



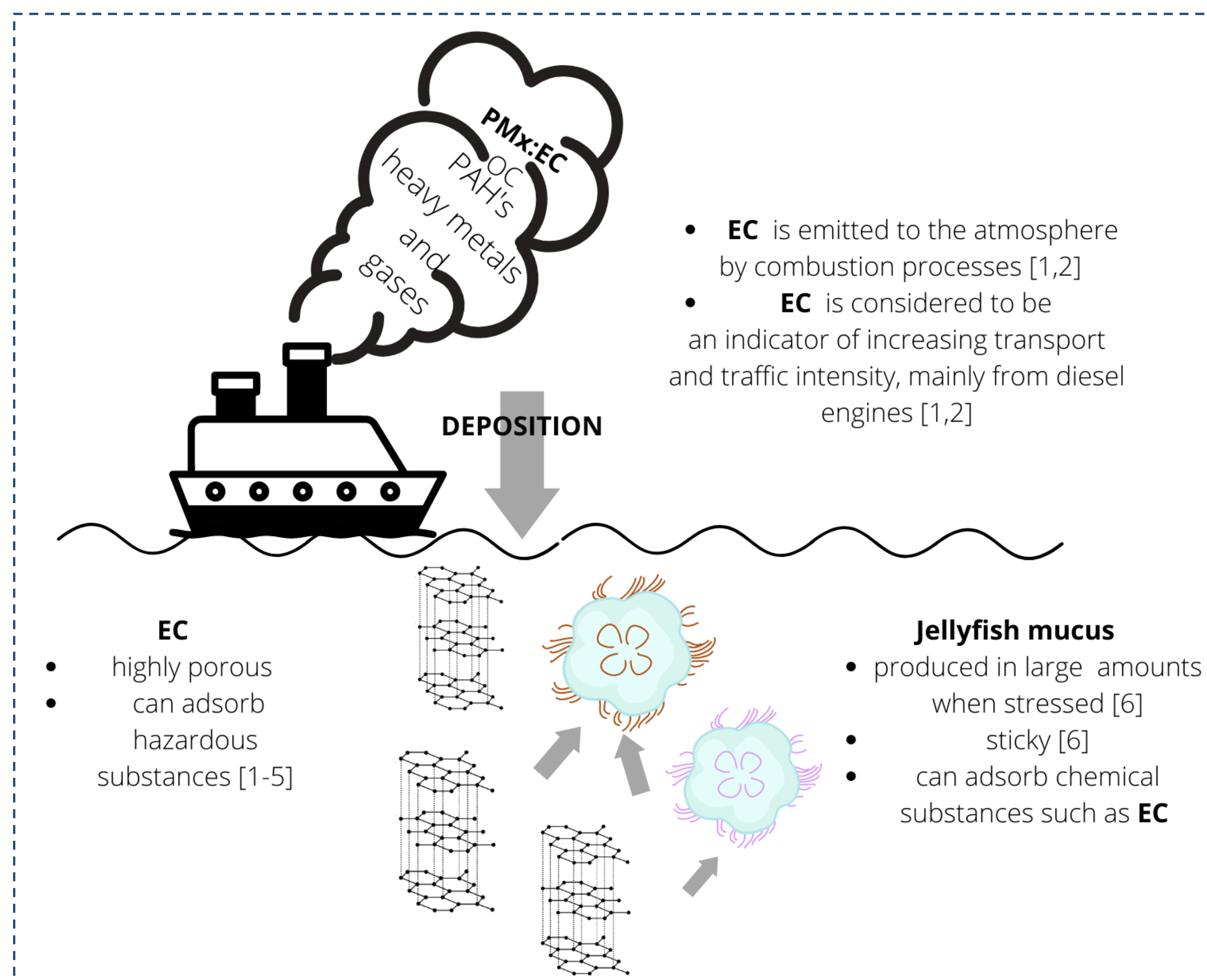
Elemental carbon in *Aurelia aurita* living in seawater of the Port of Gdynia (Gulf of Gdansk, Southern Baltic)

