

# Sustainable Fisheries and Climate Change

## - The ClimeFish H2020 EU project

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ClimeFish

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# ClimeFish – Adapting to a changing world

Co-creating a decision support framework to ensure that the increase in seafood production comes in areas and for species where there is a potential for sustainable growth, given the expected climate scenarios

**Project Coordinator:** UiT - The Arctic University of Norway

**Project leader:** Professor Michaela Aschan

**Consortium:** 21 participants from 16 countries

**Duration:** 2016-2020

**Granted:** 5 MEUR

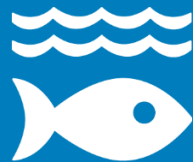


# Climate change: The ocean challenge



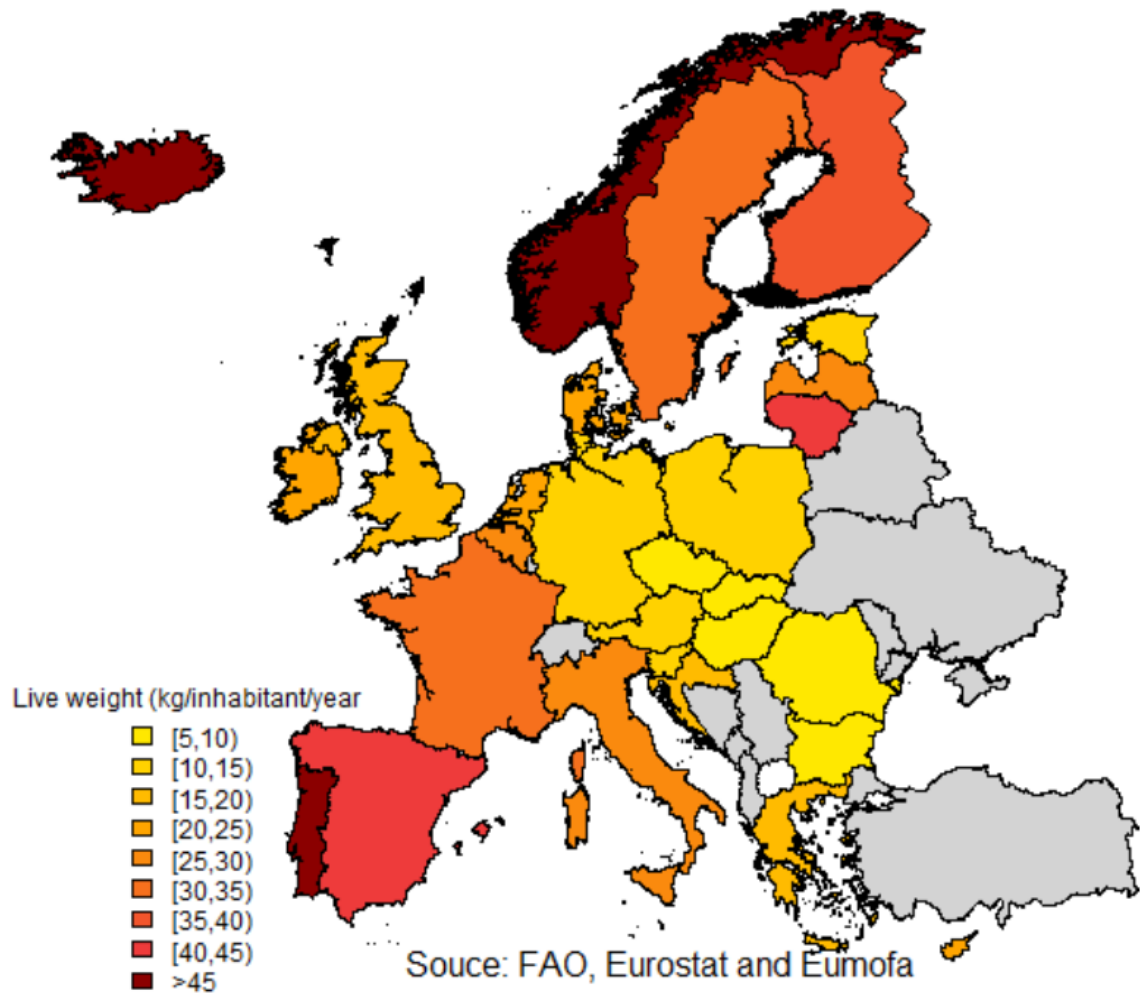
## **SUSTAINABLE DEVELOPMENT GOAL 14**

Conserve and sustainably use the oceans, seas and marine resources for sustainable development





