Hvordan vil klimaet påvirke akvakultur i Europa frem mot 2050?



Elisabeth Ytteborg

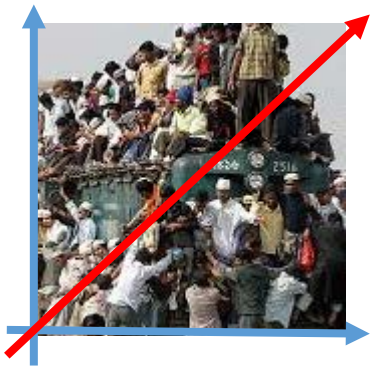
Nofima

Klimamarin
Trondhjem 16-17. November 2016

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Globale utfordringer



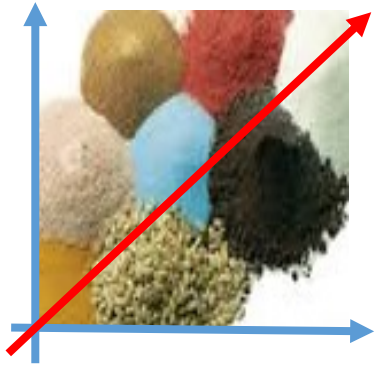
BEFOLKNING



MAT



VANN



RESSURSER



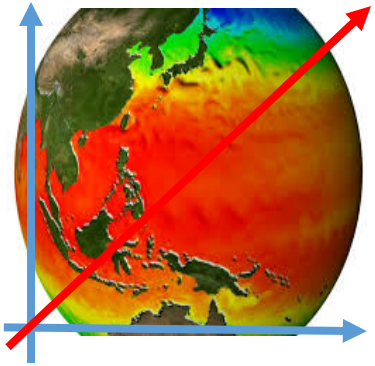
SØPPEL



ENERGI



CO2-UTSLIPP



TEMPERATUR



NEDBØR



TØRKE

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Hvordan kan vi produsere nok mat til den voksende befolkningen uten å ødelegge planeten?

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Mer enn 40% av jordens dyrkbare landareal er ryddet for landbruk

Jordbruk er en av de største bidragsyterne til klimaforandringer

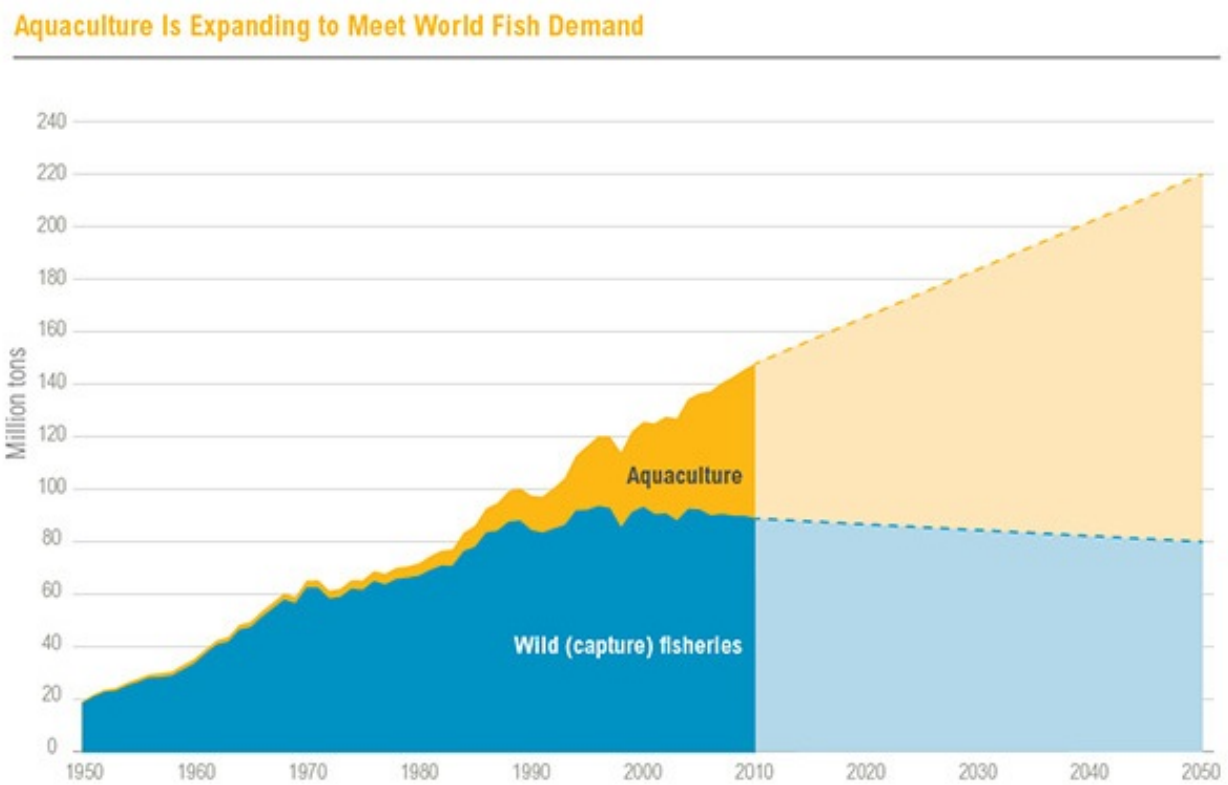
85% av verdens fiskearter er allerede utnyttet



Bare 2% av maten vi spiser kommer fra havet

Fremtiden ligger i Akvakultur

Frem mot 2050: 10% reduksjon i villfiskfangst, 2 mill tonn økning i året fra oppdrettet fisk