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INTRODUCTION



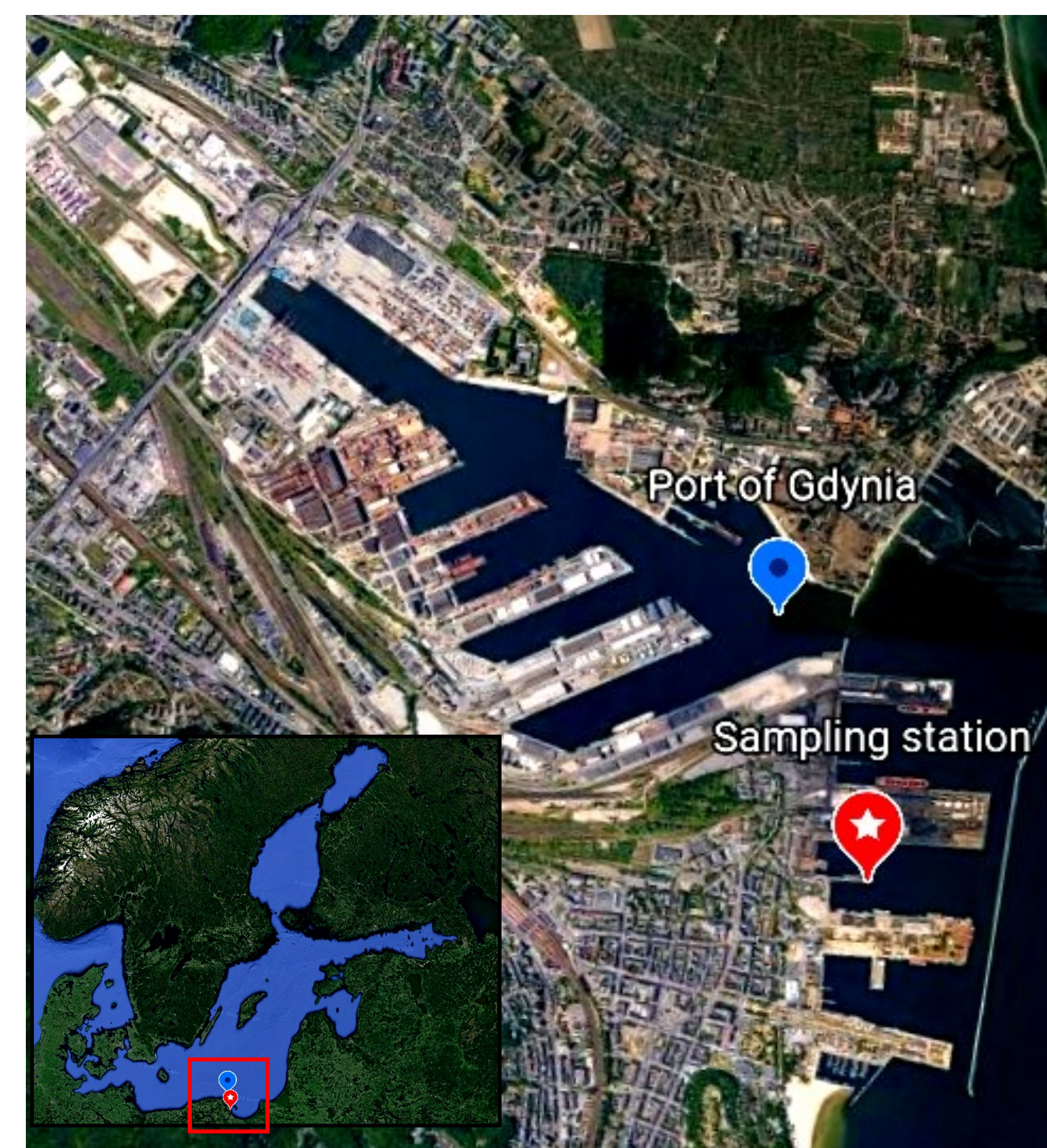
GOALS

- Determination of elemental carbon (EC) concentration in *A. aurita* collected from seawater in Port of Gdynia and seawater suspended particulate matter (SPM)
- Indication of factors affecting the level of EC concentration and determination the bioconcentration of EC in *A. aurita*

