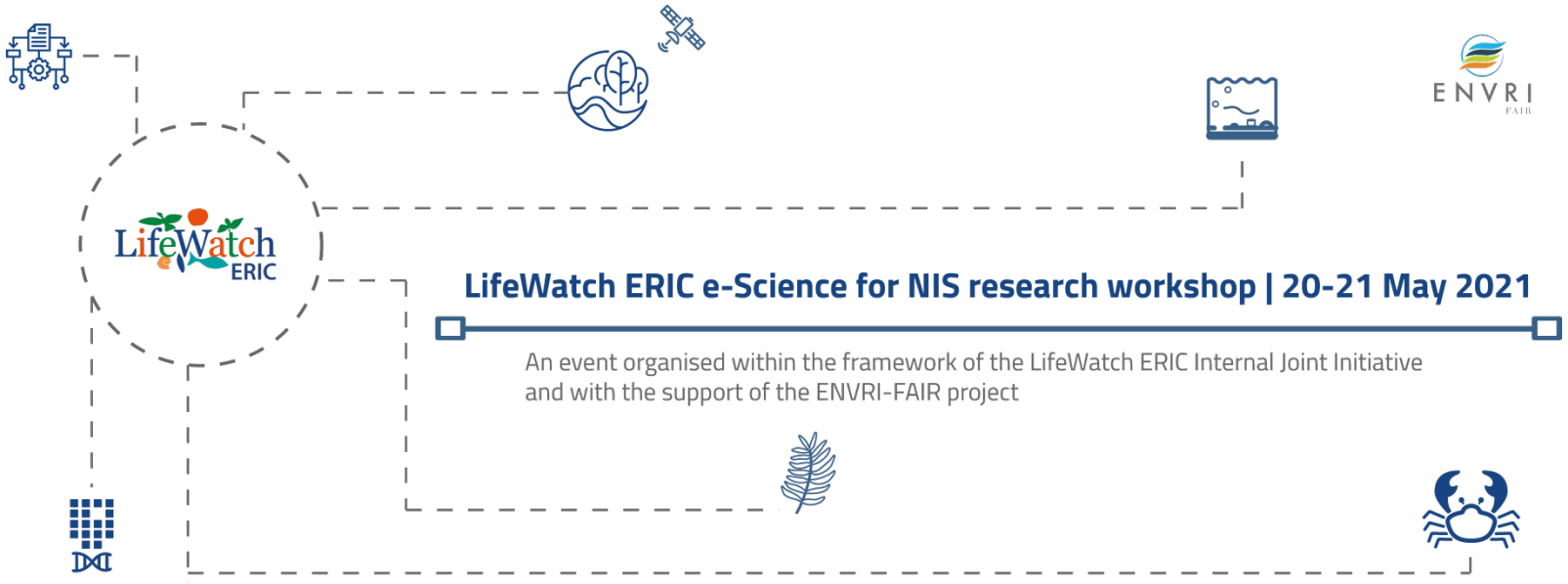

occurrence and stable isotope data to monitor trophic position of invasive crustaceans in marine and freshwater ecosystems and trophic changes within invaded food webs

Giorgio Mancinelli PhD
University of Salento

Crips and Bloods: the Atlantic blue crab and the Louisiana red crayfish in European waters

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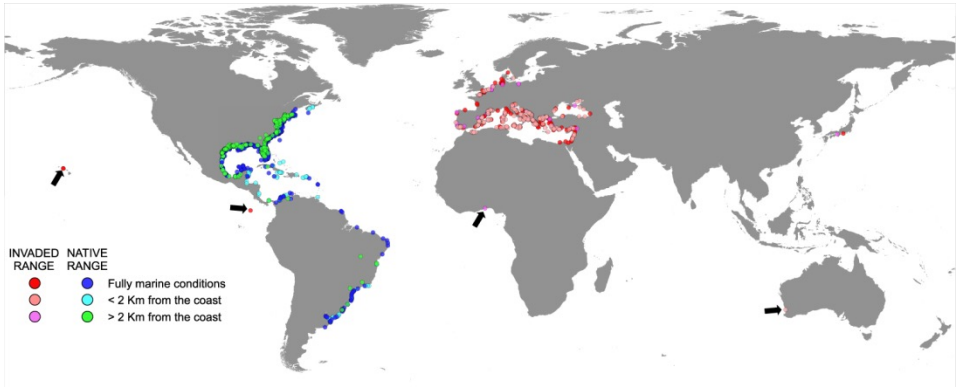
Callinectes sapidus

