



GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

Viale delle Terme di Caracalla 1, 00153 Rome, Italy. Tel: + 39 0657055730 www.gfcm.org



*Jellyfish Blooms
in the Mediterranean and Black Sea:
a brief review*

by
Aurora Nastasi
GFCM Secretariat

Workshop on Algal and Jellyfish Blooms in the
Mediterranean and Black Sea (6th/8th October 2010, Istanbul, Turkey)

What are the “jellyfish” ?

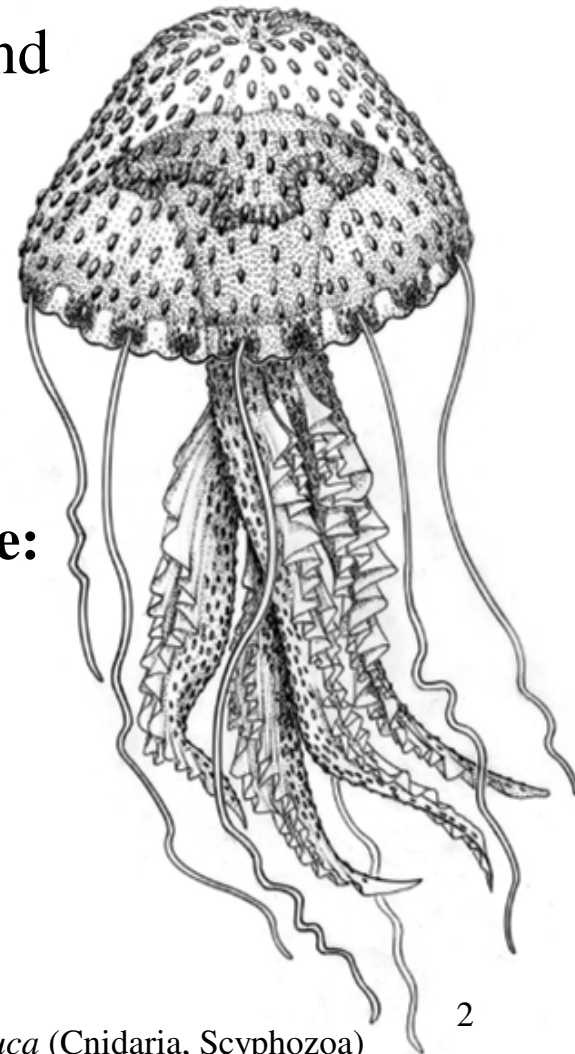
Usually the term ‘jellyfish’ is used for:

- medusae of the phylum **Cnidaria** (Scyphozoa, Cubozoa, Hydrozoa)
- planktonic members of the phylum **Ctenophora**, and
- (sometimes) planktonic members of the subphylum **Tunicates**

Species blooming in the Mediterranean and Black Sea are:

Pelagia noctiluca, *Cotylorhiza tuberculata*,
Rhizostoma pulmo, *Rhopilema nomadica**,
Aurelia aurita, *Mnemiopsis leidyi**, *Beroe ovata**