MATERIALS AND METHODS

Collection and transport of samples

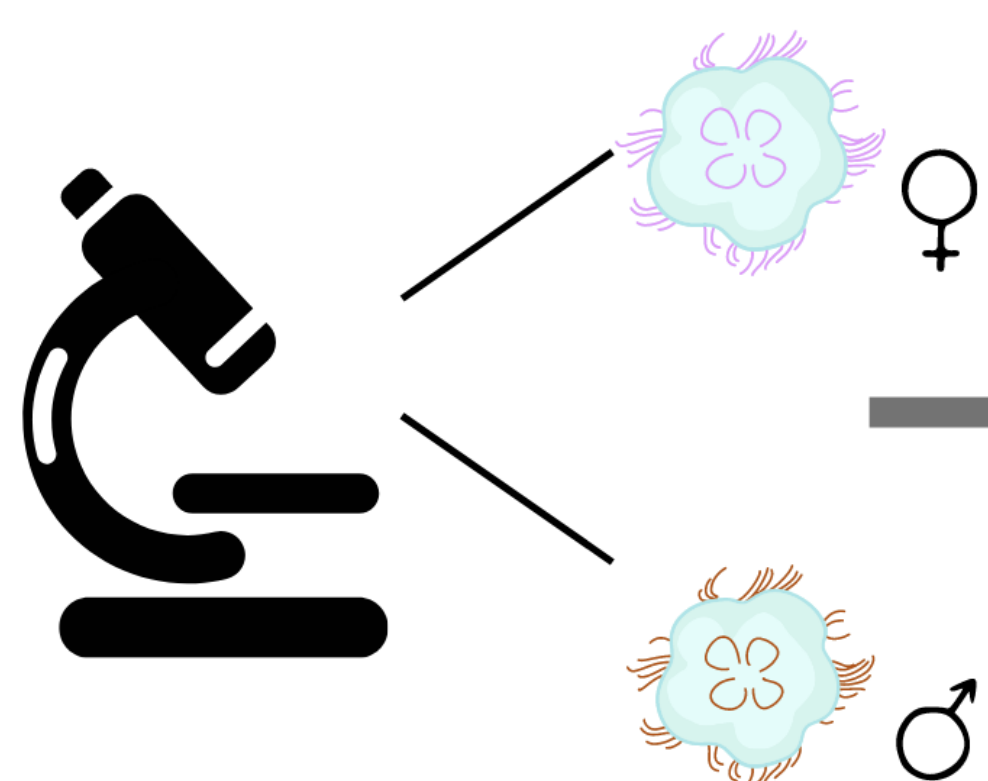
- ⇒ Sampling took place from July to September 2021 in Port of Gdynia (Fot.1)
- ⇒ A total of 74 jellyfish and 16 seawater samples were collected during 6 measurement days
- ⇒ Jellyfish were collected using plastic net



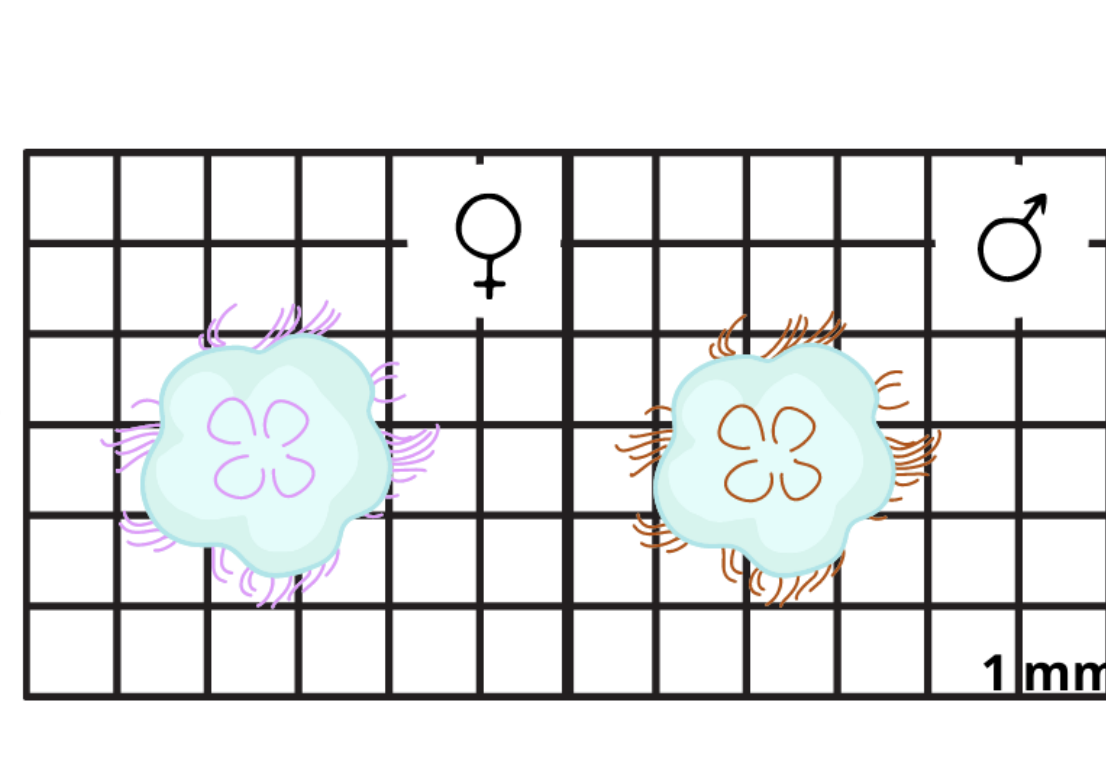
Fot.1. Location of sampling— port basin in Port of Gdynia (Southern Baltic, Poland)