- Large-sized, omnivorous, aggressive
- Introduced in Europe in 1901 and in the Mediterranean Sea in 1947 (Greece)

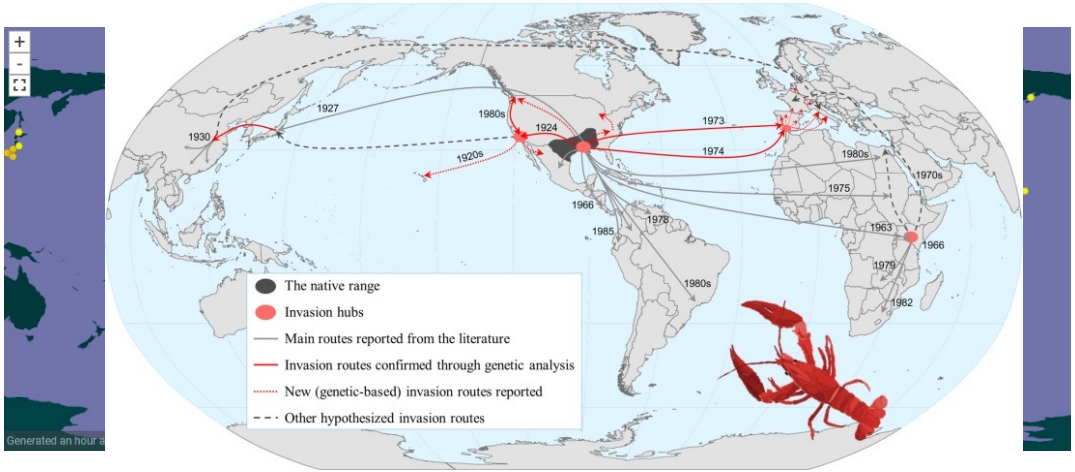


Mancinelli, Bardelli, Zenetos 2021 Scientific Data

https://www.wikiwand.com

Procambarus clarkii

- Large-sized, omnivorous, aggressive
- Introduced in Europe in 1973 (Spain) and first observed in Italy in 1989



Oficialdegui et al. 2019 *Freshwater Biology*

1 – Rationale/assumptions

- A burgeoning amount of data on occurrences, far less information on impacts in invaded ranges (in particular for the blue crab)
- Impacts are related with feeding habits, and ultimately with trophic position
- Feeding habits vary in space, and may be affected by oceanographic/climatic factors, acting both at a local and regional scale

Keywords:
functional biogeography; stable isotope ecology

2 – Collation of the datasets

Callinectes sapidus:

