU, OECD, and WWF strategies for sustainable fisheries, restoration, and blue food systems. **Open Data** features WWF's Oceans platform, offering tools and datasets to support marine conservation, traceability, and ecosystem-based planning for a resilient blue economy.

Content

RESEARCH

01 THEME: Carbon Sequestration; Policy Incentives, Financing, Pricing

Blue carbon as a natural climate solution

November 1, 2021 | Nature Reviews Earth & Environment | Source |

Introduction: An international research team from Australia, USA, Singapore, UK and Saudi Arabia, led by Deakin University (Australia) evaluates the global potential of blue carbon ecosystems (BCEs)—mangrove forests, tidal marshes, and seagrass meadows—as a climate-smart, win–win solution that addresses carbon sequestration gaps while delivering vital co-benefits such as coastal protection, fisheries enhancement, and livelihood support. Using global mapping and ecosystem modeling, the study identifies opportunities and barriers for extensive restoration efforts.

Key findings: Despite occupying only about 0.5% of the seafloor, BCEs store over 50% of oceanic carbon. Globally, they hold an estimated 30,000 teragram (Tg) of carbon across ~185 million hectares. Protecting existing BCEs could avoid 304 Tg CO_2e emissions annually, while restoring lost or degraded areas—particularly mangroves—could draw down an additional 841 Tg CO_2e per year by 2030, amounting to ~3% of global fossil fuel emissions (2019–2020). However, considerable uncertainties persist due to gaps in mapping, methodological inconsistencies, and limited carbon stock data for seagrasses and tidal marshes.

Major drivers of BCE loss include physical alteration, pollution, invasive species, and land-use change—often driven by aquaculture, agriculture, and infrastructure expansion, especially in Southeast Asia. Restoration approaches vary: passive techniques like improving tidal connectivity may be more effective and cost-efficient than active planting, which is often unsuccessful, especially for seagrasses. Yet, only ~1.5% of BCEs are included in marine protected areas, highlighting major untapped potential for conservation. Moreover, a key policy challenge is demonstrating "additionality"—the requirement that carbon abatement must result directly from project actions not already mandated.

The study emphasizes the need for better spatial data, scalable restoration methods, and stronger governance frameworks. It also highlights emerging ocean-based climate solutions, such as seaweed farming and kelp forest conservation, as promising future avenues. Integrating BCEs more fully into national climate strategies and carbon markets will be critical for realizing their full potential in global mitigation efforts.