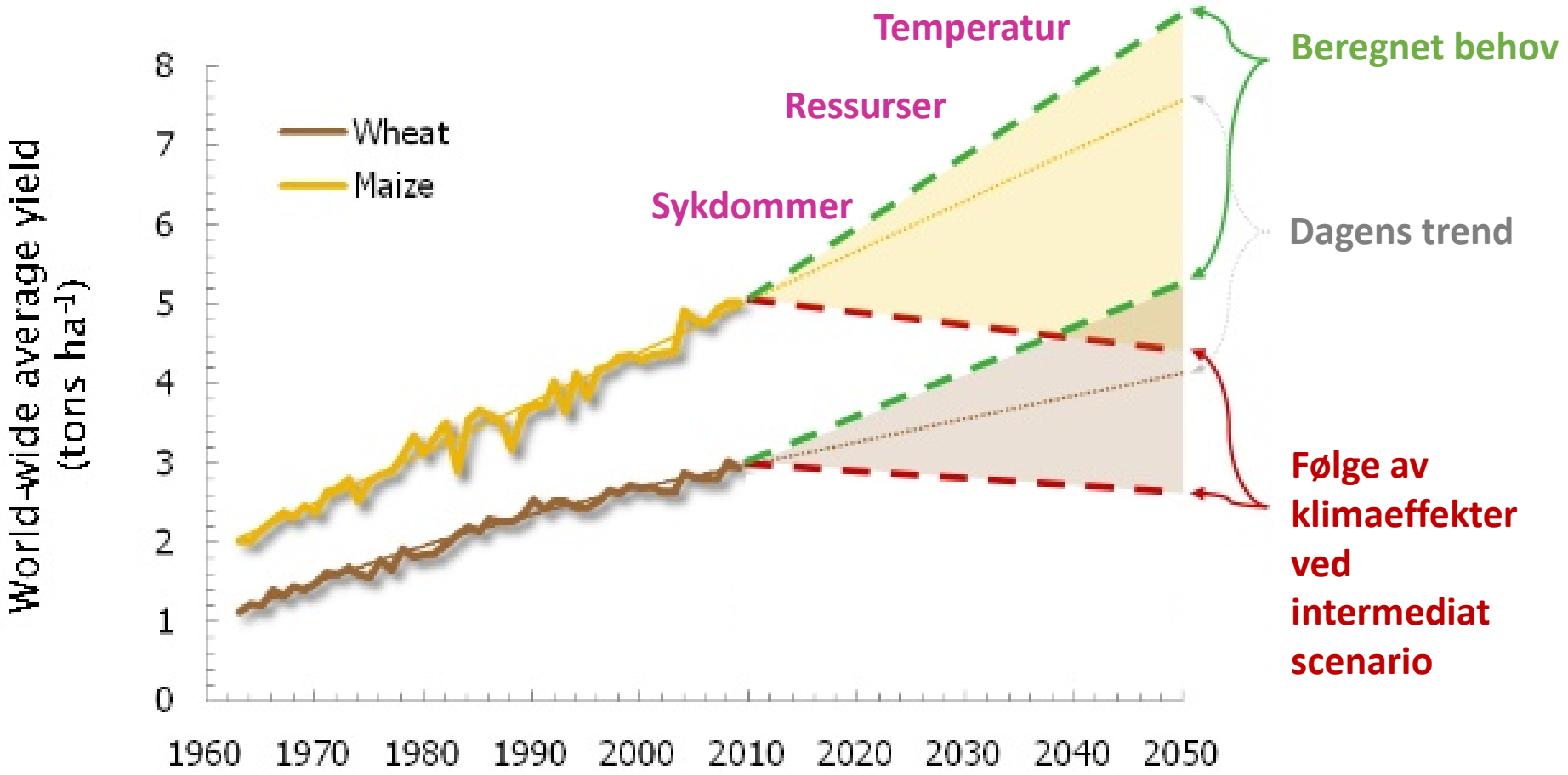


Source: Historical data 1950–2010: FAO. 2014. "FishStatJ." Rome: FAO. Projections 2011–2050: Calculated at WRI, assumes 10 percent reduction in wild fish catch between 2010 and 2050, and linear growth of aquaculture production at an additional 2 million tons per year between 2010 and 2050.

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Hvor mye kan produksjonen øke?

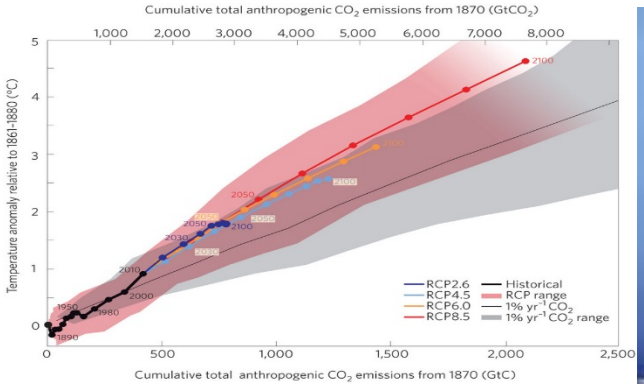


Projected demand by 2050 (FAO) at intermediate CO2 emission scenario, Gerard et al., 2014

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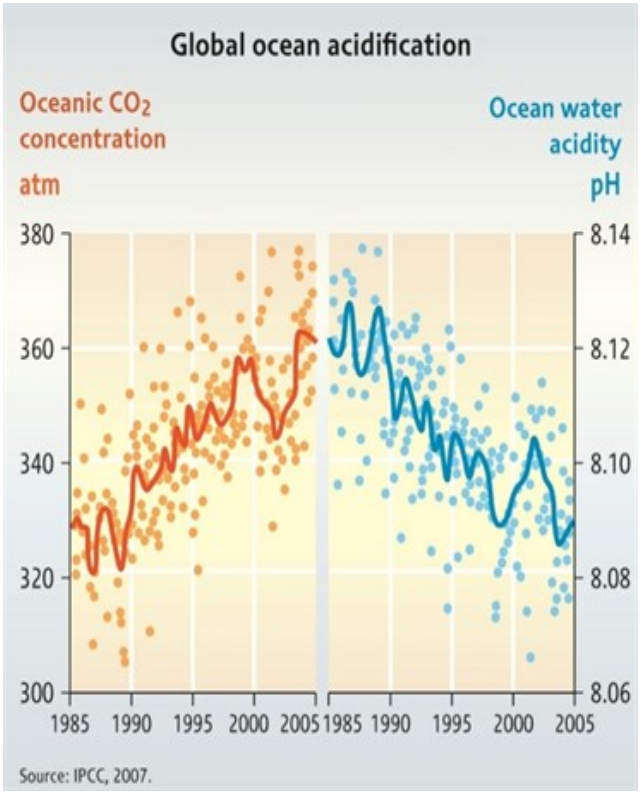
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Hvordan vil klimaet påvirke produksjonen i havet?





