I CONVEGNO ISTITUTO DI SCIENZE POLARI

Climate-induced changes on contaminant fate and biodiversity in a rapidly changing Euro-Arctic marine ecosystem (TUNU-It)

[submitted PRA 2021]

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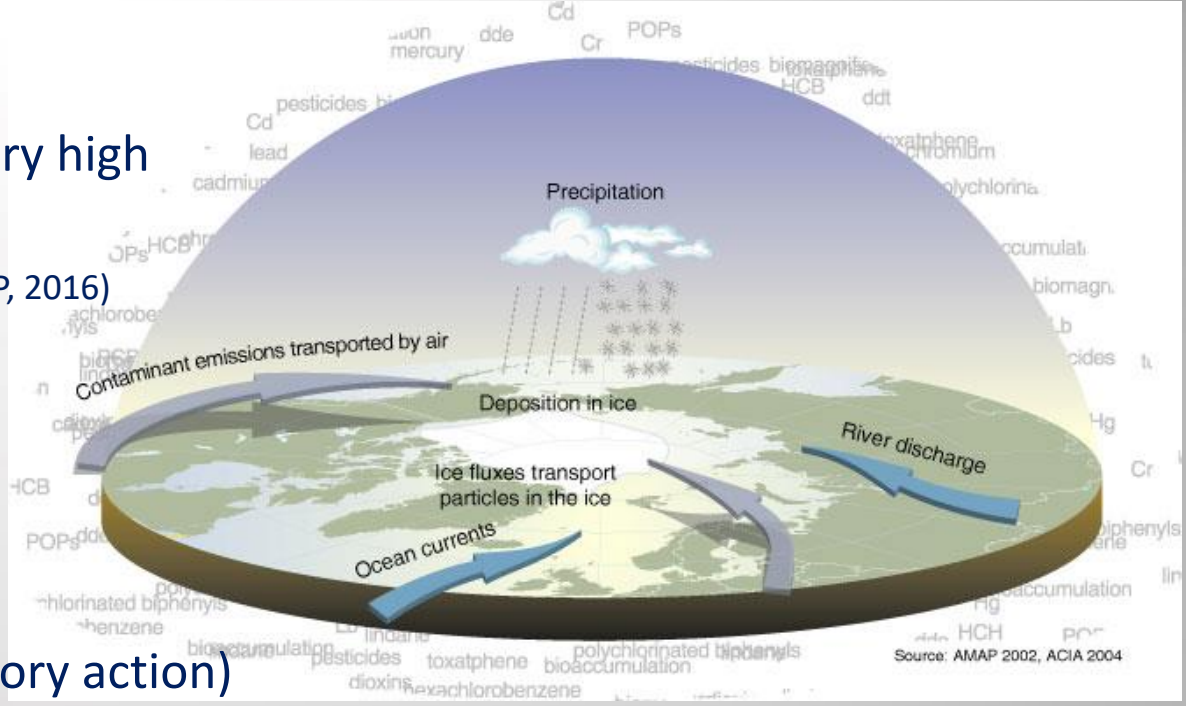
TUNU-It Context

1 - *Arctic Monitoring and Assessment Programme* (AMAP): very high risk due to: - legacy persistent organic pollutants (**POPs**)
- chemicals of emerging Arctic concern (**CEAC**) (AMAP, 2016)
- mercury (**Hg**)

Long-term time-series data of contaminant concentrations (AMAP, in press) to assess/study the:



- effect of **regulations**
- increasing trends of **unregulated compounds** (need regulatory action)
- **long-range transport** and the **accumulation** of POPs
- **exposure of specific animals** in the context of **environmental health studies**
- **food security** as many Arctic species are part of indigenous peoples' traditional Arctic diets

2 - *United Nations' Sustainable Development Goals* nos. 12, 13, 14: preservation of Polar ecosystem (Corsolini, 2021)