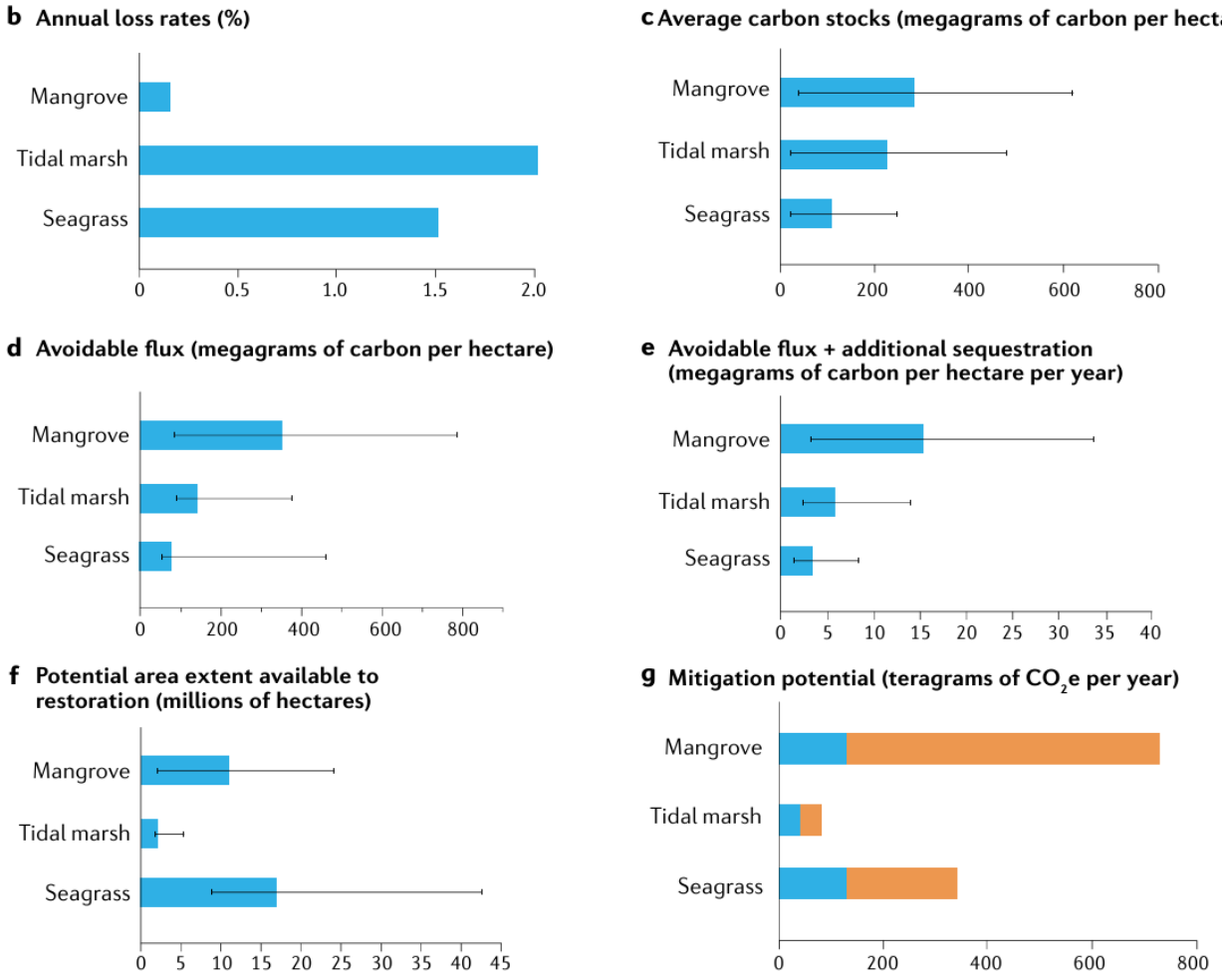

Figure | Loss rate, carbon stocks, avoidable fluxes and mitigation potential for each BCE. b | Estimated annual loss rates (%) for seagrass (between 1879 and 2006), tidal marshes and mangroves (between 2000 and 2012). c | Global average soil carbon stocks (for mineral soils) per area (megagrams of carbon per hectare). d | Avoidable flux for avoided coastal wetland impacts the pathway (megagrams of carbon per hectare). e | Avoidable flux and additional sequestration rates (95% CI) for the coastal wetland restoration pathway (megagrams of carbon per hectare per year). f | Potential area extent available to restoration (millions of hectares). g | Maximum mitigation potential from avoided emissions due to conversion (dark blue; mineralization of carbon stocks in biomass and soils, and loss of carbon sequestration potential (teragrams of CO_2e per year)) and maximum mitigation potential from restoration (orange; mineralization of carbon stocks in biomass and soils, and recovery of carbon sequestration potential (teragrams of CO_2e per year)). Maximum mitigation potential for avoided emissions assumes that 100% of carbon stocks are lost following habitat loss (1 Mg ha = 1,000,000 ha and 1 Tg = 1,000,000 Mg). Uncertainty estimates (grey bars) represent 95% CIs. Tidal marshes and seagrass meadows do not have information available on potential for avoided emissions per country.

02 THEME: Carbon Sequestration

Good fisheries management is good carbon management

March 21, 2024 | npj Ocean Sustain | Source |

Introduction: Climate change significantly affects marine ecosystems, exacerbated by overfishing and habitat degradation, weakening the ocean's capacity to buffer against climate change impacts. Although oceans have absorbed roughly 28% of human-generated CO_2 since 1750, current fishing methods disrupt critical biological carbon cycling processes. Researchers from the UK, Canada, Norway, and the USA examined how marine vertebrate depletion, damage to carbon-rich seabeds, and fuel-intensive practices—accounting for about 1.2% of global oil consumption with emissions rising 28% from 1990 to 2011—contribute to these disruptions.

Key findings: Marine fish significantly contribute to deep-ocean carbon sequestration through mechanisms like faecal pellet sinking and diel vertical migration, potentially accounting for over 20% of carbon sequestration. However, overfishing, combined with climate change and pollution, reduces marine resilience and alters carbon dynamics, threatening carbon sequestration, especially in critical mesopelagic fish populations.

In addition, bottom trawling disrupts seabeds, potentially releasing nearly 1.5 billion metric tons of aqueous CO_2 annually, with 55–60% emitted into the atmosphere within 9 years. Harmful subsidies, especially fuel subsidies (22% of global fishing subsidies in 2018), enable extensive high-seas fishing, significantly increasing emissions. Targeting depleted stocks further increases fuel use per catch. Effective ecosystem-based fisheries management can rebuild biomass, enhance biodiversity, and secure sustainable livelihoods, but requires comprehensive global emissions reduction and careful socio-economic as well as environmental assessments to transition from bottom trawling.

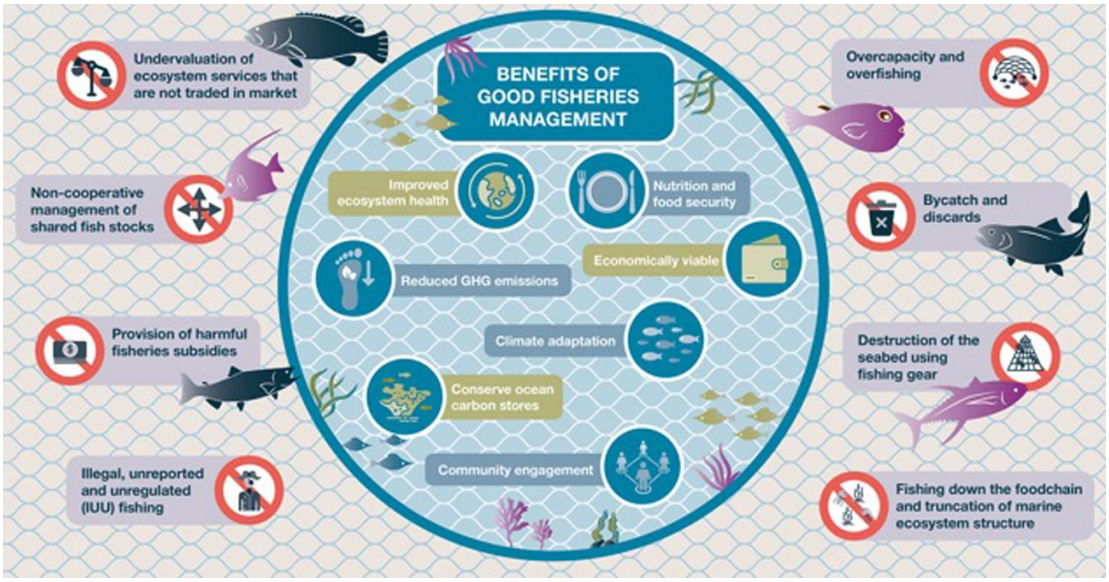

Figure | Benefits of good fisheries management and issues associated with poor fisheries management practices.