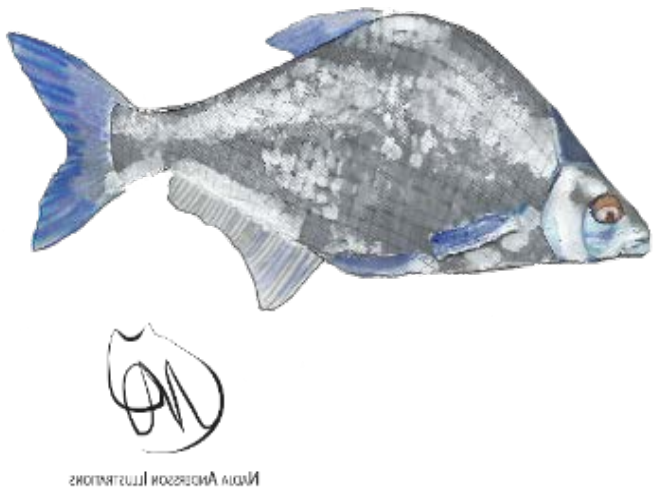




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Oppdrettsfisken kan ikke kan rømme fra klimaforandringene, den er helt avhengig av at næringen har et aktivt forhold til produksjonsbetingelsene



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ClimeFish – et Horizon 2020 prosjekt



Prosjektkoordinator: Universitetet i Tromsø

Prosjektleder: Michaela Aschan

Varighet: 48 mnd

Oppstart: 04/2016

Avsluttes: 03/2020

Bevilget: 5 MEUR

Webside: http://climefish.eu/

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21 partnere fra 16 land



- UiT, The Arctic University of Norway
- Memorial University of Newfoundland
- AVS Chile
- Biology Centre Czech Academy of Sciences
- International Council for the Exploration of the Sea
- Syntesa
- Federation of European Aquaculture producers
- Brabdeburg University of Technology Cottbus-Senftenberg
- Hellenic Center for Marine Research
- National Agriculture Research abd Innovation Centre
- Matís Ltd
- The Food and Agriculture Organization of the United Nations
- University of Venice
- The Institute of Marine Research in Norway
- The Norwegian Institute of Food, Fisheries and Aquaculture Research
- Centro Tecnológico del Mar
- The Spanish National Research Council
- University of Stockholm
- University of Aberdeen
- University of Stirling
- Nha Trang University

Utenfor Europa: Canada, Chile og Vietnam

Internationale organisasjoner: ICES, FEAP og FAO

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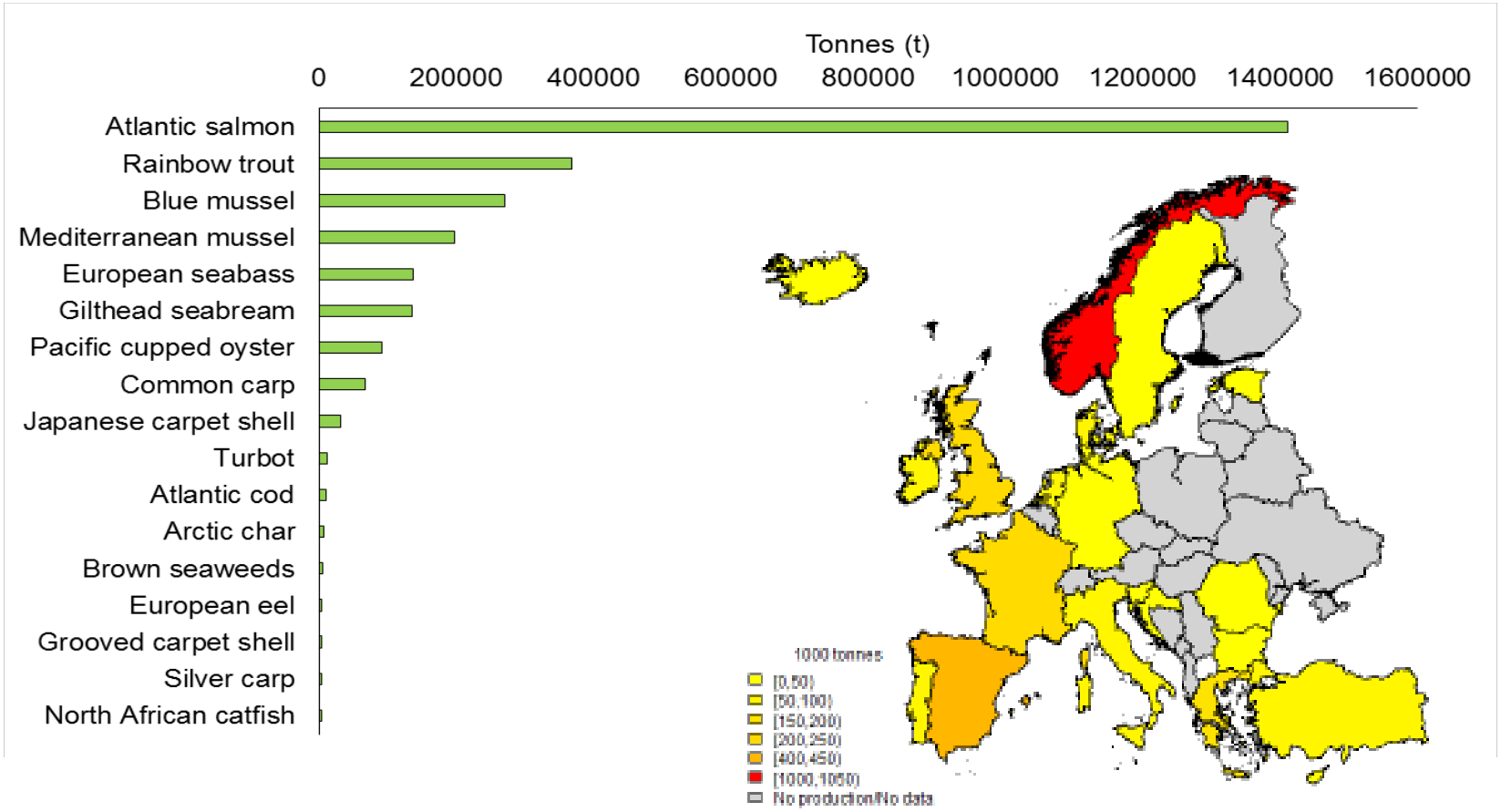


Hvilke effekter vil fremtidens klimascenarioer ha på fiskeri og akvakulturnæringen i Europa de neste 50 årene?