Preparation and analysis of samples

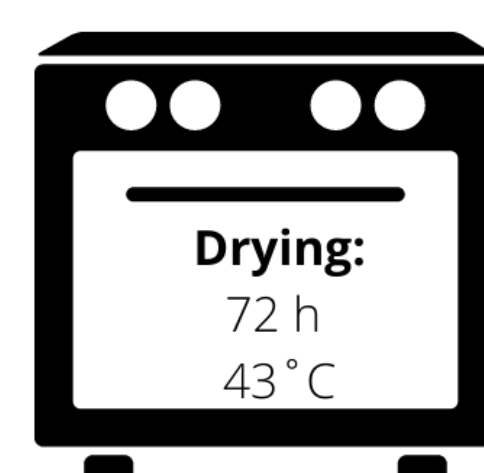
I Gender determination (NIKON SMZ 1500)



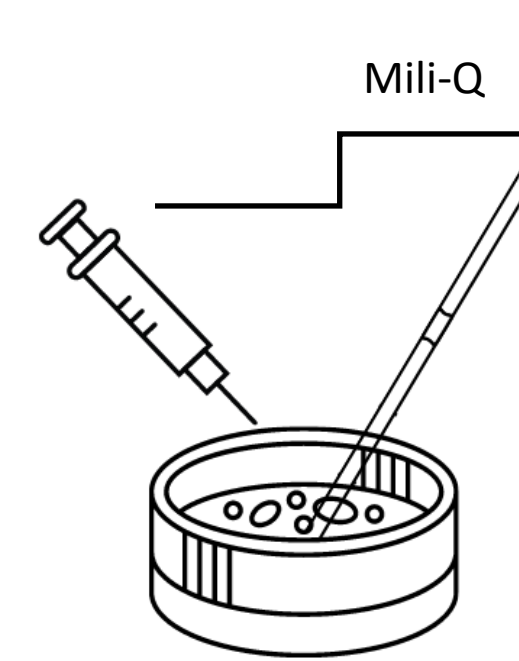
III Round length measuring



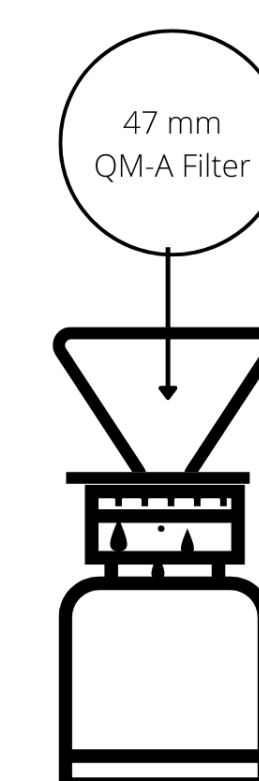
IIII Drying



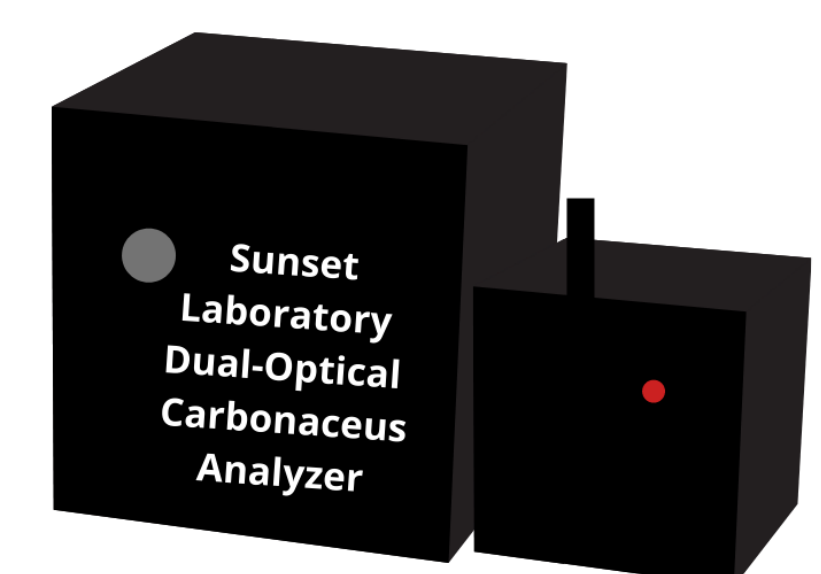
V Homogenization



VI Filtration



VII Chemical EC analysis (EUSAAR_2 protocol)