03 THEME: Carbon Sequestration; Others

Salt marsh restoration: an overview of techniques and success indicators

January 6, 2022 | Environmental Science and Pollution Research | Source |

Introduction: Salt marshes are vital coastal ecosystems that support biodiversity, store carbon and protect shorelines. Yet, they face mounting threats from land reclamation, sediment depletion, eutrophication, and sea-level rise—driving a surge in global restoration initiatives. Addressing the lack of a comprehensive synthesis on restoration strategies and evaluation metrics, researchers from Italy, Spain, Bangladesh, and Malaysia analyzed 78 peer-reviewed studies, highlighting a shift toward functional indicators alongside traditional structural metrics.

Key findings: Among the 78 reviewed studies, 67% were from the USA, with post-2002 publications indicating increased interest in salt marsh restoration. Most projects used assisted abiotic techniques, such as tidal flow restoration, dike breaching, and sediment amendment. The study identified 214 success indicators, primarily related to ecosystem functions (33.2%) and structural diversity (32.7%), with carbon dynamics and vegetation traits being the most common. Threat reduction indicators, like invasive species control, were underrepresented. Recent studies highlight microbial communities and carbon sequestration as emerging priorities. Recovery timelines varied: hydrology and fish use recovered quickly; vegetation took years; macrobenthic density 5–25 years; and soil carbon and nitrogen 15–30 years. Peat formation could take up to a century. The authors proposed a conceptual model incorporating site assessment, tailored interventions, and a five-star rating system to guide and communicate restoration success, urging broader use of underutilized indicators and standardized evaluation criteria.

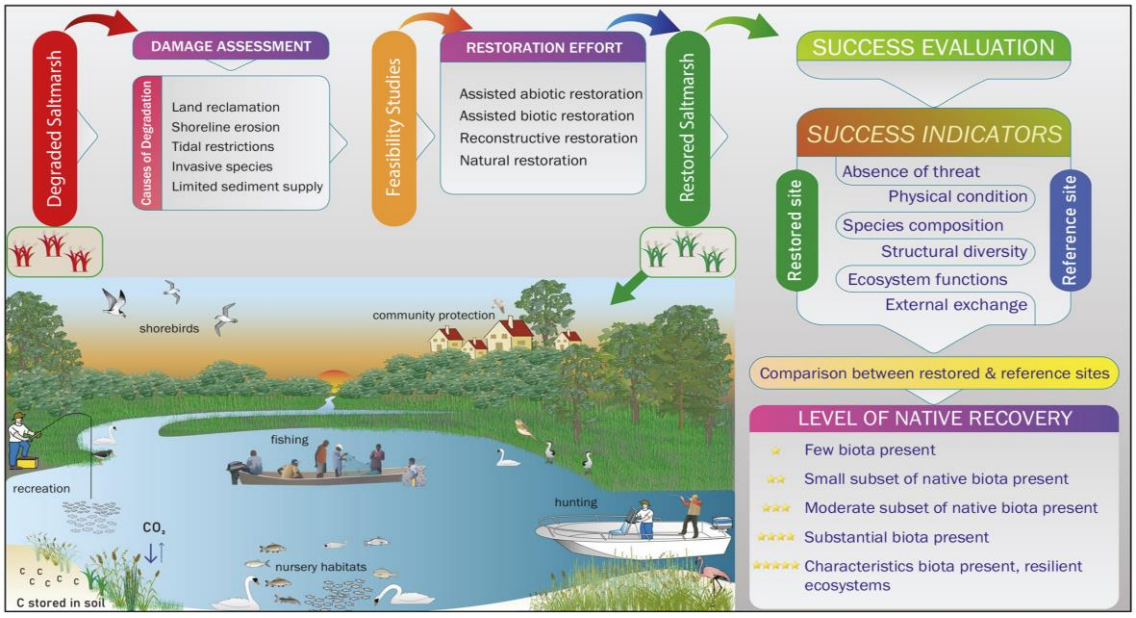

Figure | Conceptual model of suggested salt marsh restoration approach and success evaluation (Some symbols used in this figure are courtesy of the Integration and Application Network, University of Maryland Center for Environmental Science—ian.umces.edu/symbols/)

04 THEME: Carbon Sequestration; GHG Emission Reduction

Future carbon emissions from global mangrove forest loss

February 28, 2021 | Global Change Biology | Source |

Introduction: Mangroves significantly contribute to global climate mitigation by storing substantial carbon, yet their continuous loss poses major challenges. An international research team led by the Australian Rivers Institute at Griffith University, developed a comprehensive global model to project future carbon emissions resulting from mangrove deforestation. Utilizing datasets on carbon storage, mangrove distribution, deforestation rates, and land-use change drivers, the model assesses emissions under business-as-usual (BAU) scenarios.