*non-native species

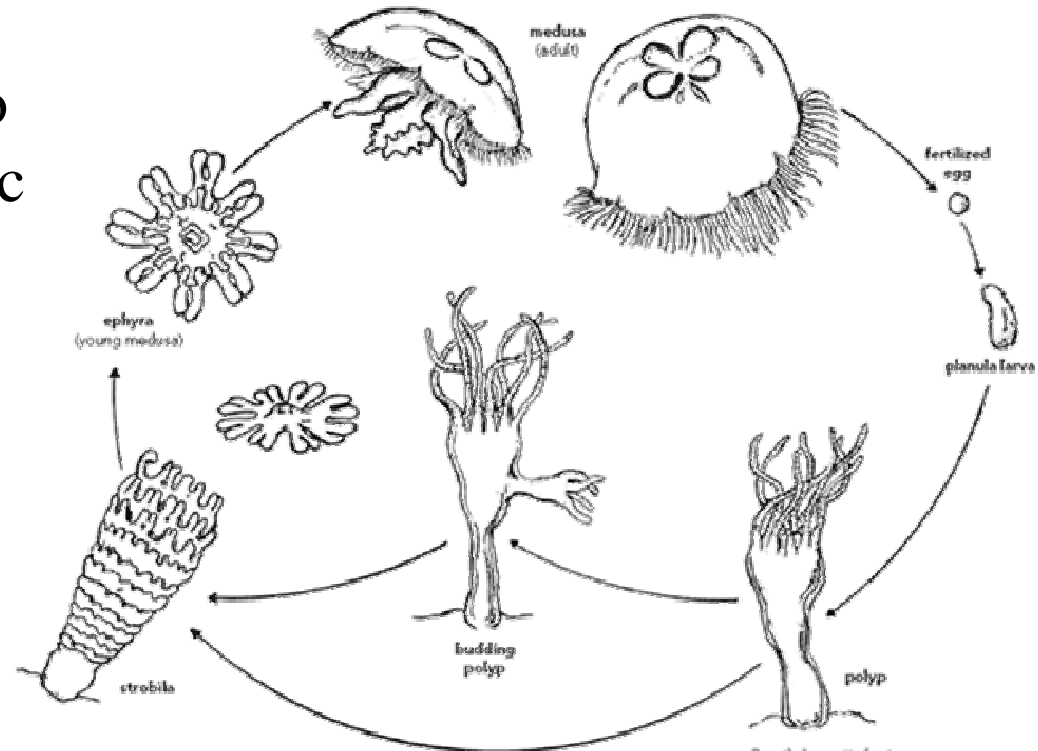


Pelagia noctiluca (Cnidaria, Scyphozoa)

Why do they rise in “Blooms” ?

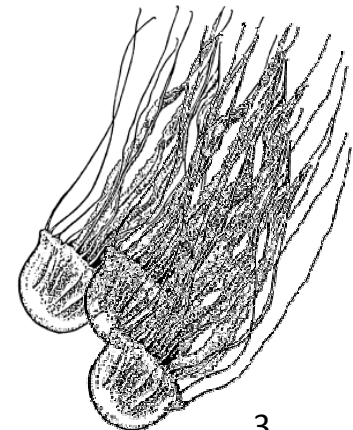
- The ability of gelatinous species to occur in large numbers is an intrinsic feature of their *life cycle* (usually with asexual/sexual stages and benthic/planktonic stages):

i.e. *benthic* “polyps” bud more polyps → each polyp buds many *planktonic* medusae



- Also, it has been proved that jellyfish abundance vary with *climate*, often at decadal scales (see Purcell 2005)

- *Non-indigenous species* are known to rise in blooms when accidentally introduced in new habitats



... even though we do not have evidences (yet):

