



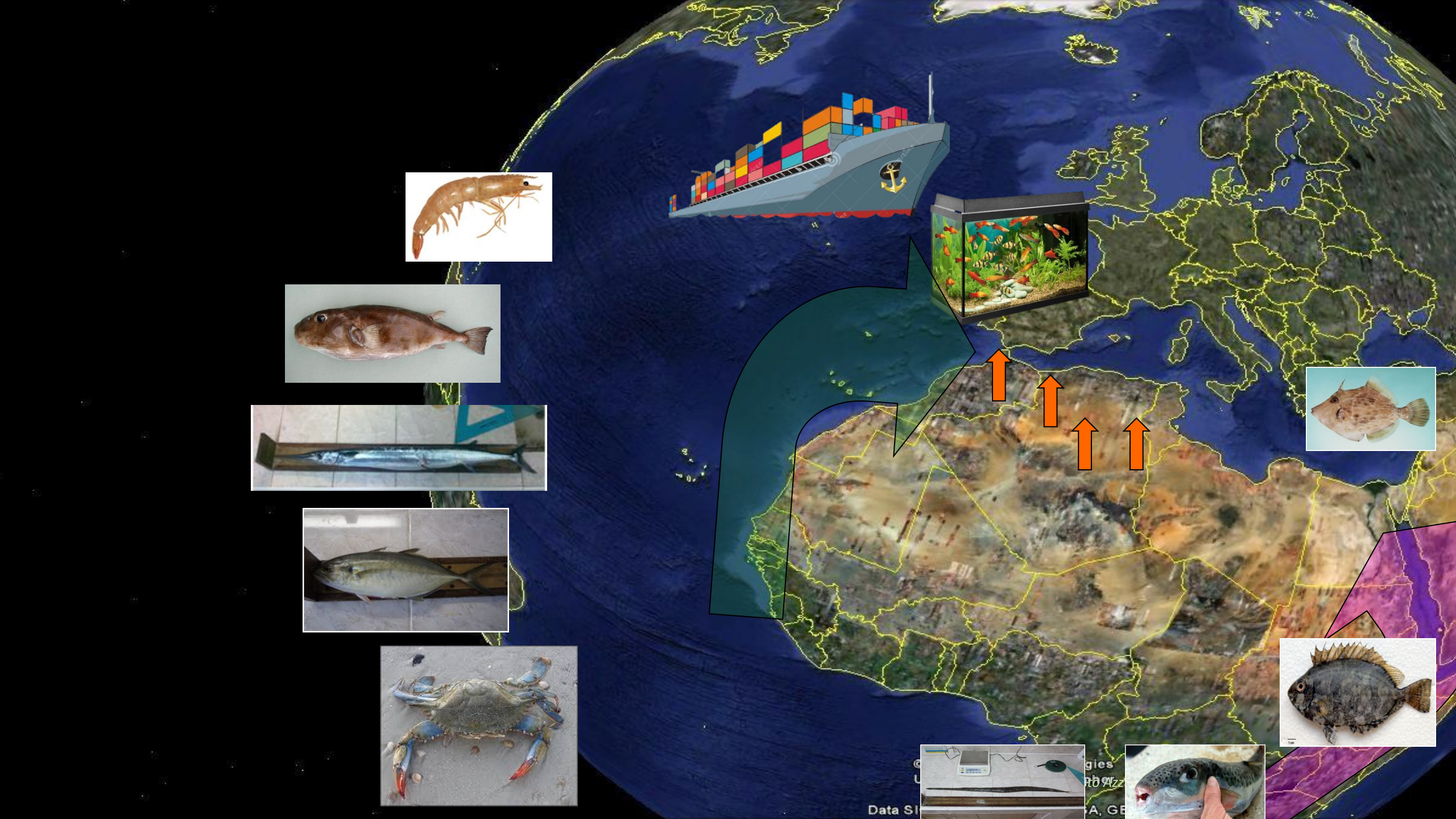
## ***BLUE CRAB (*Callinectes sapidus*) along the Montenegrin coast***

26.01.2021. Mr Jovana Tomanic- Scientific researcher

## SMART ADRIA

- The structure and composition of Mediterranean ichthyofauna has changed significantly.
- The Adriatic Sea, as part of the Mediterranean, is under a process of temperature rising, allowing the fish from the tropic sea to expand their areal and to find new habitat in areas they previously not part of their distribution ranges.
- Introduction and spread of alien (non-indigenous) species are considered one of the main threats to biodiversity.
- So far, seven new fish species have been recorded in Montenegrin coastal waters: *Tylosurus acus imperialis*, *Caranx crysos*, *Siganus luridus*, *Fistularia commersonii*, *Stephanolepis diaspros*, *Sphoeroides pachygaster*, *Lagocephalus sceleratus*. In addition, two new species of crustaceans have been found: *Callinectes sapidus* and *Penaeus aztecus*.