Key findings: The study projects up to 3,392 teragram (Tg) CO_2 equivalent emissions from mangrove loss by 2100, accounting for both direct emissions and foregone soil carbon sequestration. Emission hotspots—led by the West Coral Triangle, Sunda Shelf, and Bay of Bengal—are mainly driven by agricultural and aquacultural expansion. Other major contributors include erosion in North Brazil and the Andaman coast, and storm damage in the Caribbean. The researchers identified five proximate drivers of mangrove loss: (a) conversion to commodities, (b) coastal erosion, (c) clearing, (d) extreme climatic events, and (e) conversion to human settlements—providing a comprehensive analysis of emission causes. Sensitivity analyses confirmed that while total emission volumes vary with input data, the spatial distribution of hotspots remains robust. The model was most sensitive to deforestation rates, suggesting emissions could decline if current slowdowns persist. The study proposes actionable, site-specific interventions such as improving hydrological connectivity and stabilizing coasts in the Tropical Northwest Atlantic. Integrating such strategies into national climate policies and carbon markets is essential to mitigate emissions and enhance long-term conservation outcomes.

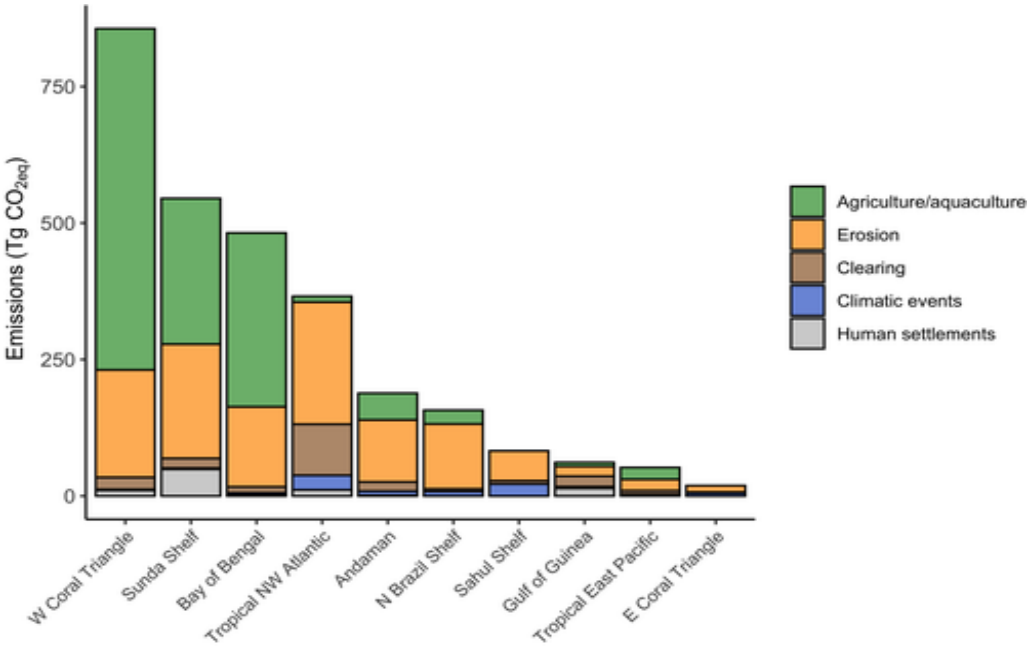

Figure | Cumulative CO_2 eq emissions (Tg) by the end of the century (2010– 2100) attributed to the proximate drivers of mangrove loss for the marine provinces ranked in the top ten for future CO_2 emissions.

05 THEME: Carbon Sequestration

Carbon sequestration via shellfish farming: A potential negative emissions technology

January, 2023 | Renewable and Sustainable Energy Reviews | Source |

Introduction: Achieving global climate goals requires practical, low-energy negative emissions technologies (NETs). Researchers from Guangdong University of Technology (China) and Malardalen University (Sweden) assess the carbon sequestration potential of bivalve shellfish farming (CSSF). Using comprehensive analysis, the study evaluates CSSF's effectiveness in CO_2 absorption and long-term storage, its net carbon sink status over the full life cycle, and its performance compared to ecosystems like artificial forests and mangroves.

Key findings: Shellfish farming presents substantial potential as a carbon-negative technology. Between 2015–2019, cultivation in China sequestered approximately 6.23 million tons of CO_2 equivalent annually, with oyster farming contributing about 84%. Life cycle analysis confirms shellfish farming is a net carbon sink, as captured carbon offsets emissions across all stages. Net sequestration ratios for key species (12.55% to 33.68%) far exceed those in natural systems (<1%), and carbon storage via $CaCO_3$ formation and sediment deposition remains stable for over 100 years. Mussel (14.31 ton CO_2 ha^{-1} yr^{-1}) and oyster (11.99 ton CO_2 ha^{-1} yr^{-1}) farming outperform not only artificial forests but also salt marshes, mangroves, and seagrass beds. Globally, scaling could sequester up to 5.64 Gt CO_2, with added benefits of providing low-emission protein.

To address ecological risks like over-farming and benthic enrichment, the study recommends Integrated Multi-Trophic Aquaculture (IMTA) and Best Management Practices (BMPs), including strategic site selection and farm layouts. Ocean acidification remains a long-term threat to shellfish calcification and habitat range, underscoring the need for genetic breeding of tolerant strains and resilient models such as shellfish-algae polycultures.

