



Identification of the pearl oyster (*Pinctada imbricate radiata*), mislabeling in the Greek market by using internet-based tools.

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Abstract

An internet-based quantitative research was conducted between January 2021 and March 2021 to explore the market supply of the pearl oyster (*Pinctada imbricate radiata*), in Greece. Due to visual similarities between the pearl oyster, the native oyster *Ostrea edulis* and the pectenid *Aequipecten opercularis*, additional research took place to allocate the market supply of *O.edulis* and *A. opercularis* in Greece. Local fish markets and restaurants offer pearl oyster as a seafood to the consumers. Various keywords were used in Greek language referring to the three species. Pearl oyster has established population in seven of total nine geographical regions of Greece. Data exports from websites indicate that pearl oysters are offered in twenty-five places, covering three geographical regions. Despite the presence of pearl oyster in seven regions, findings show that it is not offered in four of them, whereas *O. edulis* and *A. opercularis* are offered to all of them. Moreover, search results showed that various keywords referring to pearl oyster often led to specific websites about *O. edulis* or *A. opercularis*. Overall, it seems that there is a specimen mislabeling throughout Greece, thus, extraction of significant information about the market supply of pearl oyster is deficient.

Pearl oyster habitat

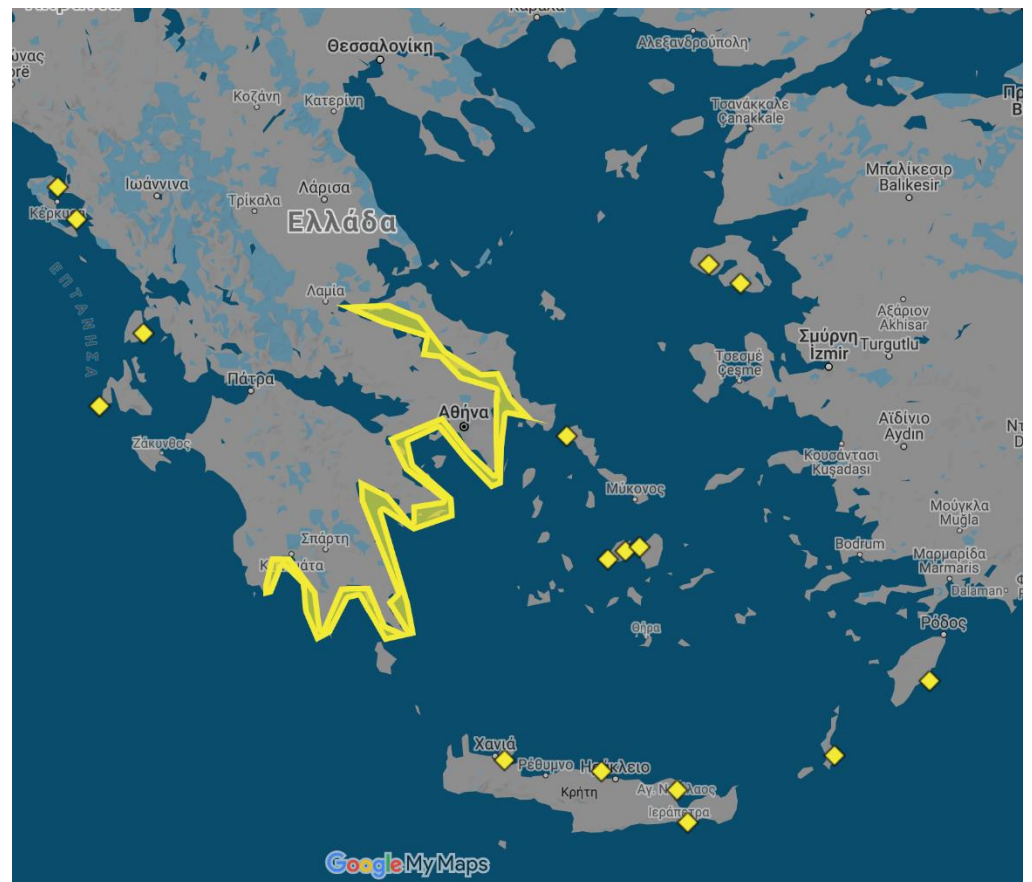


Figure 2. *P. i. radiata* habitat in Greece

Visual similarities between Pearl Oyster, *O. Edulis*,

A. Opercularis



Figure 1. External morphology of the bivalves searched through the keywords (from left to right) a) *P. i. radiata* (Pearl oyster), b) *O. edulis* (Native oyster), c) *A. opercularis* (Scallop - pectenid).