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Akvakulturproduksjon in Europa



Total produksjon i Europa: 2 365 474 tonn og 3.2 milliarder Euro (Tall fra FEAP 2015)

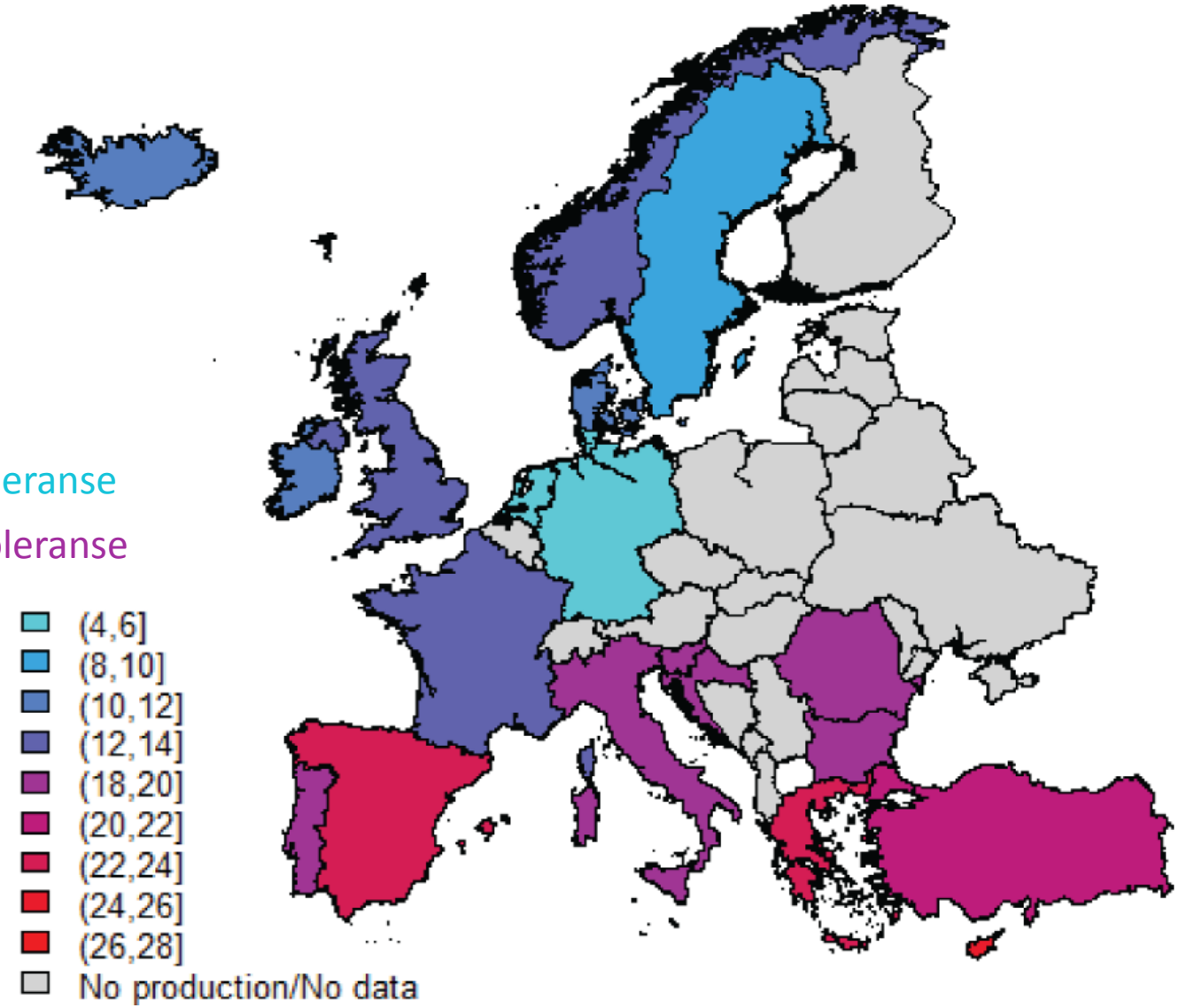
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Makstemperaturer for de mest utnyttede akvakultur-artene i Europa

Lav temperaturtoleranse

Høy temperaturtoleranse



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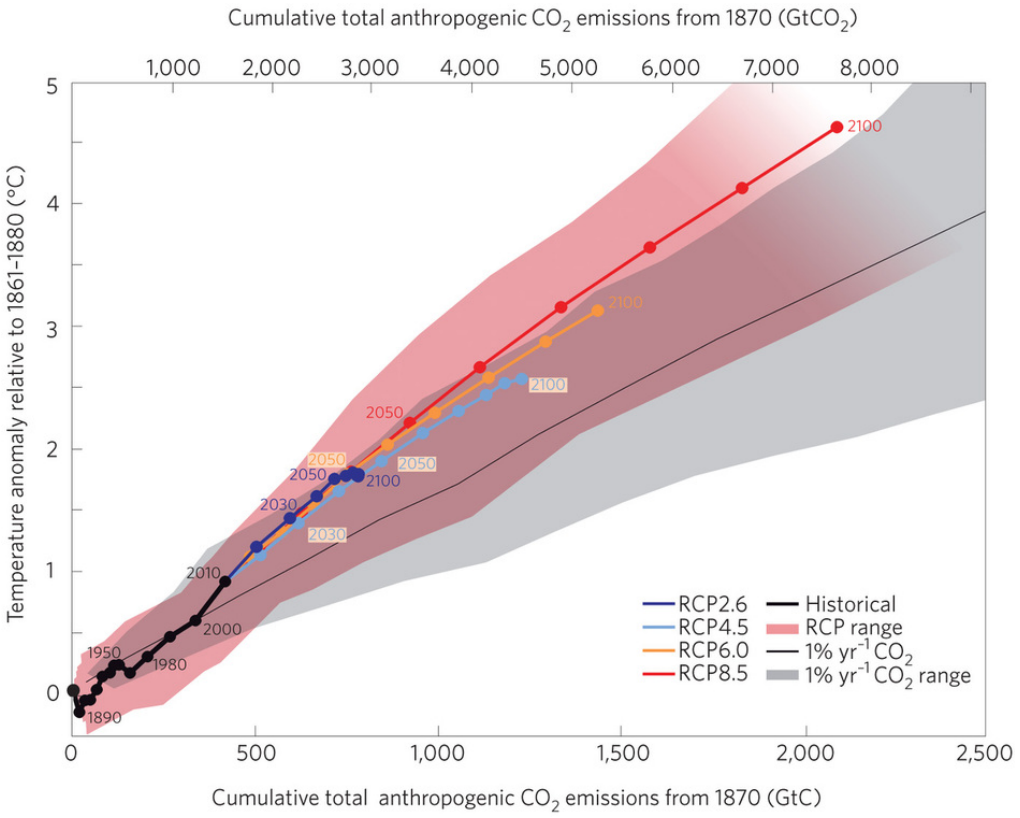
IPCC globale klimascenarioer