# Fish and food security



## COMMENT

**POLICY** Rubric for prioritizing action on the Sustainability Development Goals **p.328**

**PHYSICS** A fond history of the Cavendish, a lab with few rivals **p.323**

**FW** Biomechanics adviser to *Finding Dory* in conversation **p.325**

**REPORTING** A call to shun predatory journals **p.326**

Women from a traditional sea-harvesting community fishing in Mozambique.

### Fall in fish catch threatens human health

Christopher Golden and colleagues calculate that declining numbers of marine fish will spell more malnutrition in many developing nations.

**H**ow will the 10 billion people expected to be living on Earth by 2050 obtain sufficient and nutritious food? This is one of the greatest challenges humanity faces. Global food systems must supply enough calories and protein for a growing human population and provide important micronutrients such as iron, zinc, omega-3 fatty acids and vitamins. Deficiencies of micronutrients — so called because the body needs them only in tiny amounts — can increase the risks of perinatal and maternal mortality, growth retardation, child mortality, cognitive deficits and reduced immune function<sup>1</sup>. The associated burdens of disease are large. Forty-five per cent of mortality in children under five is attributable to undernutrition; nutritional deficiencies are responsible for 50% of years lived with disability in children aged four and under<sup>2</sup>.

Fish are crucial sources of micronutrients, often in highly bioavailable forms. And fish populations are declining. Most previous analyses have considered only how people will be affected by the loss of protein derived from fish. We calculate that this is the tip of the iceberg. Combining data on dietary nutrition, and fish catch, we predict that more than 10% of the global population could face micronutrient and fatty-acid deficiencies driven by fish declines over the coming decades, especially in the developing nations at the Equator (see ‘Troubled Waters’). This new view underlines the need for nutrition-sensitive fisheries policies.

**NUTRITIONAL RISK** Presently, 17% of the global population is zinc deficient, with some subpopulations being particularly at risk<sup>3</sup>. Nearly one-fifth of pregnant women worldwide have iron-deficiency anaemia and one-third are vitamin-A deficient<sup>4</sup>. We estimate that 845 million people (11% of the current global population) are poised to become deficient in one of these three micronutrients if current trajectories in fish-catch declines continue.