3 - *TUNU Programme: Arctic Ocean Fishes–Diversity, Adaptation & Conservation*

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22/24 settembre 2021

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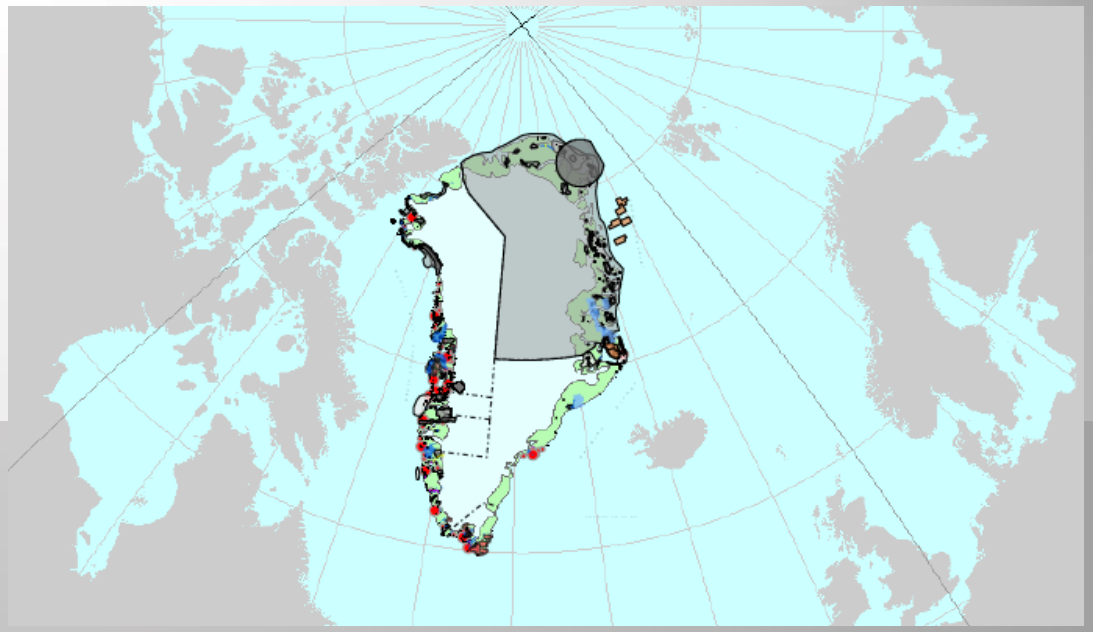
TUNU-It Context



2002: international and multi-disciplinary "**TUNU Programme: Arctic Ocean Fishes–Diversity, Adaptation & Conservation**"

- led by University of Tromsø
- term **TUNU** = East Greenland in modern Greenlandic AND back/spine
- main study area: **NE Greenland**, among the poorly studied and known on Earth due to the very limited access (it is a National Park)
- involves scientists and students from > **10 countries**
- Endorset by **International Polar Year** (IPY, ID: 318) 25 May 2006
- **SCAR programme**: - Evolution and Adaptation in the Antarctic - The Response of Life to Change (EBA)
  - Antarctic Thresholds - Ecosystem Resilience and Adaptation (AnT-ERA)

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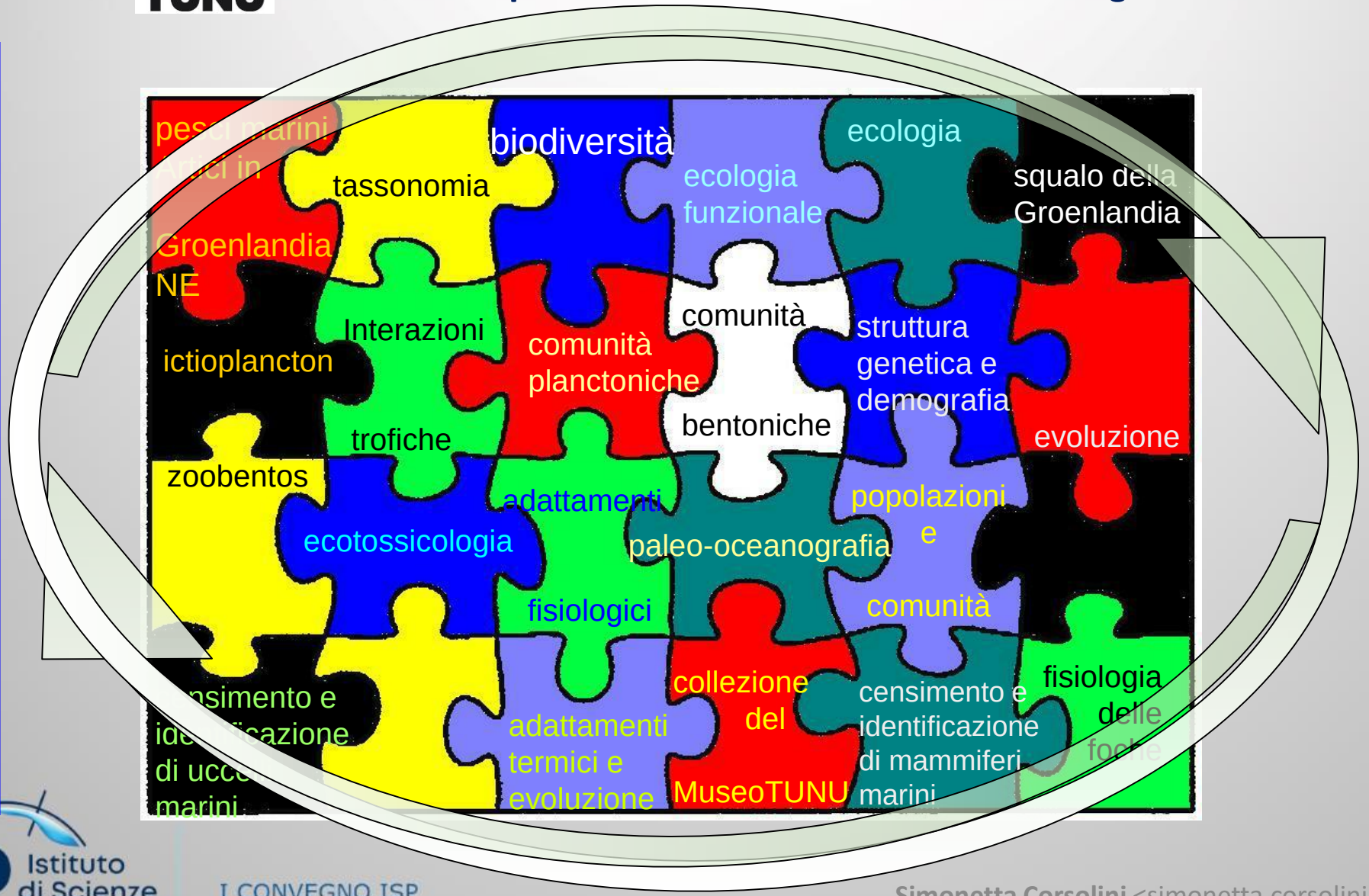
TUNU-It **Context** TUNU : **several disciplines** in the context of climate change and human impacts