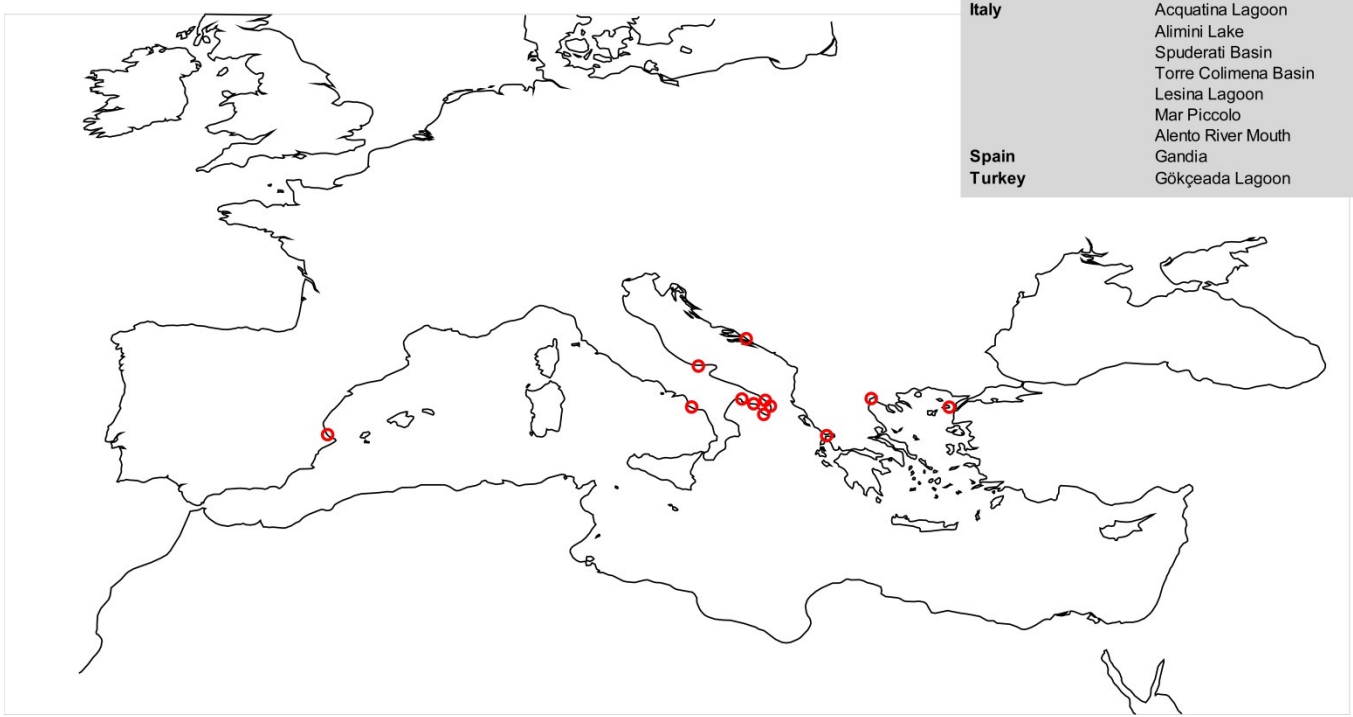
- extraction of data on CN isotopic signatures of the crab from published sources;
- aggregated at the scale of population (native ranges) or included as individual entries (invaded ranges);
- Complementary isotopic data on potential animal and vegetal prey

Procambarus clarkii:

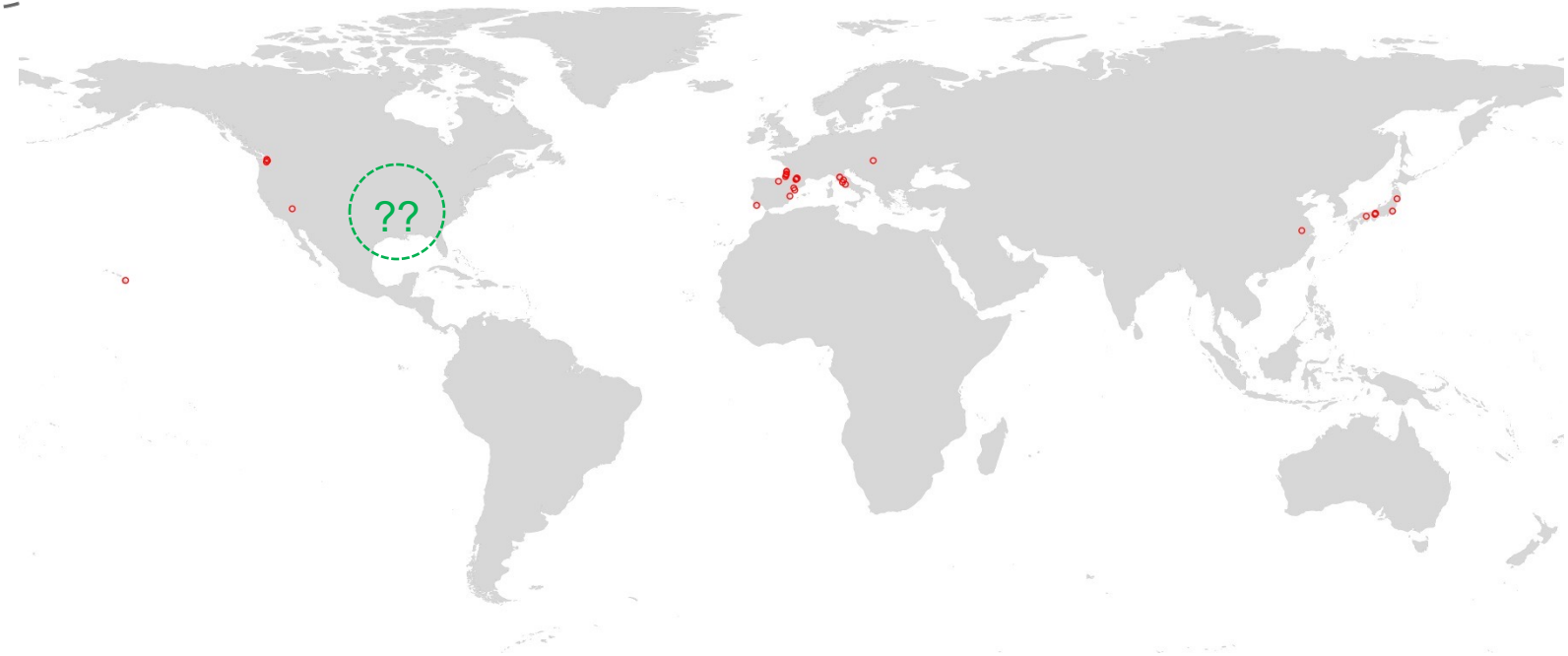
Identical structure, aggregated data only