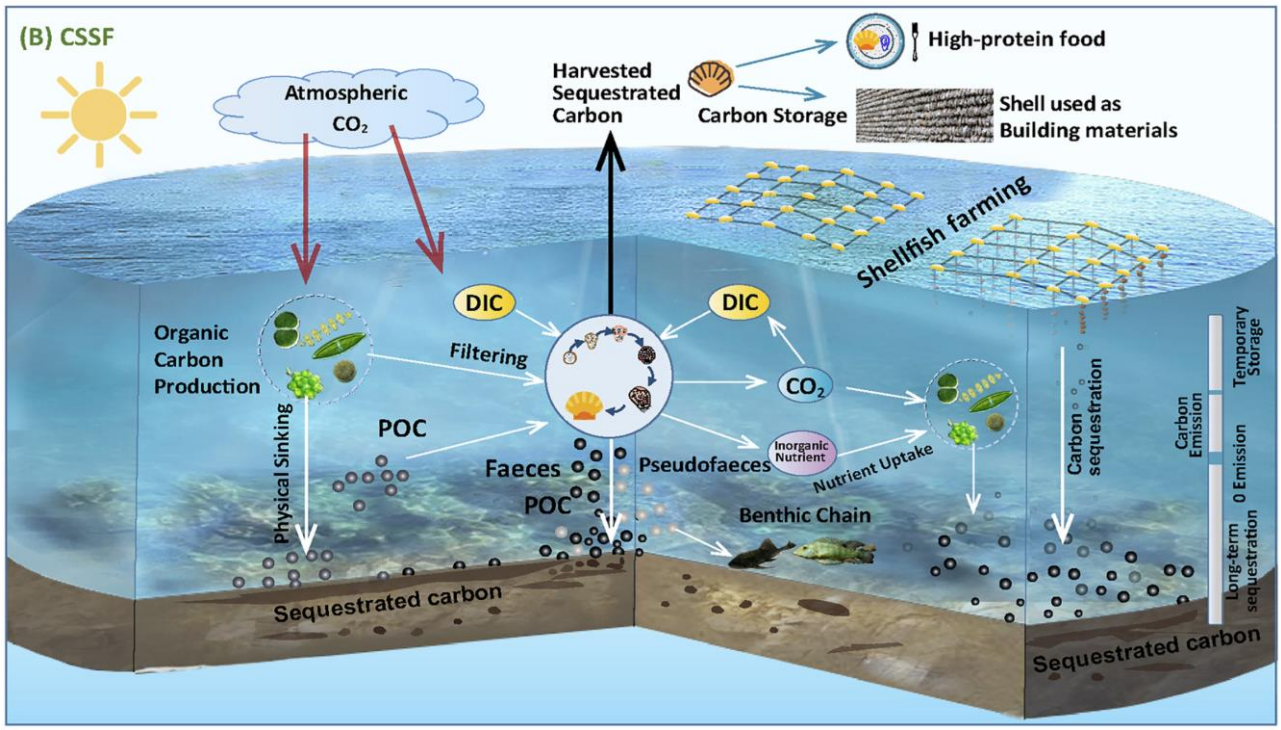

Figure | Schematic diagram illustrating the mechanisms of CSSF (Carbon Sequestration via Shellfish Farming). POC is particulate organic carbon, and DIC is dissolved inorganic carbon. The carbon emission bars represent the carbon budgets of CSSF. The blue square inside indicates that the carbon emission is 0 from the beginning to the current stage, and after/below this stage the emission is negative. In CSSF, the 0 emission represent that the CO_2 is first captured by phytoplankton, and then released via shellfish metabolization. After the DIC is isolated in the shell, and the POC sequestrated in soft tissue and seabed, the total carbon in CSSF emissions is negative.

NEWS

01 **THEME:** Policy Incentives, Financing, Pricing

UN ocean summit in Nice closes with wave of commitments

June 13, 2025 | United Nations (UN) |

The 3rd UN Ocean Conference concluded in Nice, France, drawing 15,000 participants, including over 60 heads of state, and resulted in the adoption of the Nice Ocean Action Plan. This framework includes a political declaration and over 800 voluntary commitments aimed at expanding marine protection, reducing pollution, and enhancing governance of international waters. Key announcements included France's Polynesia establishing the world's largest marine protected area (MPA), a €1 billion investment by the European Commission, and Germany's €100 million project to clear underwater munitions. The conference significantly boosted the ratification of the High Seas Treaty, moving it closer to implementation, and set the stage for ongoing global collaboration toward ocean sustainability targets.

02 **THEME:** Policy Incentives, Financing, Pricing

ASEAN, Japan, and UNDP launch blue carbon and finance profiling project to accelerate sustainable blue economy in Southeast Asia

May 21, 2025 | United Nations Development Programme (UNDP) |

ASEAN, Japan, and UNDP launched the ASEAN Blue Carbon and Finance Profiling (ABCF) Project in Jakarta, aimed at strengthening the sustainable management of blue carbon ecosystems. This initiative involves mapping, valuing, and financing carbon stored in marine and freshwater ecosystems across ASEAN countries and Timor Leste. Funded by Japan, the ABCF project aligns with the ASEAN Blue Economy Framework, enhancing technical capacity and developing finance-ready strategies. It aims to unlock economic potential and climate resilience, addressing regional gaps in ecosystem management through innovative policy and financing solutions. The project will inform national and ASEAN-level policies, attracting investment for coastal ecosystem conservation.

03 **THEME:** Carbon Sequestration

Japan plans offshore blue carbon study to explore CO_2 capture & storage

May 21, 2025 | Carbon Herald |

Japan has initiated an offshore blue carbon research project to explore carbon capture and storage through marine vegetation, including kelp and mangroves. The Environment Ministry, Japan Agency for Marine-Earth Science and Technology, and Eneos Corp. will collaborate to study CO_2 sequestration in deep-sea environments and assess environmental impacts. This initiative aims to enhance Japan's strategy for achieving net-zero emissions by 2050. By developing blue carbon technology, Japan plans significant carbon absorption targets: 1 million tons by 2035 and 2 million tons by 2040, supplementing declining forest carbon capture capacities and leveraging the ocean's natural carbon storage potential.