Results

Based on research, the following results were obtained :

1. *P. i. radiata* : 25 results (distribution & purchase) in 3 regions of Greece.
2. *O. edulis*: 88 results (restaurants) with geographical allocation in 9 regions of Greece.
3. *A. opercularis*: 208 results (restaurants) with geographical allocation in 9 regions of Greece.

Marketplaces Distribution Maps

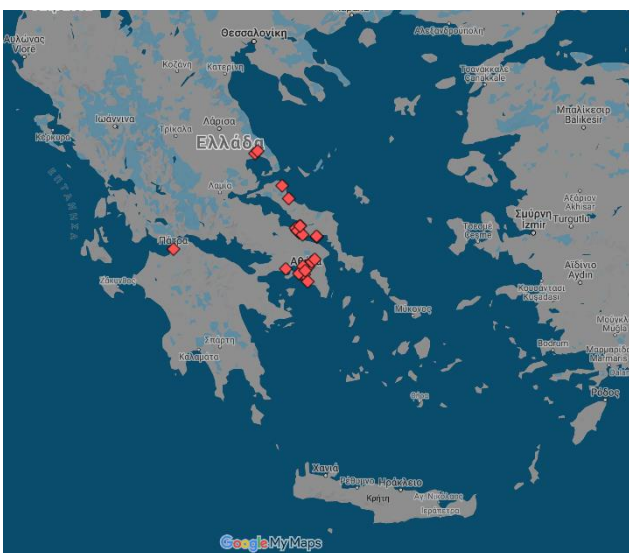


Figure 3. *P. i. radiata* (Pearl oyster) marketplaces

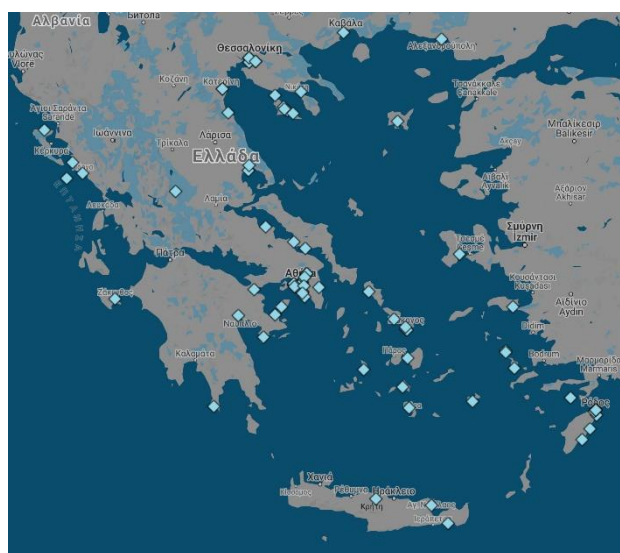


Figure 4. *O. edulis* (Native oyster) marketplaces

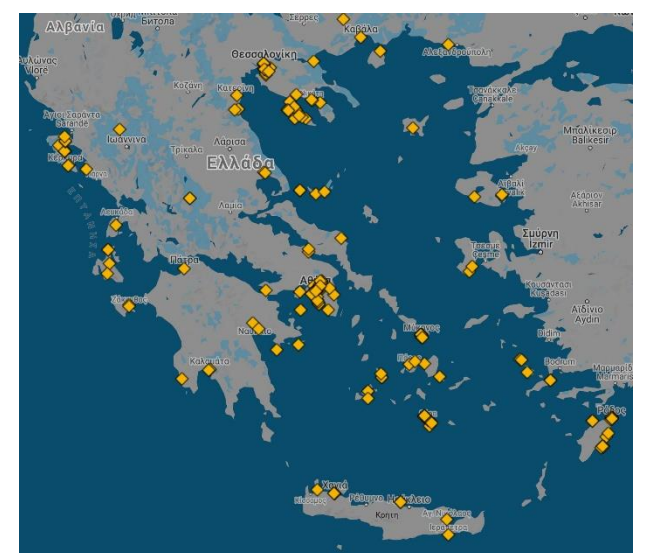


Figure 5. *A. opercularis* (Scallop) marketplaces

Discussion and conclusion

- Pearl oyster is not an endemic species
- They were first observed in Greek waters in the '60s (Theodorou et al., 2019).
- Pearl oyster fishing is prohibited, it is not included in the current national legislation.
- There is a certain visual similarity with the native species of *Ostrea edulis* and *Aequipecten opercularis*
- Many areas, despite the fact that they constitute habitat of the pearl oyster, no report of its availability to consumers was found.
- In the same areas, there were found dozens of references to the market of native oysters and scallops.

Conclusion

Summarizing all the above, it seems that there is a specimen mislabeling throughout Greece, thus, extraction of significant information about the market supply of pearl oyster is deficient.