RESULTS AND DISCUSSION

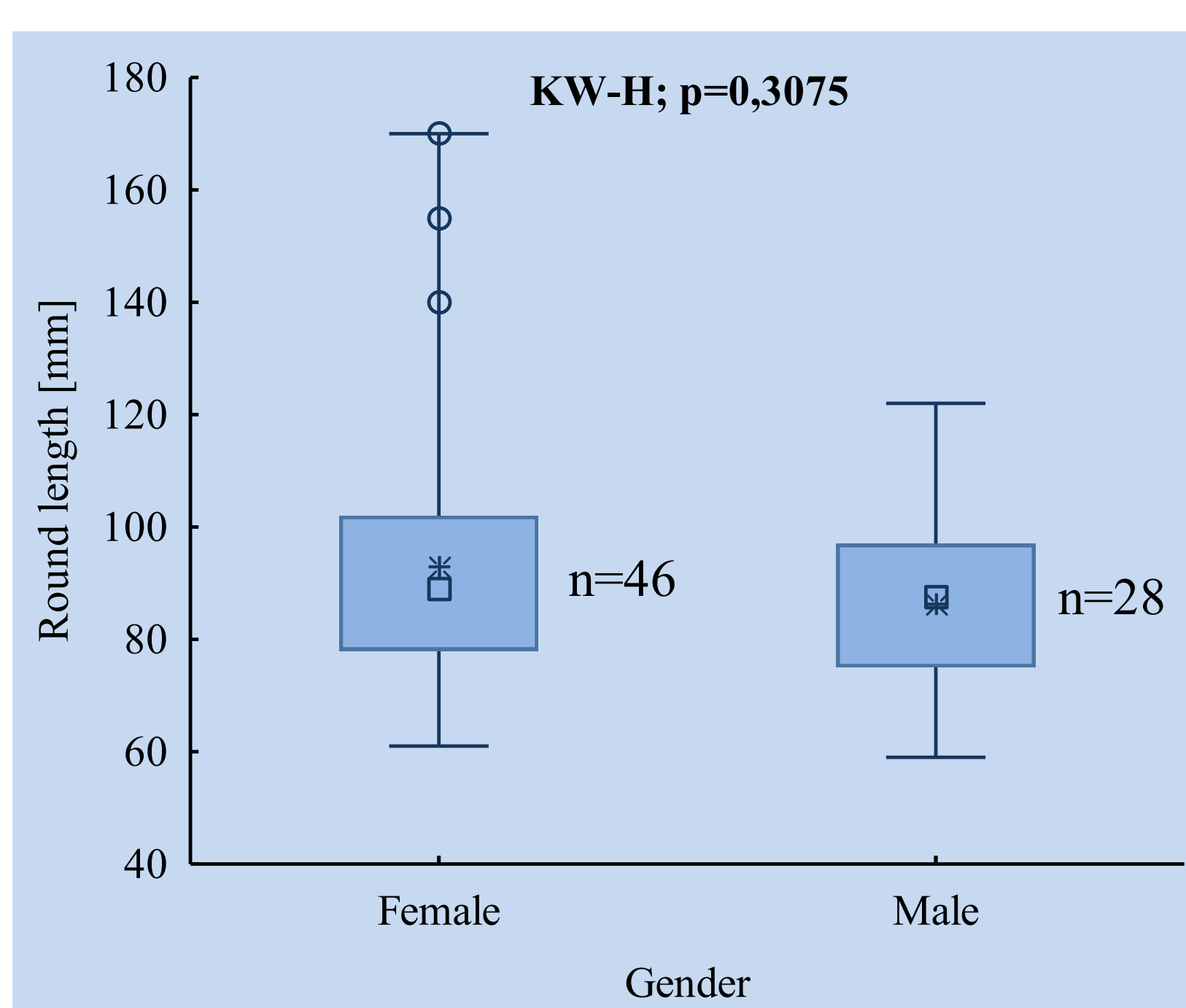


Fig. 1 Round length and abundance of male and female jellyfish from the entire research period