Lite sannsynlig

~~Optimistisk~~ scenario, RCP 2.6:
2°C varmere innen 2100

Mest sannsynlig scenario, RCP 4.5:
3°C varmere innen 2100

Verst tenkelig scenario, RCP 8,5:
4°C varmere innen 2100



Følger så langt 8.5 scenarioet, da dette er 'business as usual' scenarioet

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ClimeFish 16 Case Studies



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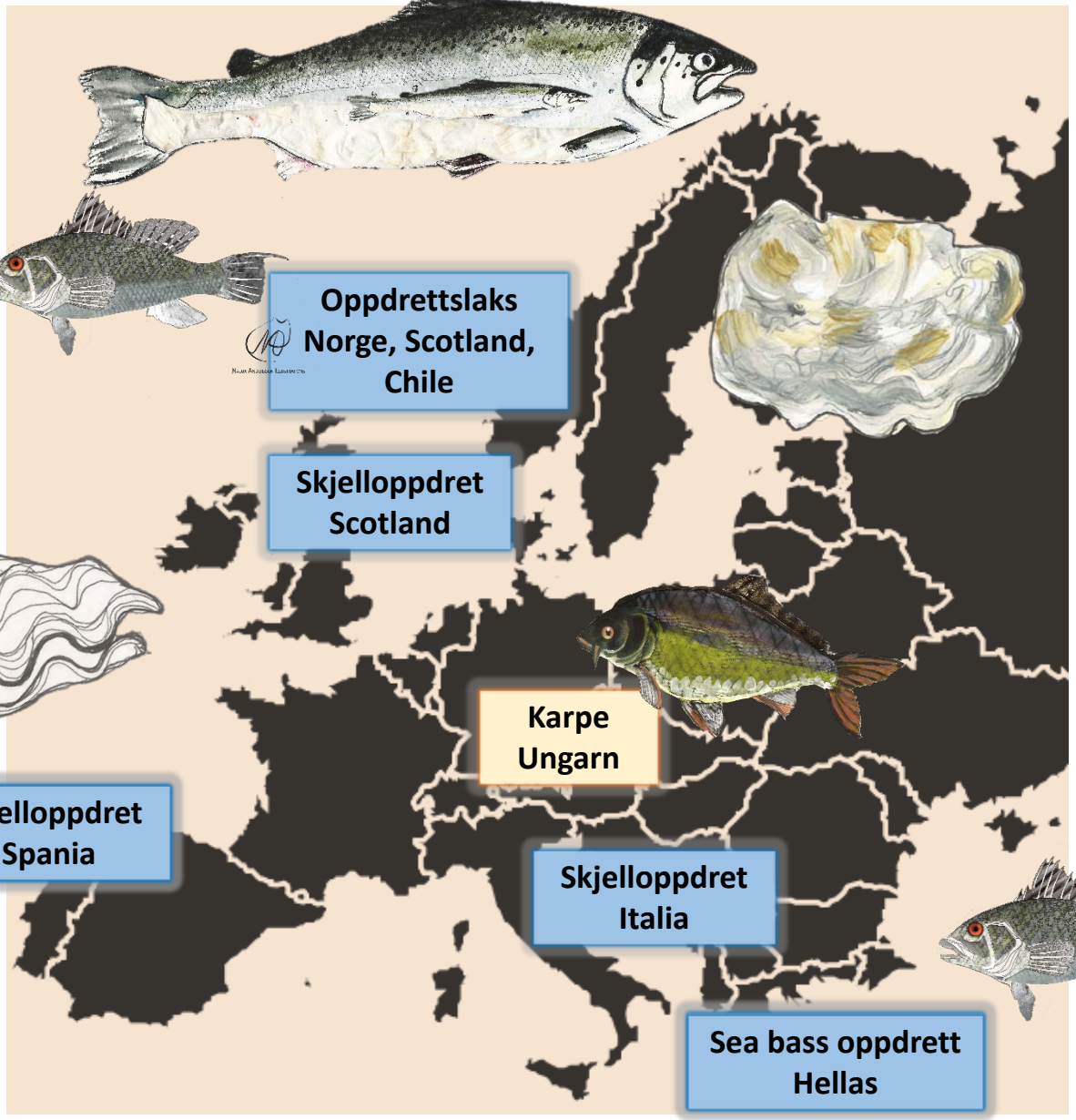
ClimeFish 6 akvakultur caser