IMPATTI UMANI



CAMBIAMENTI CLIMATICI

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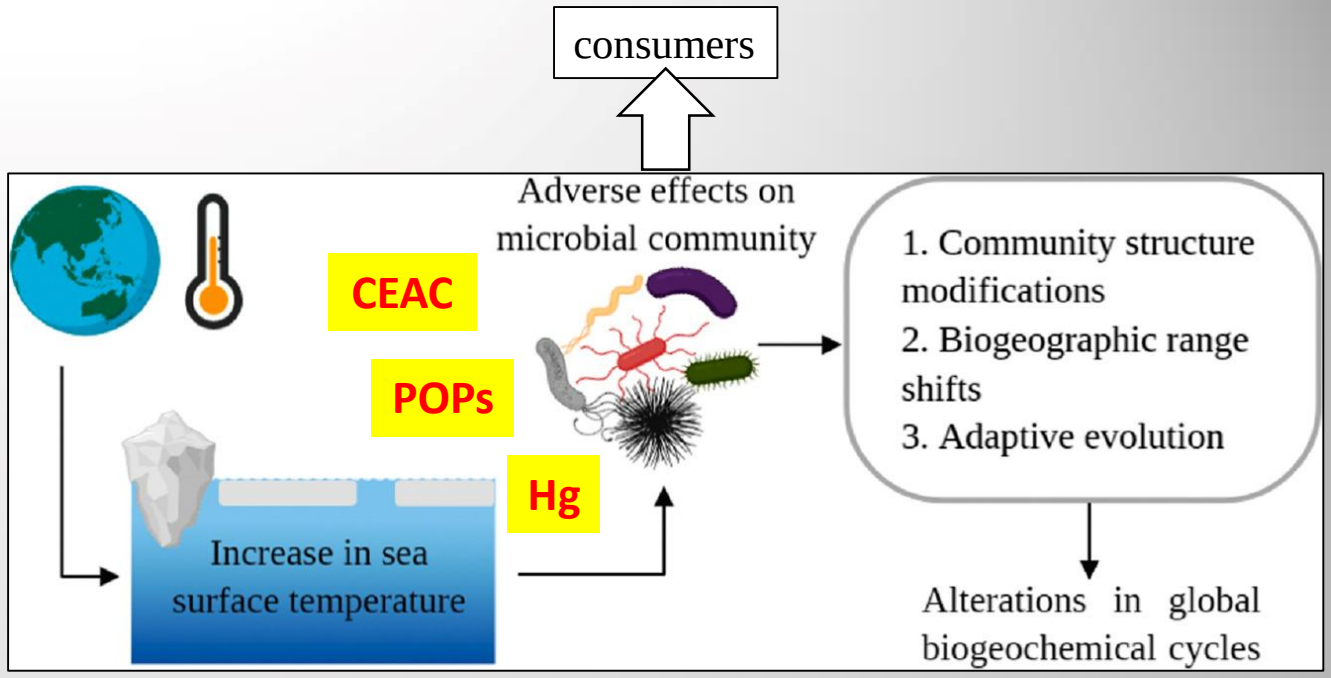
TUNU-It Main aims