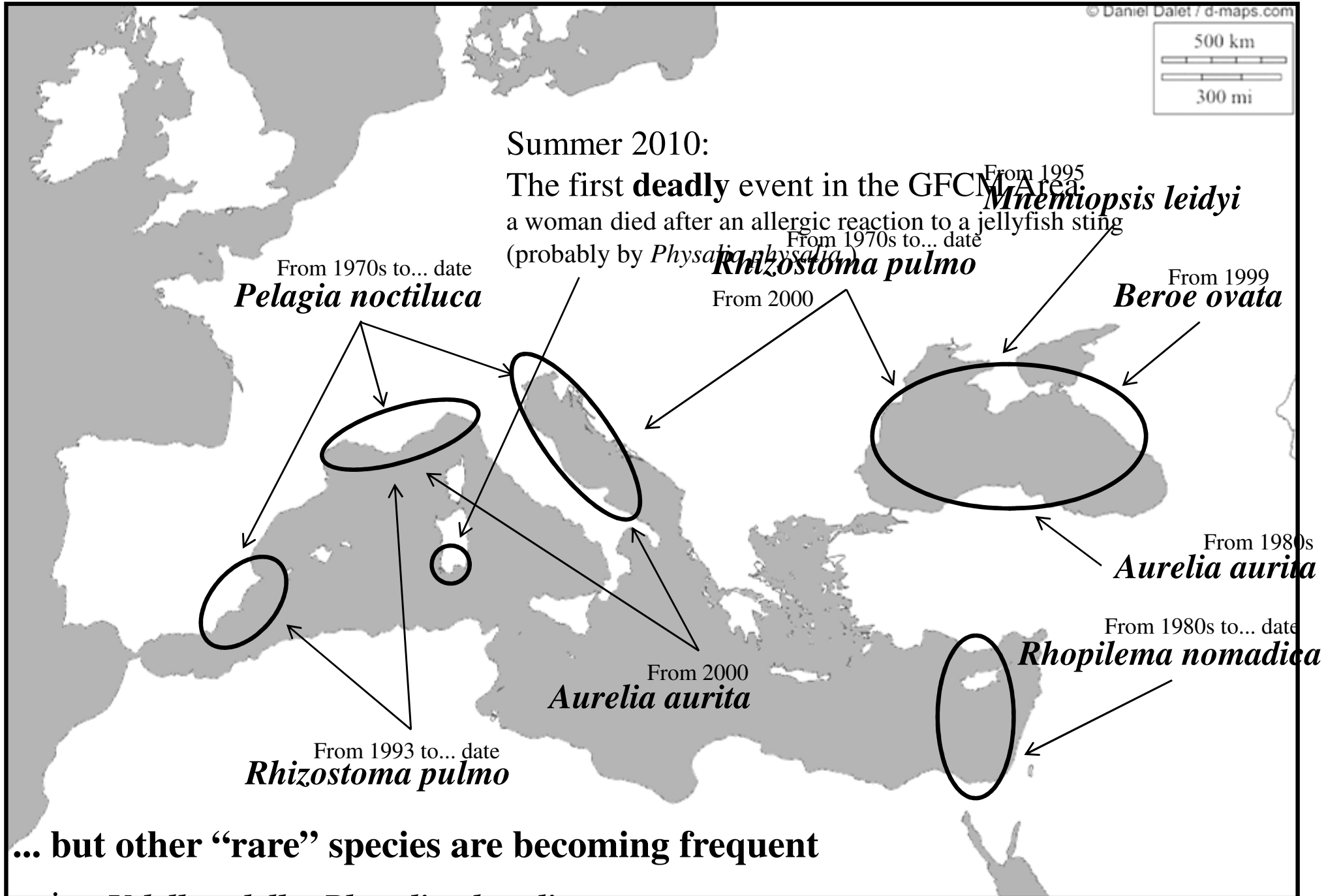
- ***climate/oceanic circulation change***
(CO₂, and increasing temperature worldwide)
- ***overfishing*** (massive removal of jellyfish competitors and predators)
- ***human-related eutrophication*** (increased nutrients may lead to a greater food availability for benthic and planktonic jellyfish stages → increase of the reproduction rate)
- ***coastal constructions*** (they can provide additional substrate for benthic stages)
- ***aquaculture activities*** (they can provide additional substrate for benthic stages and food)

... may be linked to jellyfish bloomings!



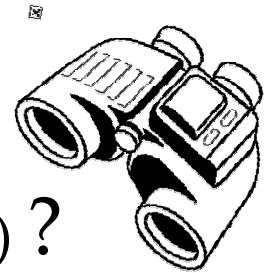
Which are the main negative effects of jellyfish outbreaks?

- *damage gears and nets of fisheries* (economic losses)
- *eat zooplankton, eggs and larvae of fish and fish food* (food-chain/ecosystem structure changes, economic losses)
- *hurt/kill fish in the aquaculture cages* (economic losses)
- *sting swimmers and fishermen:* painful stings can induce both local and general symptoms and sometimes can be lethal (public health problem, economic losses)



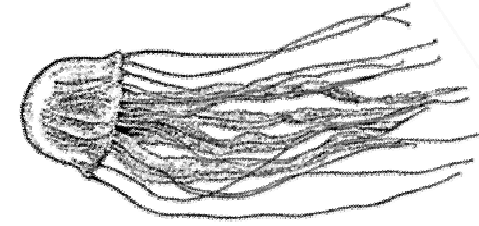
... It is still difficult to systematically measure the abundance of gelatinous zooplankton at large scale (lack of technologies, lack of funding, etc.) ...

Which are the main programmes of jellyfish monitoring (in the GFCM Area) ?



- from 2007: The Catalan “Medusa Project” (National: Spain)
(coastal municipalities and fishermen associations involved)
- from 2008: The CIESM JellyWatch Programme (Regional: Italy, France, Monaco, Greece, Israel, Turkey) (citizens are the “observers”)
- from 2010: The Spot the Jellyfish initiative (National: Malta)
(citizens are the “observers”)

... thus the necessity to:



- understand **how to cope** with jellyfish blooming events (what can we do? prevent? mitigate?)
- **share monitoring and data collection experiences** in the Mediterranean and Black Sea
- develop a network of **experts in the GFCM Area**
- **set up recommendations** with the aim of coordinating the efforts of GFCM Members' governments

... thank you for your attention !