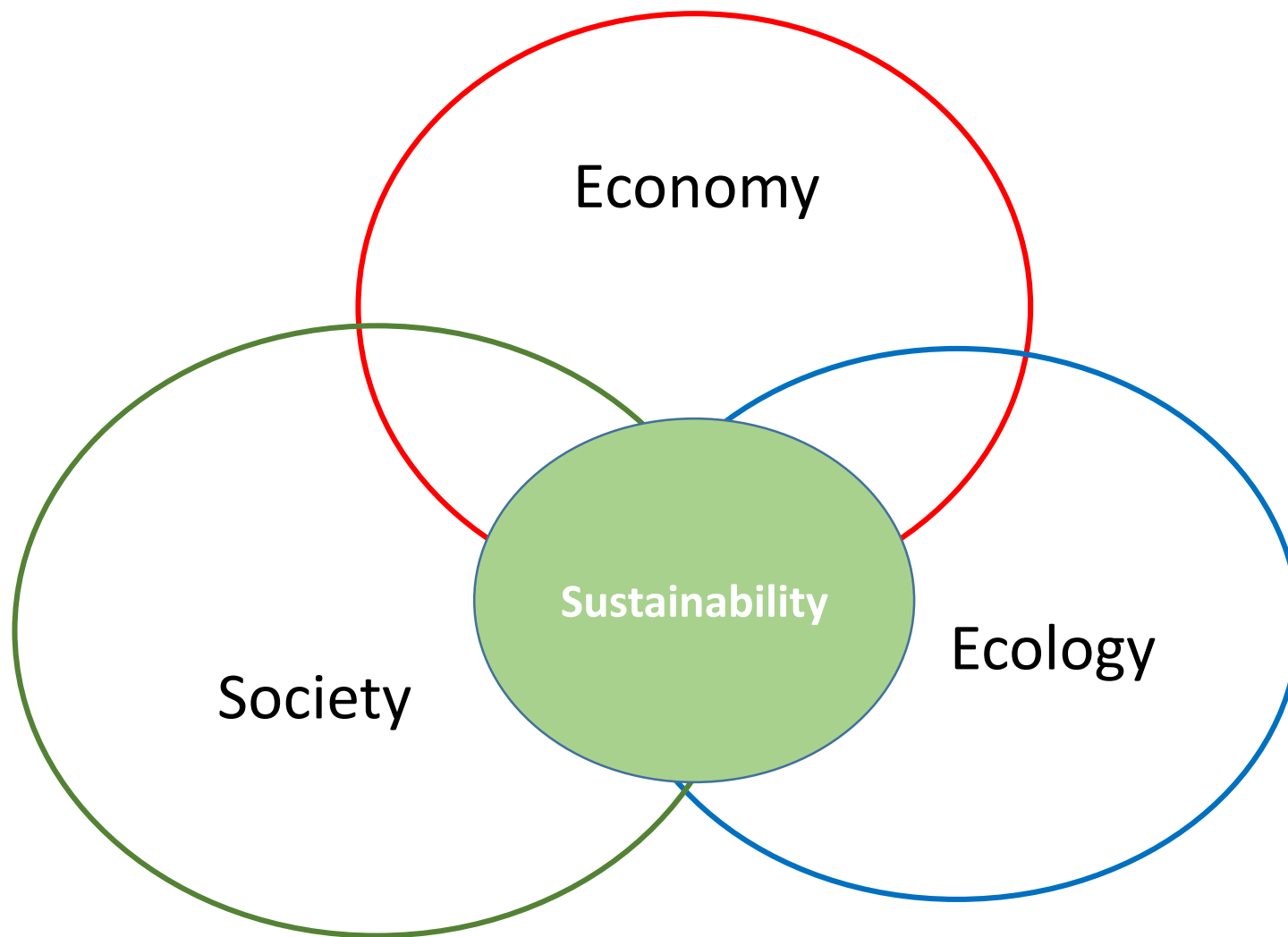
Considering nutrients found only in foods derived from animals, such as vitamin B<sub>12</sub> and DHA omega-3 fatty acids

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Per capita fish consumption in the EU in 2011 (Allison et al. 2016, Bene 2015, Golden et al. 2016)