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04 **THEME:** GHG Emission Reduction

Australian seaweed farm tackles livestock burps to combat climate change

May 15, 2025 | the japan times |

Off Tasmania's coast, a 1,800-hectare seaweed farm is cultivating the red seaweed asparagopsis, known to significantly reduce methane emissions in livestock. Research by the University of New England shows the seaweed, rich in bromoform, can suppress up to 95% of livestock methane emissions without adverse health or meat quality impacts. Sea Forest, the farm operator, is collaborating with dairy and burger companies domestically and internationally. With global livestock emissions accounting for substantial methane pollution, this initiative presents an effective, sustainable solution, harnessing marine ecosystems without the need for fertilizers or irrigation.

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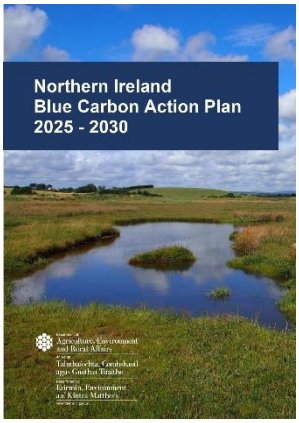
05 **THEME:** Policy Incentives, Financing, Pricing

Muir launches Northern Ireland's first Blue Carbon Action Plan

April 27, 2025 | Farming Life |



Northern Ireland's DAERA Minister Andrew Muir has unveiled the region's inaugural Blue Carbon Action Plan, aiming to protect and enhance habitats like saltmarsh, seagrass, kelp, and mussel beds. These ecosystems are crucial for absorbing carbon dioxide, mitigating climate change impacts, and supporting biodiversity. The plan outlines 22 targeted actions emphasizing nature-based solutions and ecosystem restoration. Developed collaboratively with diverse stakeholders, the plan prioritizes immediate action to address the intertwined crises of climate change and biodiversity loss, setting a framework for sustainable coastal ecosystem management from 2025 to 2030.

06 **THEME:** Policy Incentives, Financing, Pricing

In a warming world, agriculture must be at the heart of climate and clean air action

April 30, 2025 | The United Nations |

The Climate and Clean Air Conference in Brazil emphasized agriculture's crucial role in reducing short-lived climate pollutants (SLCPs) such as methane, black carbon, and nitrous oxide—potent drivers of global warming and air pollution. The agrifood sector, heavily impacted by climate extremes and pollution, holds solutions through sustainable practices like improved livestock management, innovative crop residue use, and targeted fertilizer application. Coordinated international action, increased climate finance, and supportive policies are essential to leverage agriculture's potential, safeguarding food security and ecosystem health globally, ahead of COP30 in November 2025.

07 **THEME:** Policy Incentives, Financing, Pricing

Pintung launches seagrass restoration on Earth Day with 1,000 seeds planted

April 1, 2025 | CNA Net Zero (in Chinese)|

On Earth Day, Taiwan's Pingtung County marked the planting of 1,000 seagrass seeds as part of a restoration initiative led by the Taiwan SPCA and the Fisheries Research Institute. Seagrass fruits were collected from Haikou, home to Taiwan's largest seagrass bed, dominated by the ecologically vital *Thalassia hemprichii*. A Memorandum of Understanding signed with the Taitung Fishermen's Association supports restoration efforts, with the Taitung Fushan Marine Reserve designated as a pilot site. The project aims to enhance biodiversity and protect marine habitats essential to species like sea turtles and dugongs.

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08 **THEME:** MRV (Measurement, Reporting, Verification)

Taiwan launches Verified Carbon Reduction Guidelines for rural engineering

May 13, 2025 | Agency of Rural Development and Soil and Water Conservation (in Chinese) |

Taiwan's Agency of Rural Development and Soil and Water Conservation has launched the country's first internationally verified carbon reduction guidelines for rural and conservation engineering, aligned with the 2040 Net-Zero Policy. Certified by BSI, the new guide includes 1,320 engineering activities across eight categories and provides methods for emissions estimation, carbon control, and reduction strategies. Effective May 2025, it supports project planning, review, and execution. With a 12.98% carbon reduction achieved in 2024, the guideline institutionalizes carbon management and will guide future green engineering, training, and transparency efforts.

POLICY

01 THEME: Sustainable Production; Net-Zero Strategy

EU: Climate Change and the Common Fisheries Policy

European Commission | Policy | Report |

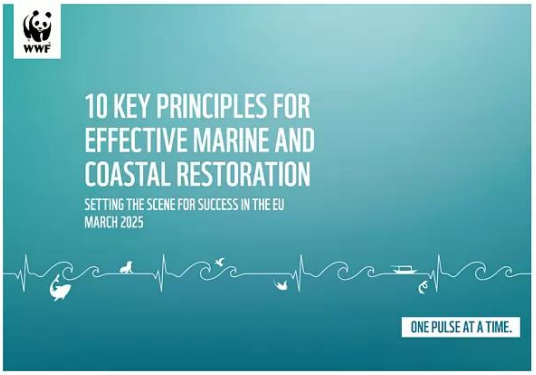
The European Union (EU) Common Fisheries Policy (CFP), formalized in 2013, is a cornerstone for achieving environmental, economic, and social sustainability in marine wild capture fisheries. It promotes science-based management, regionalization, discard bans, fleet controls, and measures against illegal, unreported and unregulated (IUU) fishing. In 2023, the European Commission advanced this framework through a comprehensive "Fisheries & Oceans" package, which included a forward-looking Communication on the CFP's future, a Marine Action Plan, an Energy Transition Initiative, and a review of the Common Market Organisation (CMO). The "Pact for Fisheries and Oceans" further promotes inclusive implementation, innovation, and transparency.