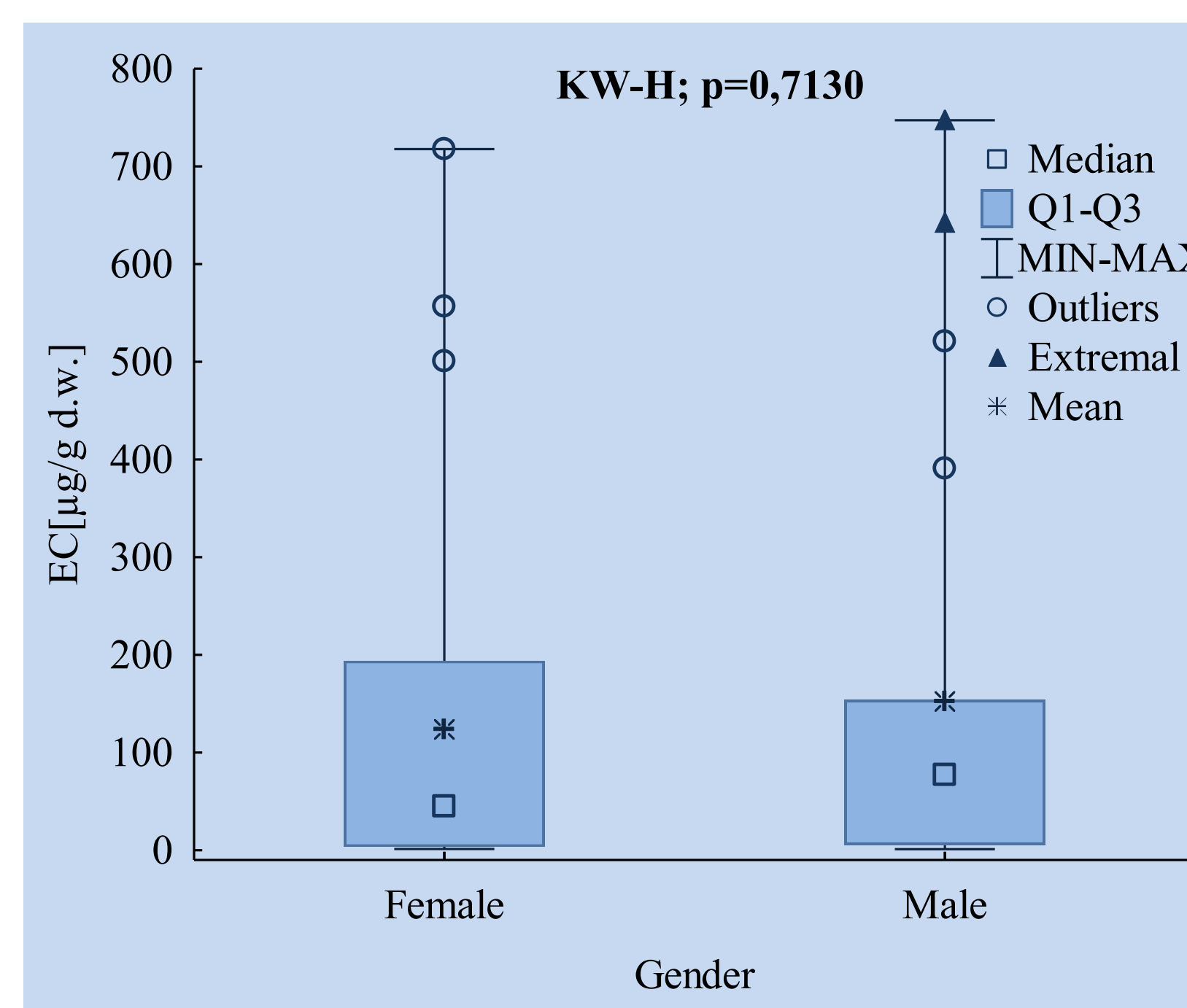


Fig. 2 Variability of EC concentration [µg/g d.w.] in male and female jellyfish from entire research period