# Sustainability is a balance act



# Impact generators of ClimeFish

## Effects of Climate Change



**Novel forecasting models to analyse changes in distribution and production**



**Early warning methodologies – traffic light system**



**Identify strategies for mitigating risk and utilizing opportunities**



**The case-specific MPs**



**Guidelines for making climate-enabled MPs**

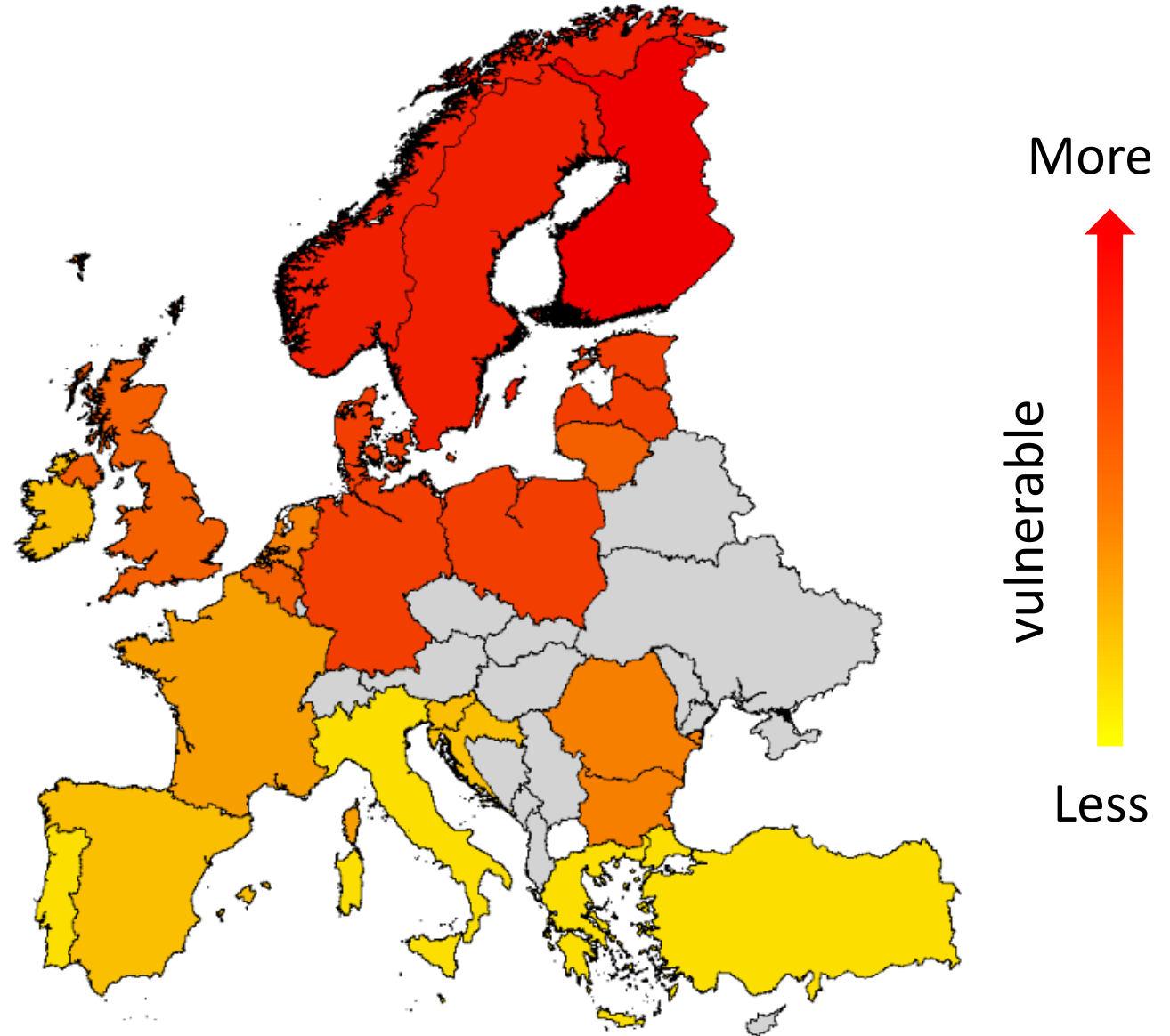


**The ClimeFish DSS**

**Co-creation approach and iterative process**

# Vulnerability map

**Fisheries production is more vulnerable to temperature change in the north than in the south due to cold water species**