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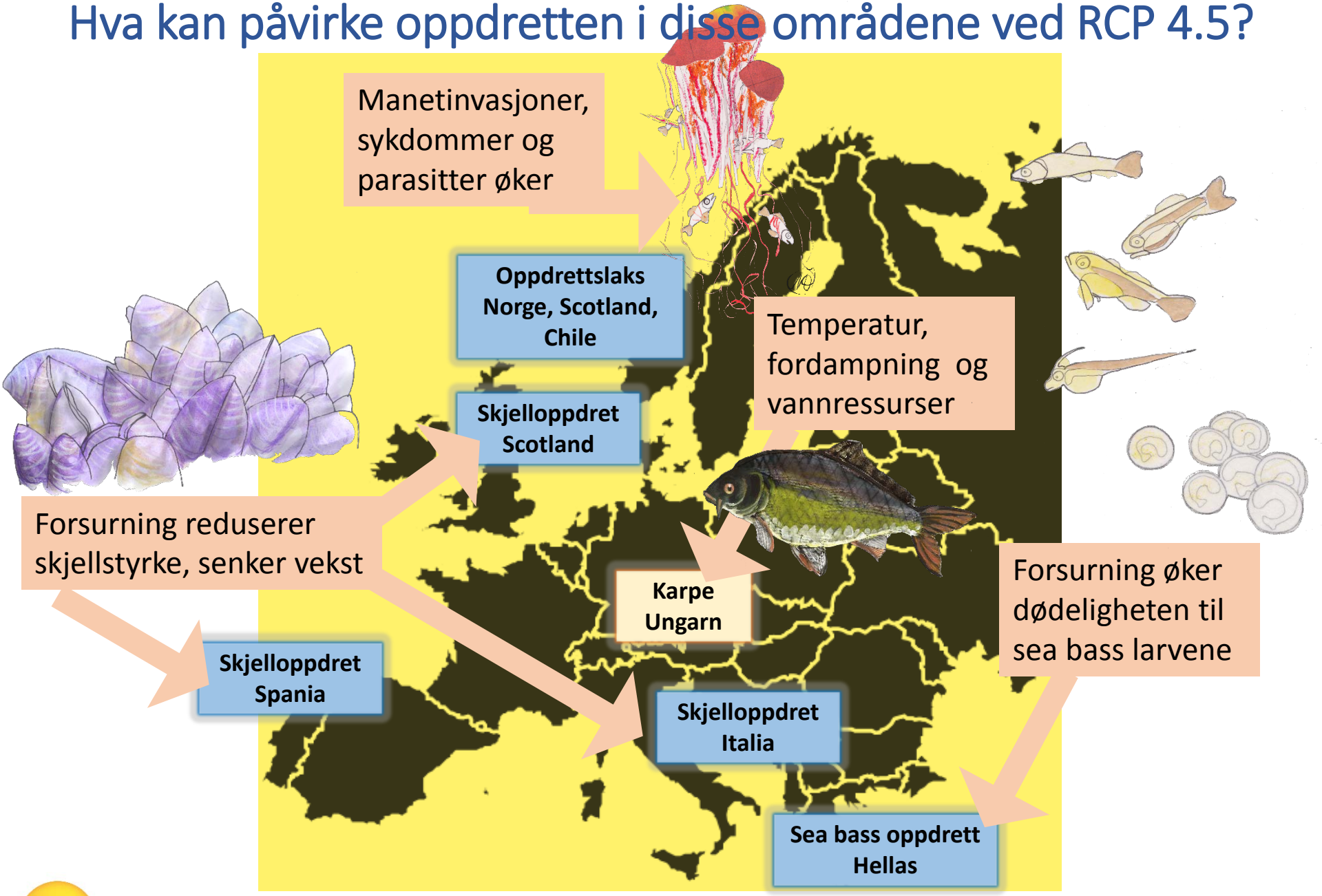
Hva kan påvirke oppdretten i disse områdene?



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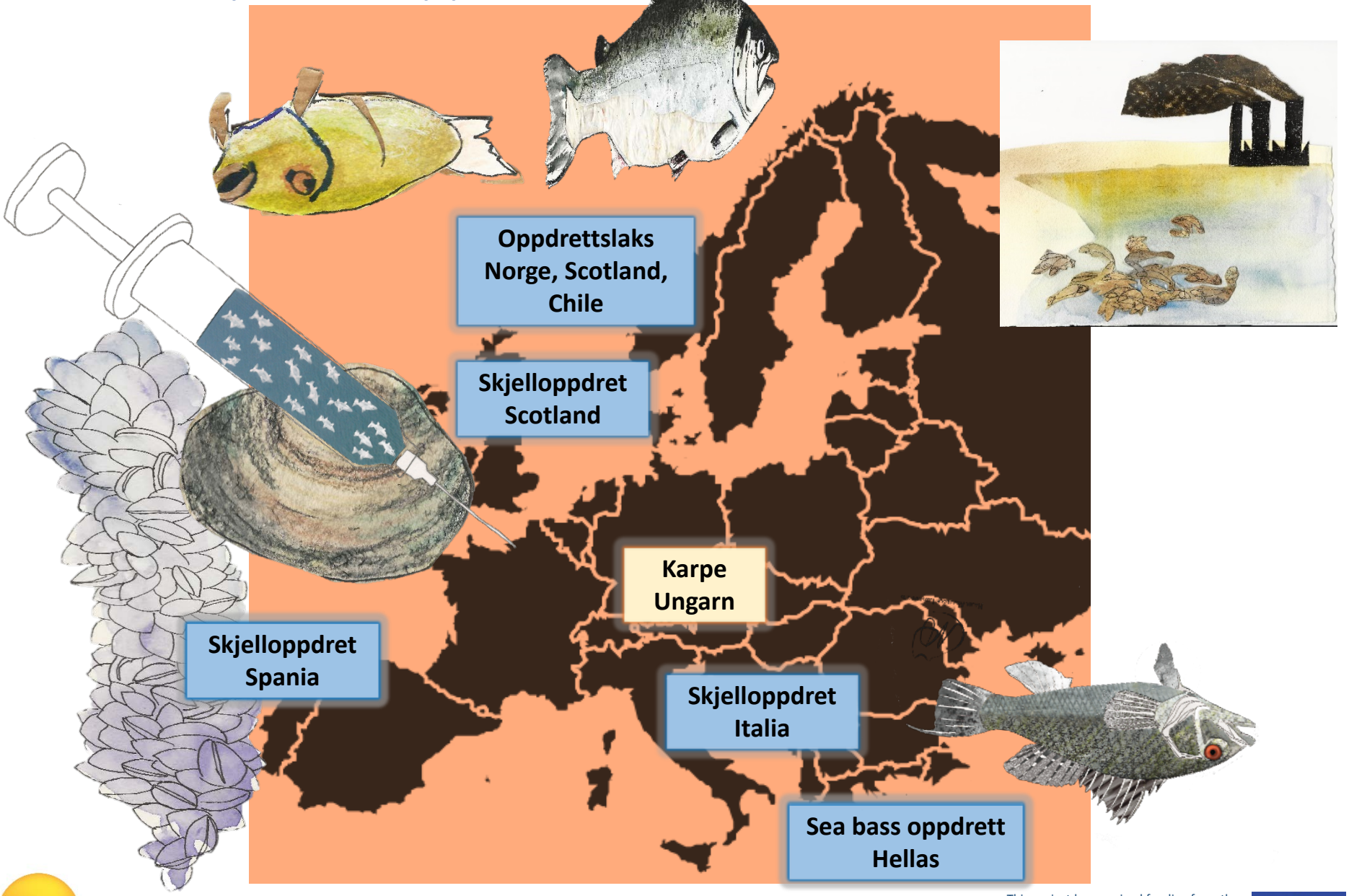
Hva kan påvirke oppdretten i disse områdene ved RCP 4.5?



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Hva kan påvirke oppdretten i disse områdene ved RCP 8.5?