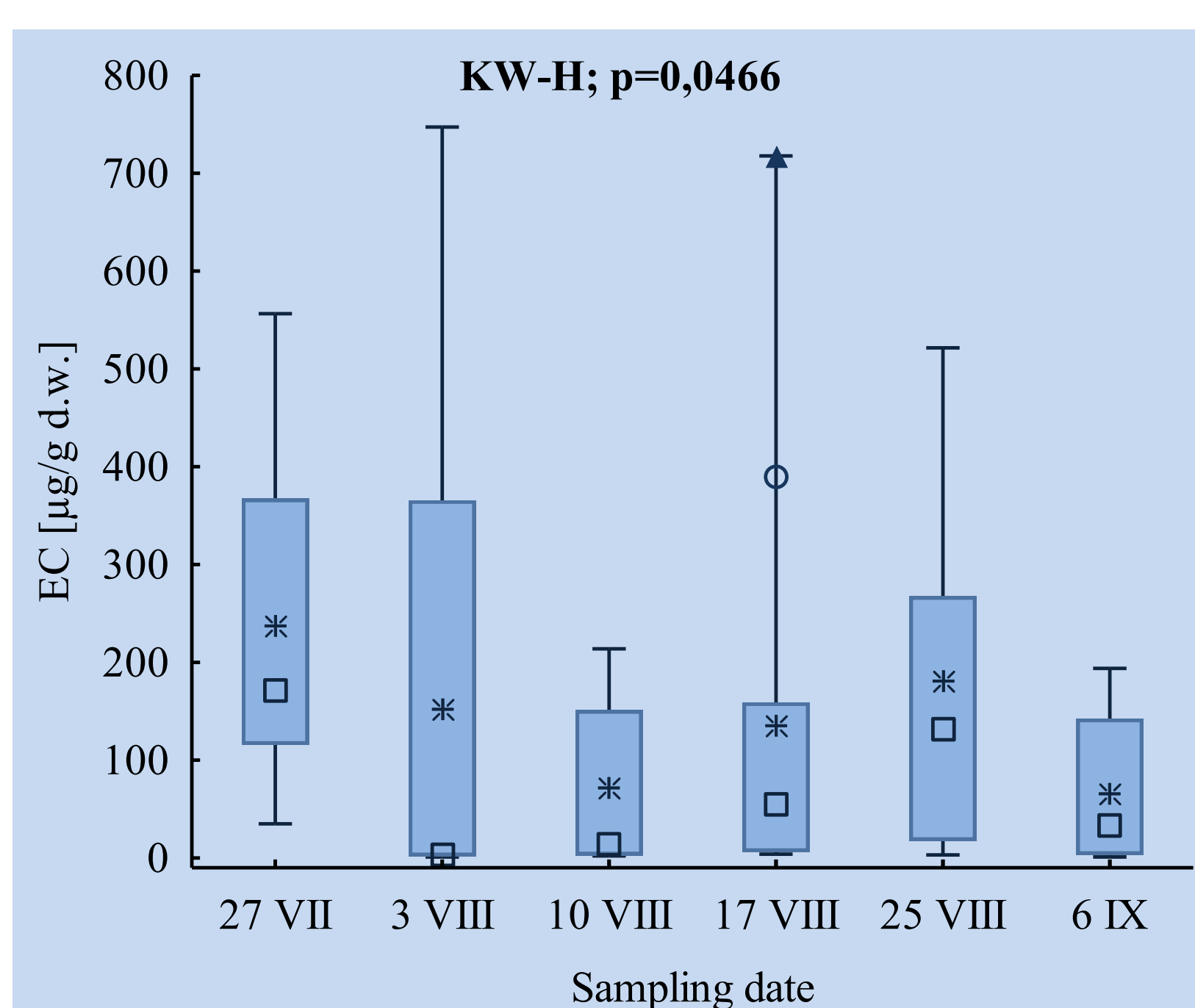


Fig. 3 Variability of EC concentration [µg/g d.w.] in jellyfish depending on day of sampling