3 – Main features of the datasets – *Callinectes sapidus*

Croatia	Parila Lagoon (Neretva River Estuary)
Greece	Loudias Lagoon (Thessaloniki Gulf)
	Pogonitsa Lagoon (Arta Gulf)
Italy	Acquatina Lagoon
	Alimini Lake
	Spuderati Basin
	Torre Colimena Basin
	Lesina Lagoon
	Mar Piccolo
	Alento River Mouth
Spain	Gandia
Turkey	Gökçeada Lagoon



3 – Main features of the datasets – *Procambarus clarkii*



51 sites, all located in invaded ranges

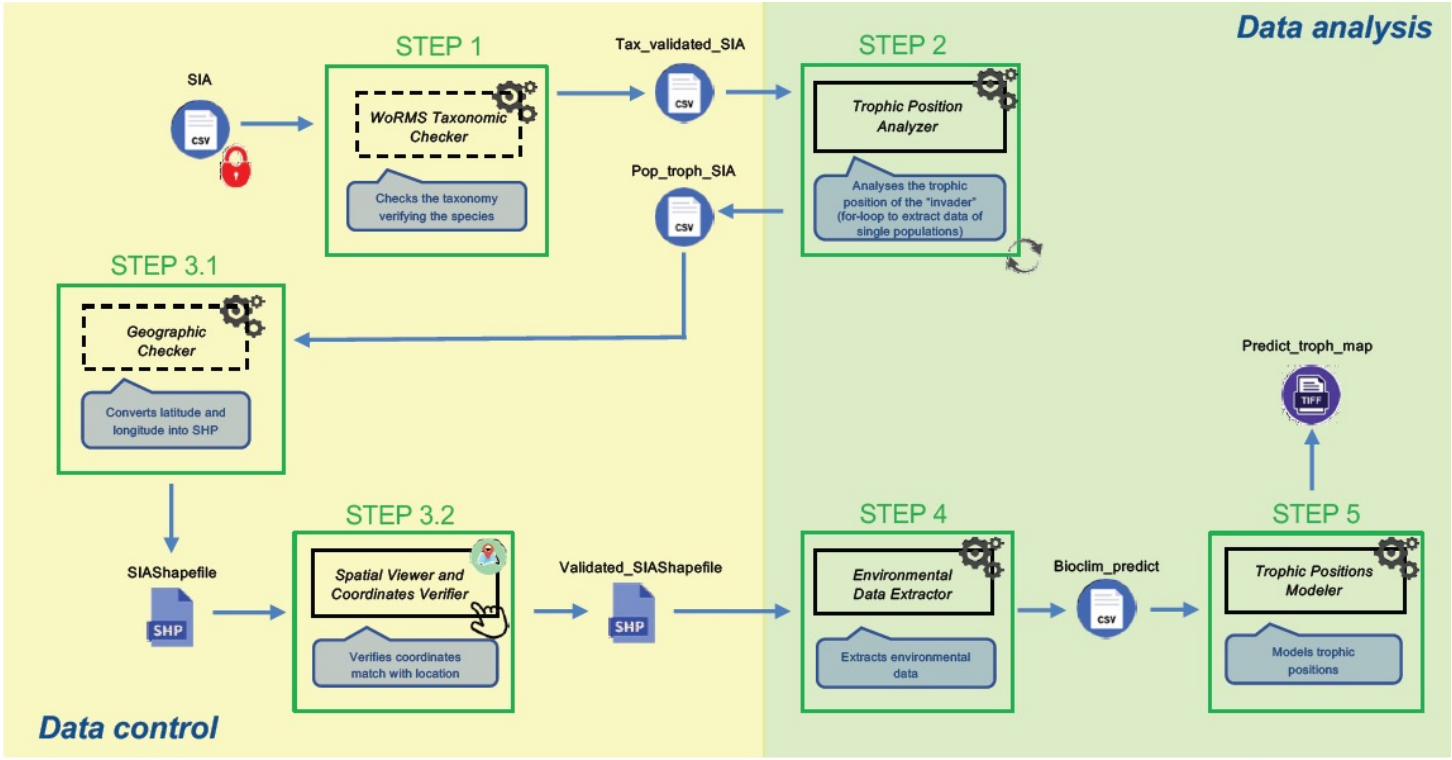
4 – progress in the collation of the datasets

