1. What are the main **threats** (besides pollution) to be addressed in the Mediterranean? Can you please tell us 3 to 5 key words to identify these threats?

- Loss of biological diversity and disruption of marine food webs
- Unsustainable fisheries exploitation
- Jellyfish and harmful algae blooms
- Invasive species

-> Which are the future trends of these threats
with climate change (specially marine heat waves)
and anthropogenic forcings (intense coastal use)
in the Mediterranean?
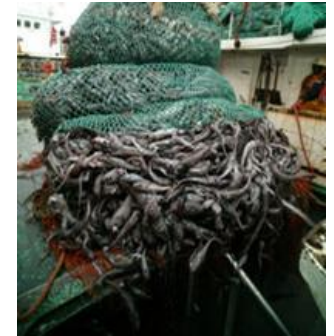
2. What are the **best approaches** to assess them?
- Basic science: Sound knowledge of the marine organisms (biology, ecophysiology, life cycles, taxonomy) and the Mediterranean ecosystems dynamics (food webs structure, physical-chemical-geological-biological links)
- Monitoring – long time series of flora, fauna, microorganisms (including bacteria and viruses) and essential ocean variables (EOVs)
- Modelling (both, statistical and numerical approaches)

And the bottlenecks?
- Identify organisms indicators of biodiversity loss at different levels of the food webs
- Identify the main anthropogenic and global pressures in the marine ecosystems (warming, acidification, chemical pollution, invasive species, ...)
- Establish and maintain monitoring time series to identify past trends and explore future scenarios to co-design effective prevention, mitigation and adaptation strategies
- Fast, reliable, cheap methods to test toxicity of the harmful organisms and toxin contamination of seafood

3. Let's talk about the confidence of current observations: What are the major gaps in observing threats to coastal systems and what are the major needs

- Observing capability of **all** biological organisms (from microbes to macrofauna) and processes is limited. That is why the ECV (Essential Climate Variables) and EOV (Essential Ocean Variables) approach is taken (e.g. Miloslavich et al 2018, Glob Change Biol 24:2416-2433)

- Biological processes occur from small to large spatio-temporal scales. Automatic sampling for biological parameters is very limited; often manual sampling is required.

- Access to available data and models (hindcast, climate)

- Predictability of processes:
       * identify available regional models
       * explore downscaling possibilities of the available models
       * biological information to be incorporated in the models

- Coordination within the research community and between researchers and society

- Dissemination of information from observing systems: among scientists, and to the society and policy makers

Horizontal Spatial Scales

4. What are the fundamental **observations** needed?
- Ideally, all components of the food webs should be monitored (virus, bacteria, microalgae, copepods, macrophytes, benthic fauna –e.g. corals-, jellyfish, fish -different sizes-, seabirds, marine mammals, ...)

- Accompanying physicochemical parameters in the water: temperature, salinity, pH / alkalinity, water velocity, organic and inorganic nutrients

Thanks for your attention!
Let's continue in the Round Table

- Accompanying meteorological parameters

- In the lack of "everything-everywhere", selected observatories should be established representatives of anthropized – coastal waters, marine protected areas and open ocean, where a diverse and complete series of parameters are monitored, supported by dataset compilation and modelling