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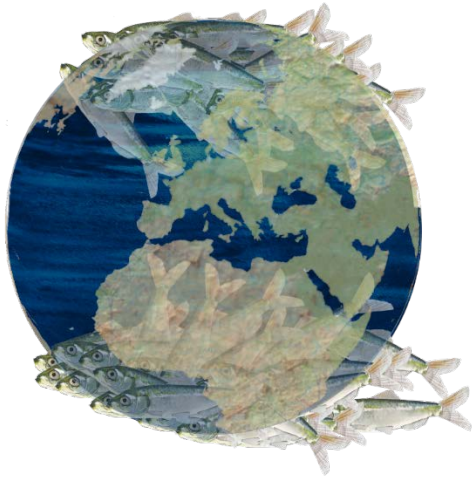


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Klimaforandringene vil føre til at akvakulturen må være mer dynamisk i forhold til hvor oppdrett kan være og hvilke grep man må ta for å utnytte seg av eventuelle muligheter.





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Tidlig varslinssystem



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Hva ønsker vi å oppnå?

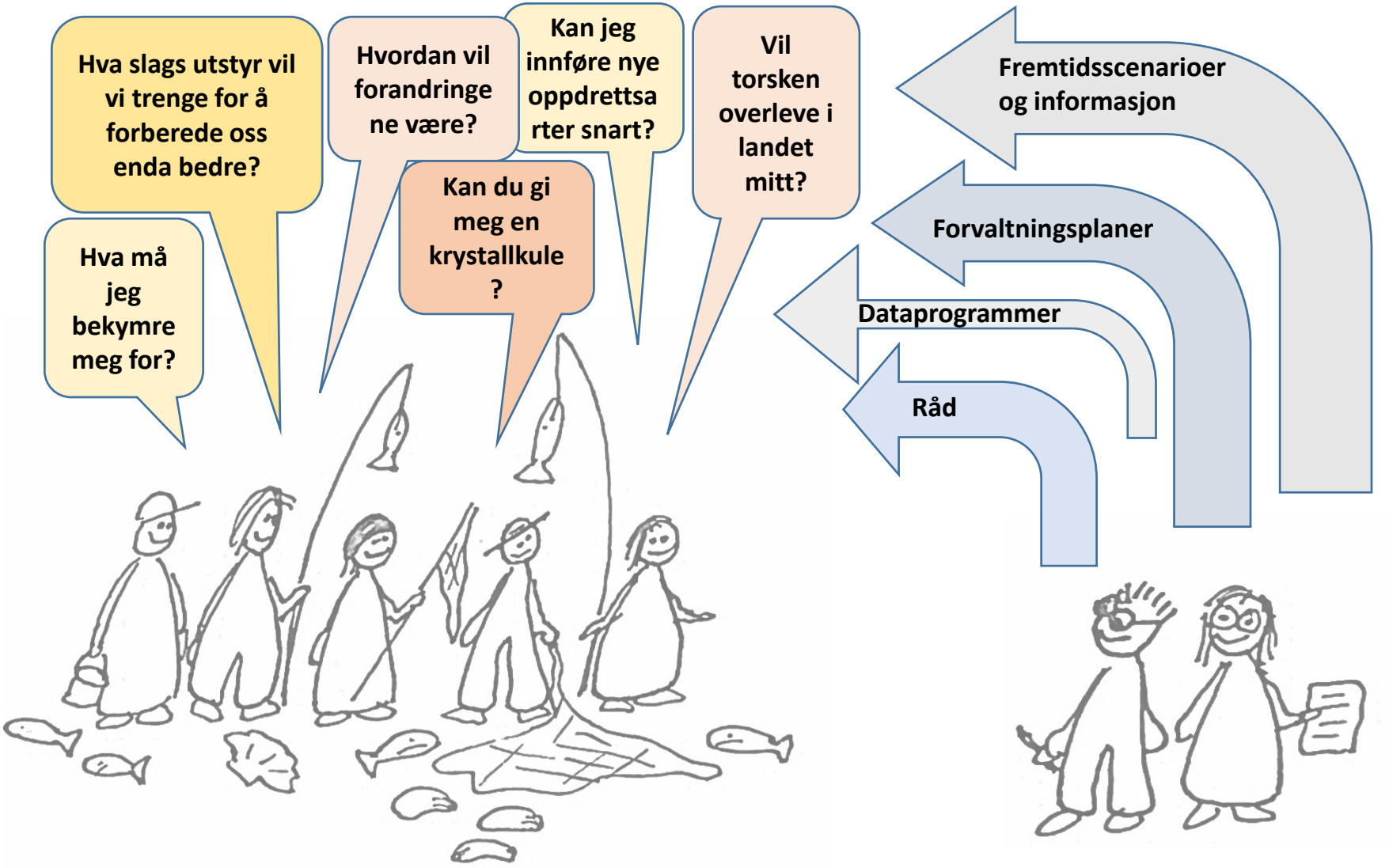
Simulere hvordan fiskeri og akvakultur i Europa vil se ut i 2050 gitt de ulike IPCC scenarioene

- Tilgjengeliggjøring informasjon
- Identifisere kunnskapshull
- Utarbeide verktøy som kan forenkle formidling av kunnskap, bruken av kunnskapen og forbedre forståelsen av klimaforandringenes effekter
- Utarbeide verktøy og programmer som kan hjelpe interessetagere i å vurdere omfanget av klimaforandingene, forberede seg i riktig retning og på sikt tilpasse seg forandringene
- Forbedre og utarbeide forvaltningsplaner