Callinectes sapidus: completed

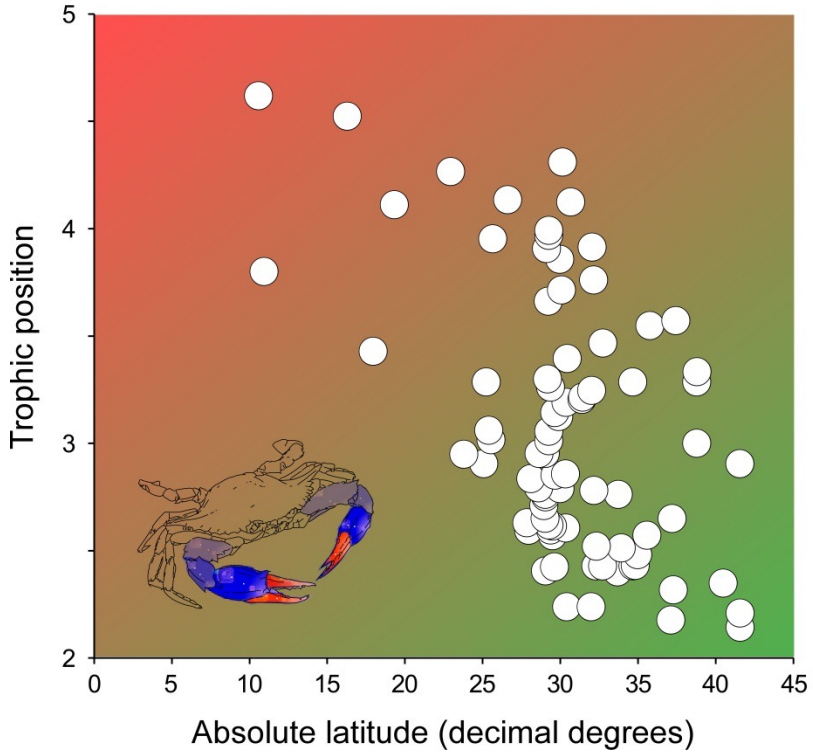
Procambarus clarkii: to be completed within May 2021

Main concern: the Penelope canvas effect!!!

5 – The workflow



6 – What's next



Blue crab: first results (native range only)

Bardelli, Vizzini, Mancinelli in preparation

6 – What's next

Focus on other species: marine (*Carcinus maenas*/*eastuarii*; *Pomatomus saltatrix*) freshwater (*Lepomis gibbosus*), or terrestrial… it depends on the availability of isotopic data

Conceptual framework: biogeography of omnivores, not necessarily NIS

The potential contribution of LifeWatch

Thanks for your attention

And special thanks to Roberta Bardelli, Cristina Di Muri, Iva Johovic, and Antoni Huguet Vives

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