- **CEAC occurrence, distribution and bioaccumulation** (from sediments/seawater to biota)

- **changes in autochthonous microbial communities:** contaminants + climate → diversity and functioning

- **genotoxic impact** of contaminants on fish

- levels/transfer of **contaminant *VS* climate parameters**



Modified from Abirami et al., 2021

Tools **- multi-level environmental components**
- different scale of observations

Expectations To improve our knowledge on the **fate of CEAC in NE Greenland** marine ecosystem

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TUNU-It Project collaborations:

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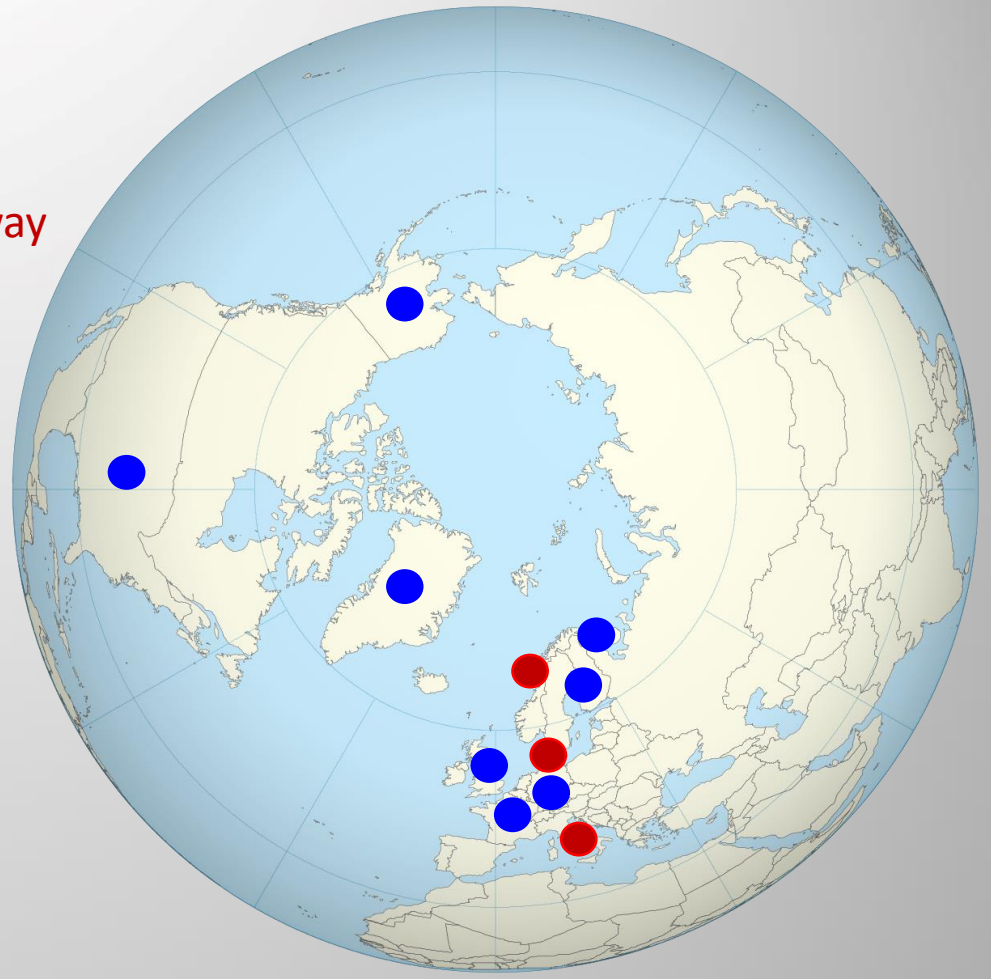

TUNU collaborations

Norway, Denmark, Finland, UK, France, USA, Greenland, Germany, Russia…

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Grazie
Thank you !

R/V Helmer Hanssen in NE Greenland - photo Henrik Schurmann

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