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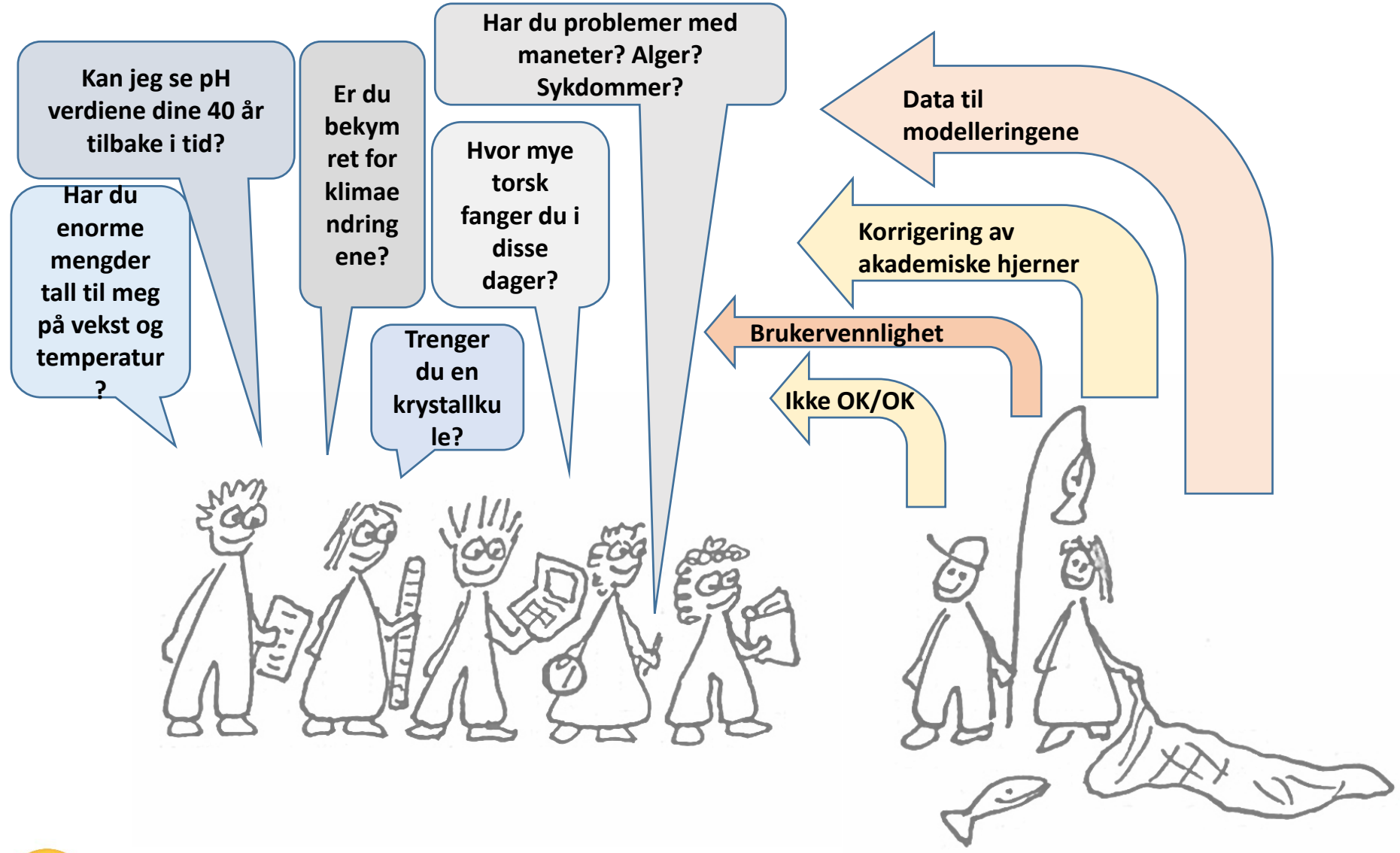
Samarbeid med interessetagere



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Samarbeid med interessetagere



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Interesse i å bidra/delta?

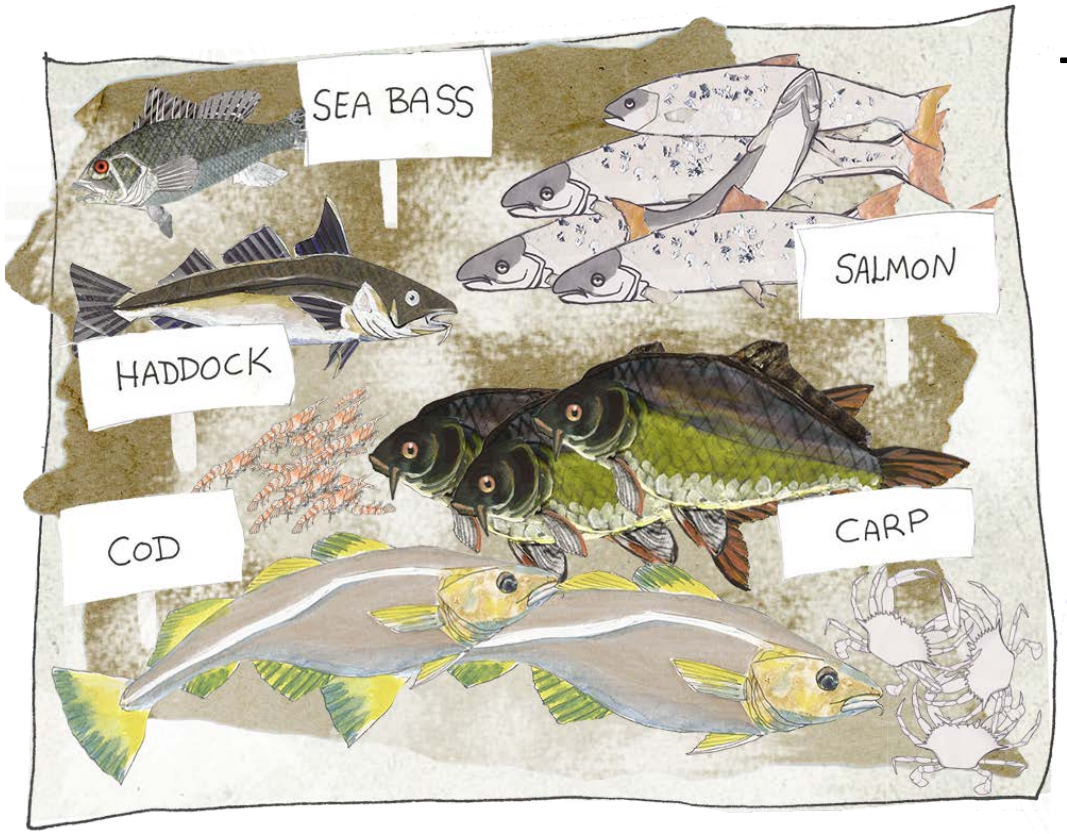
1. Send meg en mail (elisabeth.ytteborg@nofima.no)
2. Ta kontakt via hjemmesiden vår: www.climefish.no

Sign opp for newsletter på hjemmesiden for å følge med

ClimeFish

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Takk for oppmerksomheten!



Takk til ClimeFish Aquaculture Case Study ledere:

Gergõ Gyalog, HAKI, Ungarn
Nikos Papandroulakis HCMR, Hellas
Anton Xalgado, CSIC, Spania
Trevor telfer, UoS, Scotland
Fabio Pranovi, UniVe, Italia
Michaela Aschan, UiT, Norge

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