Data SI ... A, GE

## *Calinectes sapidus* - Blue crab

- Endemic species of the eastern coast of America
- Transferred with ballast water from the Atlantic ocean, and belongs to one of the most invasive species.
- Appeared along the Montenegrin coast few years ago.
- Swimming crab inhabiting estuaries and shallow coastal waters to 90 m depth.
- Generally found over muddy and sandy bottoms and has a wide ecological tolerance - eurythermal/euryhaline species
- Predator of fishes, molluscs, and crustaceans, and is also necrophagous and even cannibalistic. Feeding on algae as well, it can have a strong impact on natural populations of algae

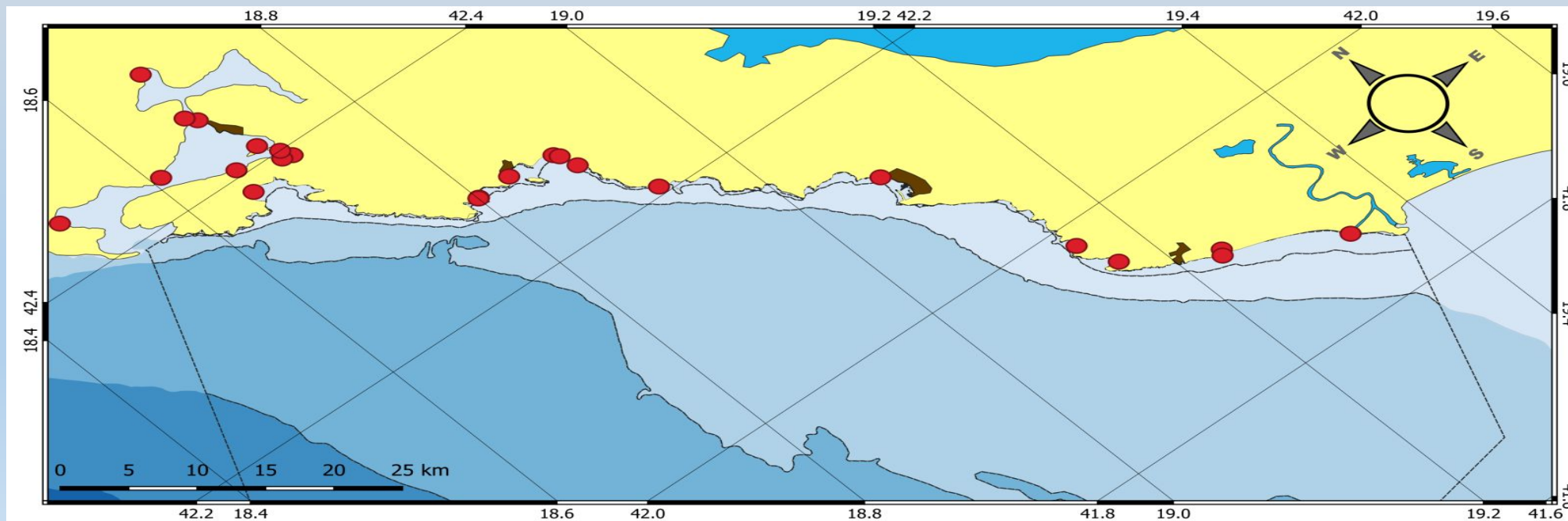


- Characterized by sexual dimorphism in adults, males having blue color on their chelipeds and the females orange or reddish ones
- Adult specimens are excellent swimmers and migrate from seawater to rivers, and vice versa, at different stages of their life cycle
- After mating in estuarine brackish waters females migrate to higher salinity coastal waters to lay eggs.
- It is very adaptive, as evidenced by the fact that a female of blue crab produces up to 8 million eggs which indicating the speed of its spread