Complementing this, an EU report assesses the CFP's effectiveness under climate change stressors. Using simulations and case studies, it finds that well-managed, low-mortality stocks exhibit greater resilience, although recovery may be delayed by environmental shifts. Fleet resilience varies due to economic constraints. The study also highlights the need to reduce greenhouse gas (GHG) emissions by promoting energy-efficient technologies and low-impact fishing practices. However, uptake is limited by funding, knowledge, and regulatory barriers. It recommends enhancing adaptive management, data collection, and incentives to support decarbonization—aligning the CFP with the EU's broader climate goals.

02 THEME: Nature-based solutions

WWF: 10 Key Principles for Effective Marine and Coastal Restoration

World Wide Fund for Nature (WWF) | Source | Report |



This WWF report introduces a science-based framework to guide EU Member States in implementing marine and coastal restoration under the 2024 Nature Restoration Law (NRL). As over 40% of the EU population lives in coastal areas, and with marine ecosystems facing rapid degradation from climate change, overfishing, and pollution, urgent and strategic restoration is essential. The publication outlines **10 key principles** drawn from peer-reviewed research and case studies, emphasizing baseline ecosystem assessment, identification of degradation drivers, stakeholder engagement, adaptive management, and long-term resilience.

Key recommendations include prioritizing passive over active restoration when feasible, ensuring transboundary cooperation, integrating restoration targets into existing EU directives, and avoiding "paper parks" through robust policy alignment and monitoring. The report serves as a practical checklist for developing National Restoration Plans, and aims to support the EU's goals to restore 20% of degraded marine areas by 2030 and all such areas by 2050.

03 THEME: Sustainable Production; Sustainable Consumption

WWF: Delivering a Framework for Sustainable Blue Food in the EU

World Wide Fund for Nature (WWF) | Source | Report |

This WWF's policy brief calls for the urgent integration of seafood into the forthcoming EU Sustainable Food Systems Framework (SFSF), emphasizing its critical role in reversing biodiversity loss, reducing climate emissions, and securing ocean-based livelihoods. Despite its expected release in late 2023, the legislative proposal has been delayed, raising concerns ahead of the 2024 European elections. As the EU imports over 70% of the seafood it consumes, with an average intake of 24 kg per capita annually, WWF urges legally binding SFSF measures to address unsustainable production, excessive imports, and poor traceability. The report outlines 5 priority actions:

1. **Shift consumption** to less, more sustainable seafood;
2. **Ensure affordability** of eco-friendly seafood without subsidies for high-impact sources;

3. **Improve accountability** across the supply chain with traceability and due diligence;
4. **Support a climate-neutral system** through decarbonized fisheries and aquaculture;
5. **Provide better information** via transparent and sustainability-based labelling.

WWF urges the EU to incorporate seafood within the SFSF to align with its Green Deal, marine strategies, and global biodiversity and climate goals.

04 THEME: Sustainable Production

OECD: Sustainable Fisheries Management in a Changing Climate

Organisation for Economic Co-operation and Development (OECD) | Source | Report |

Effective fisheries management is essential for sustainability, economic performance, and resilience in the face of climate change. According to the OECD Review of Fisheries 2025, 81% of assessed fish stocks are healthy, confirming the success of science-based management. However, only 59% of these meet productivity targets, and many valuable stocks remain unassessed due to limited capacity. Poorly managed or unassessed fisheries are more vulnerable to overfishing, illegal practices, and climate-related disruptions.

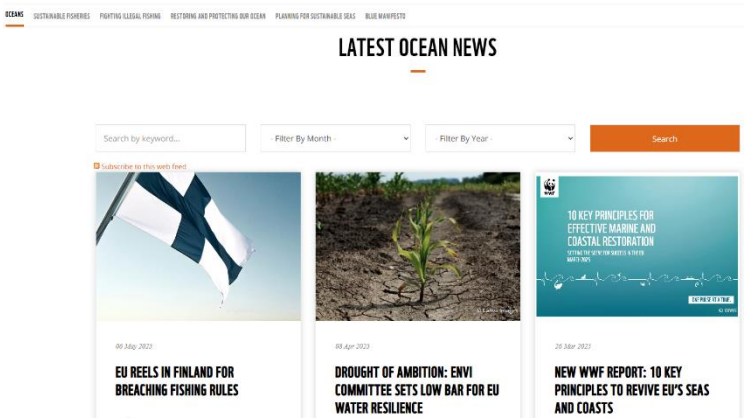
Climate change further complicates management, as rising ocean temperatures and shifting currents alter fish stock locations and viability. To address this, the brief calls for adaptive, data-driven governance, including regular stock assessments, dynamic catch limits, and strengthened international cooperation. Key recommendations include scaling up low-cost stock assessment tools, embedding climate adaptation strategies in management rules, and ensuring socio-economic support for communities impacted by climate-driven changes. Investing in sustainable management is a "win-win-win" for ocean health, fisher livelihoods, and global food security.