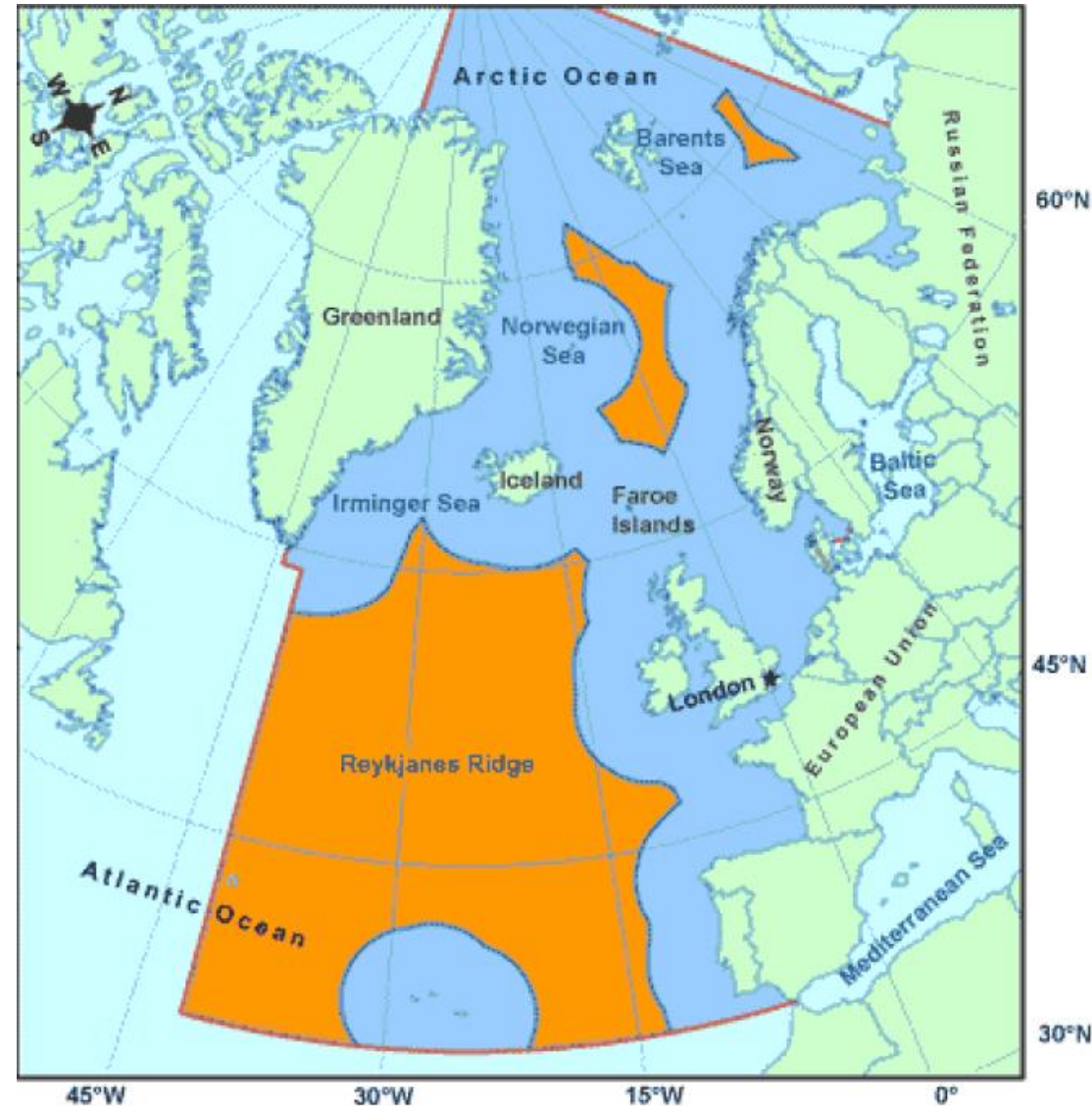


# Risks and Opportunities in NE Atlantic Fisheries

- Calanus, mackerel and blue whiting are increasing
- Herring is decreasing

Member states:

- Denmark
- EU
- Norway
- Iceland
- Russia



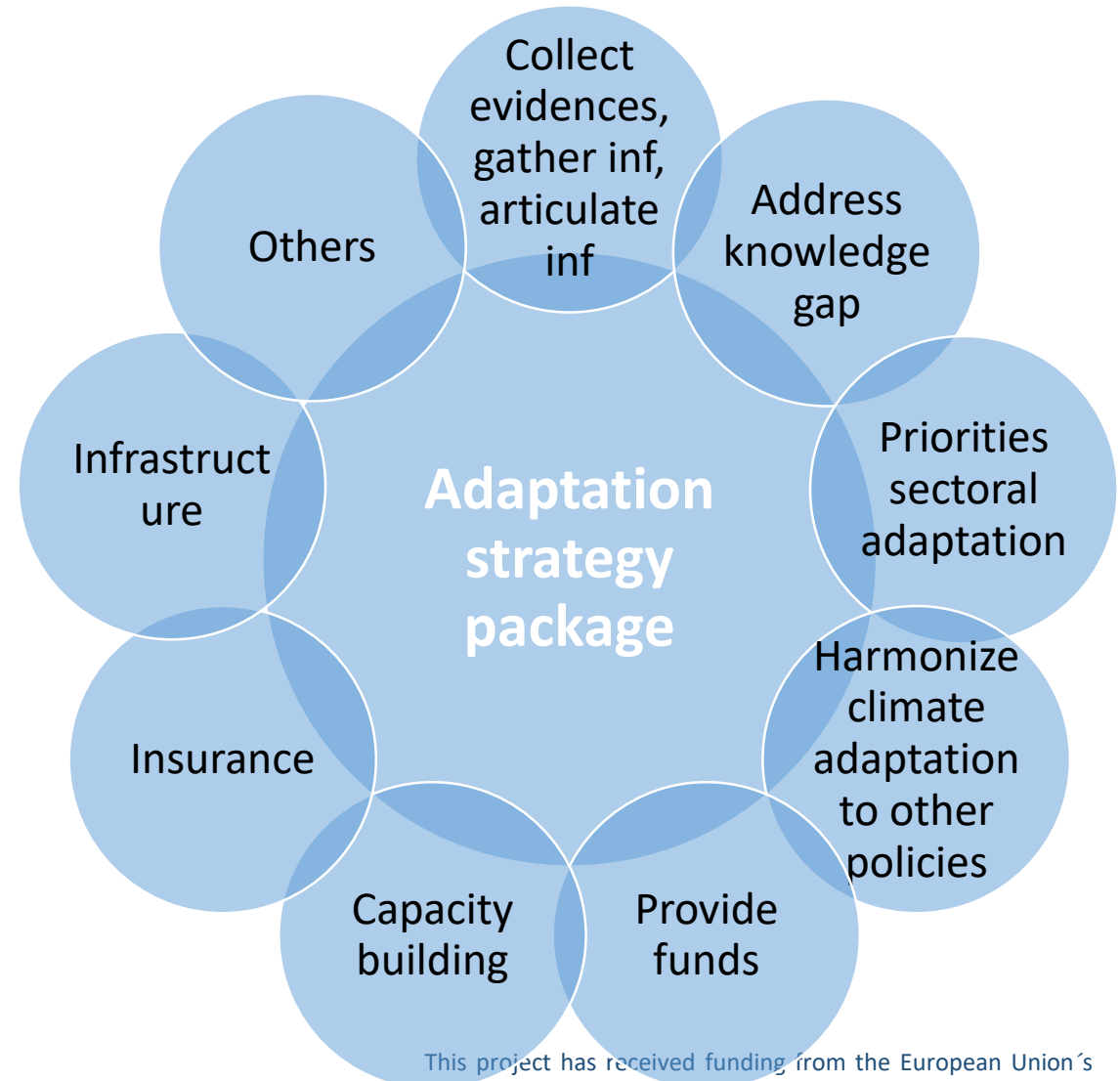


# ClimeFish designs an Adaptation Strategy Package to integrate into the Common Fisheries Policies

**Develop guidelines on making  
Climate Adaptation Plans to become  
a European voluntary standard  
(CWA)**



European Committee for Standardization



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# Integrate the Adaptation Strategy Package into other relevant arenas and policies

International



European



Operationalize

EU Climate Adaptation Strategy

**CFP**

MSFD

WFD, Integrated Maritime Policy, Habitat & Bird Directives, EU food 2030

Supported by  
ClimeFish

# Upcoming events

**9<sup>th</sup> October 1<sup>st</sup> ClimeFish Round table meeting**

**10<sup>th</sup> October ClimeFish CWA Standard Kick-off Meeting**

**Czech Liaison Office for Research, Development & Innovation (CZELO), Rue du Trône 98, 1050 Brussels, Belgium**

[www.ClimeFish.eu](http://www.ClimeFish.eu)



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