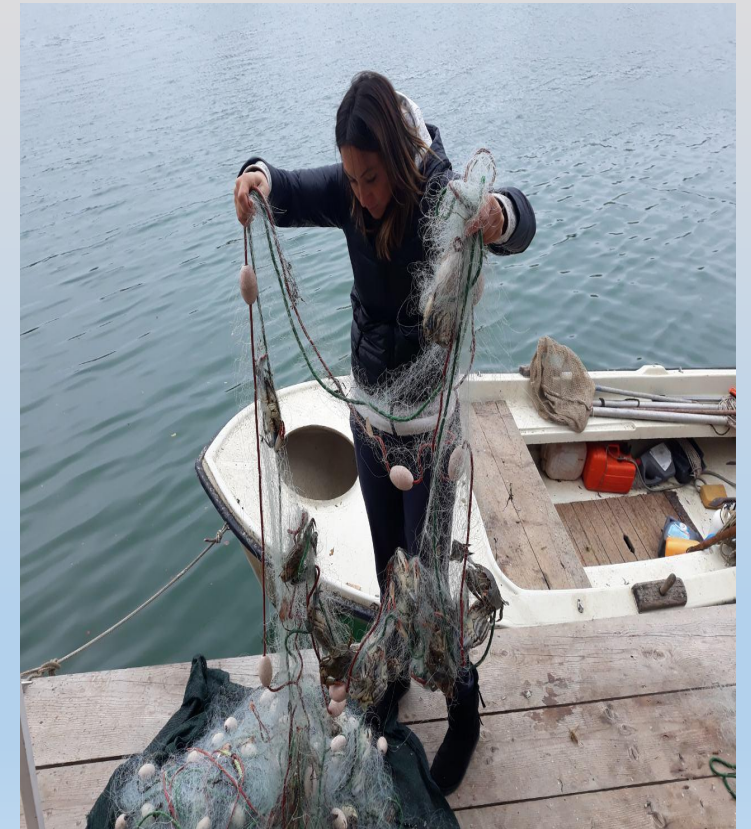


## Records of Blue crab in Montenegro

- *C.sapidus* is spotted on several locations in Montenegro, for the first time species was recorded in 2013 in Tivat Bay, after that individuals of blue crab are recorded in the area of port Milena (Ulcinj), Hladna uvala, Oblatno, Jaz, Dobreč, Sutorina and Sopot.
- Blue crab is also observed in the area of high salinity water such as nature reserve Tivatska solila which is habitat to many protected species of amphibians and reptiles.



## How to catch it?



# Local Ecological Knowledge (LEK) monitoring system

- Marine bioinvasions and other rapid biodiversity changes require today integrating existing monitoring tools with other complementary detection strategies to provide a more efficient management.
- Last few years Local Ecological Knowledge (LEK) monitoring system was implemented alongside whole Montenegrin coast, from Ada Bojana to Herceg Novi, to gain alternative information on species presence and qualitative and quantitative indices of species abundance, according to the interviews with professional and recreational local fishermen.
- Through the answers, it has been concluded that the Blue crab (*Callinectes sapidus*) has been making significant damage to fishing gears, especially nets.

*Handwritten notes:* Kotor-19, 1938, bukvare, poronice, palauclare, UDICA - 5-6/5, mreža - oko 78/7, 19 sept. 2015 u parovima crvenih kalifornijskih vedena, pouta besta - ugovise bi mog po 1-5 coneatq svatoga, xjechthys novacula, 1938

**LAZARUIC STANKO** DONTA VESLA, PLATINI -

SHEET 1: Abundance




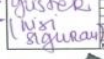

1) Can you tell us what species have augmented their abundance in the area? (INCLUDING SPECIES THAT HAVE APPEARED)  
2) What species have drastically decreased? (including species that have disappeared)

INTERVIEW NUMBER: \_\_\_\_\_ DATE: \_\_\_\_\_ COMPILED BY: \_\_\_\_\_ LOCATION: \_\_\_\_\_ AREA CODE: \_\_\_\_\_ COUNTRY: \_\_\_\_\_ TRUSTWORTHINESS OF INTERVIEW: HIGH (VERY TRUSTWORTHY)  MEDIUM (ACCEPTABLE)  LOW (DUBIOUS)

NAME INTERVIEWED (optional): \_\_\_\_\_ AGE: 42 SINCE (year): 1938 PROFESSIONAL  SPORTIVE

SCUBA DIVER  SPEAR FISHING  TRAMMEL NET  PURSE SEINE  TRAPS  HOOKS  TRAWL  OTHERS

ABSENCE: 1 = RARE (once in a year); 2 = OCCASIONAL (sometimes in a year); 3 = COMMON (regularly in a year); 4 = ABUNDANT (regularly in captures and abundant); 5 = DOMINANT (always in catches and with great abundance)

SPECIES	1970												1980												1990												2000												2010												TRENDS (Increase/Decrease/Fluctuating)
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5																															
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Good for fishery?  Yes  No  Don't know

Good for the environment?  Yes  No  Don't know

Good for fishery?  Yes  No  Don't know

Good for the environment?  Yes  No  Don't know

*Handwritten notes:* cepalu mreze, plase deluju ribu, jedan devojac krenuve kocu, pojedni komplet, ligivi, done u svetlost, mnogo agresivan



- Controlling the introduction and spread of invasive alien species and reducing their impact on significant species and entire ecosystems is today one of the greatest nature protection challenges in Europe.
- The alien species can almost never be removed from the habitats to which it has spread, except on islands and in limited parts of the mainland where it has not yet spread widely.
- *Callinectes sapidus* (Blue crab) is commercially interesting species in other parts of the world, especially in the United States
- Montenegrin fisheries are informed that this species can be used in the human diet, so information of consuming as the opportunity to sell this species and establish a market.
- These species will start to hunting more and therefore the fishing pressure on local populations of autochthonous crabs will be reduced.

Delicacy, an important fishery resource due to the quality mix of rich protein and low fat



# Thanks for your attention

## Contacts

- ❑ Mr Jovana Tomanic
- ❑ +381640859615
- ❑ tomanic01@hotmail.com

*In collaboration with*