OPEN DATA

01 THEME: Environment and Climate; Climate Action Plans and Programs

World Wide Fund for Nature: Oceans

World Wide Fund for Nature (WWF) | Source |



WWF's Oceans programme works with the EU, Member States, industry, and civil society to foster a healthy, resilient marine environment and blue economy. Key focus areas include:

- **Sustainable Fisheries:** Advocates full implementation of the EU Common Fisheries Policy and traceability systems to curb overfishing and bycatch, aiming for economically and environmentally viable seafood systems.
- **Fighting Illegal Fishing:** Pushes for rigorous enforcement of the EU Illegal, Unreported and Unregulated (IUU) Fishing Regulation, blocking imports of illegal seafood and enhancing global cooperation.
- **Restoring and Protecting Our Ocean:** Champions legally binding targets under the Biodiversity Strategy and Nature Restoration Law, striving for 30% marine protection (10% strict) by 2030, with effective management of Marine Protected Areas (MPAs).
- **Planning Sustainable Seas:** Supports ecosystem-based Maritime Spatial Planning (MSP), promoting coherent integration of offshore renewable energy, fisheries, and conservation planning.
- **Blue Manifesto:** A coalition roadmap urging EU leaders to redirect harmful subsidies, eliminate pollution, enforce protection of 30% of EU waters, and finance sustainable ocean recovery by 2030.

WWF's Oceans platforms provide users with a wealth of open-access data, interactive tools, and downloadable materials to support science-driven marine conservation. Together, these platforms empower researchers, policymakers, and industry with rich geospatial, ecological, socioeconomic, and climate-linked marine data.

EVENT

01

UN Food Systems Summit +4 Stocktake (UNFSS+4)

July 27–29, 2025 | In-person | Addis Ababa, Ethiopia | Source |

Co-hosted by Ethiopia and Italy, the Summit marks the fourth anniversary of the 2021 UN Food Systems Summit. It will open with high-level participation from the UN Secretary-General, Heads of State, civil society, youth, Indigenous Peoples, small-scale farmers, and women's groups. Key objectives include assessing global and national progress in food systems transformation, enhancing multi-stakeholder accountability, and unlocking public, private, and concessional finance—particularly for SMEs, research, innovation, and climate-resilient infrastructure. Through structured investment dialogues, ministerial roundtables, high-level panels, and side events, UNFSS+4 aims to catalyze transformative pathways aligned with the 2030 SDGs. Regional preparatory meetings held earlier in 2025 will inform the Summit's agenda.

02

PAWEES 2025 Morioka Conference

October 27–28, 2025 | In-person | Morioka City, Japan | Source |

The PAWEES 2025 International Conference, themed **"Challenges and Innovations for Sustainable Paddy Agriculture with Climate Resilience and/or Ecosystem Services"**, will convene global experts to explore innovations in irrigation, drainage, ecosystem services, and smart technologies. The program features keynote speeches, oral and poster sessions, and an optional technical tour highlighting smart irrigation systems and regional heritage. Through multi-stakeholder exchange and knowledge sharing, the conference aims to advance climate-smart, resilient paddy-water systems and foster cross-regional collaboration. Online registration opened on June 1.

03

CANVAS 2025

November 9–12, 2025 | Hybrid | Salt Lake City, Utah, USA | Source |

The CANVAS 2025 Conference, hosted by the American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and Soil Science Society of America (SSSA), is the premier international forum for agronomy, crop, and soil science professionals. Designed for emerging leaders across academia, industry, and government, the event features keynote addresses, technical sessions, workshops, field tours, student programming, and an innovation-focused exhibit hall. Highlighted ASA tracks include global agronomy, climatology, education, and land management; CSSA programs span crop genetics, physiology, seed technology, and plant health; and SSSA sessions explore soil fertility, water management, urban soils, and biogeochemistry. CANVAS 2025 aims to drive sustainable agricultural innovation and foster inclusive professional networks.

04

The 2025 UN Climate Change Conference (UNFCCC COP 30)

November 10–21, 2025 | Hybrid | Belém, Brazil | Source |

The COP30, led by President-designate André Corrêa do Lago, Brazil's priorities include defending multilateralism, science-based ambition, climate justice (with notable Indigenous leadership), and launching major initiatives, such as the Tropical Forest Forever Facility to mobilize finance for forest conservation. Key focus areas include reviewing updated NDCs, scaling climate finance (Baku-Belém roadmap), and accelerating the phase-out of fossil fuels while emphasizing renewable energy, sustainable agriculture, and forest preservation.

05

The 4th Precision Dairy Farming Conference

December 3–5, 2025 | In Person | Christchurch, New Zealand | Source |

The Conference, hosted by DairyNZ, marks its inaugural appearance in the Southern Hemisphere and brings together farmers, researchers, industry experts, and technology developers. Over three days, participants will engage in farm tours, plenaries, concurrent sessions, a conference dinner, and networking opportunities focused on automation, sensors, robotics, digital tools, and data-driven insights for sustainable pasture-based dairy systems. An "Emerging Scientists" session and award will spotlight early-career research aligned to these themes. As New Zealand leads in pasture-based dairy innovation, this event aims to accelerate real-world tech adoption and global collaboration.

06

2026 International Conference on Biodiversity, Ecology and Climate Change (ICBECC-2026)

January 29–30, 2026 | Hybrid | Ottawa, Canada | Source |

This International Conference ICBECC-2026, organized by IGRNet, brings together leading scholars, researchers, and young scientists to present and discuss cutting-edge research across biodiversity, ecology, climate change, ecosystem dynamics, environmental toxicology, bioenergy, agronomy, and related fields. Featuring keynote and speaker sessions, virtual and poster presentations, the event aims to foster global networking, methodological innovation, and cross-sector collaboration while showcasing early-career contributions.