Tab.1 The estimates of EC concentration in jellyfish from entire period

Estimator	EC [µg/g d.w.]
Mean	134,54
SD	180,55
Median	55,05
MIN-MAX	1,06 - 747,30

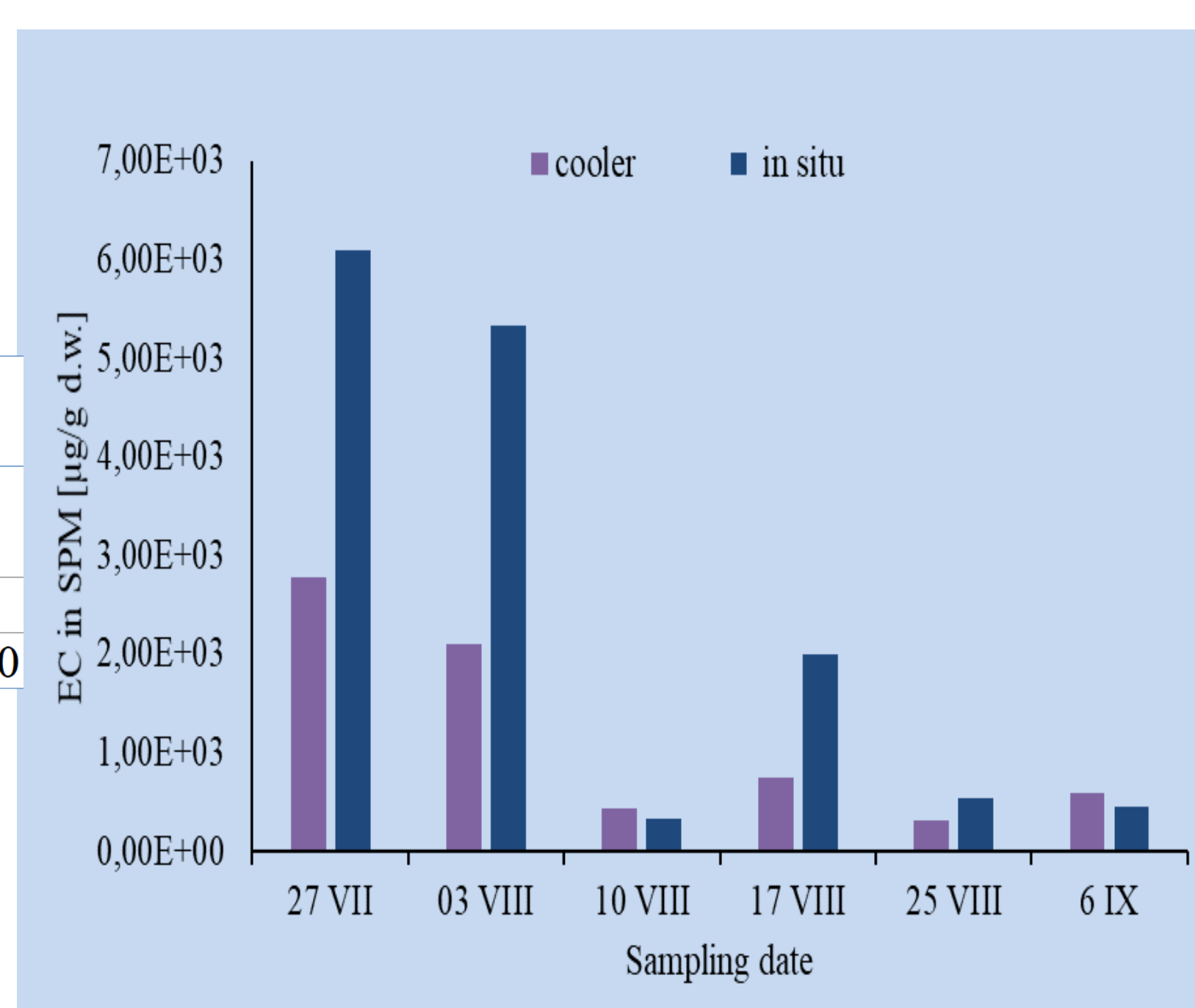


Fig. 4 Variability of EC concentration [µg/g d.w.] in SPM (from cooler and in situ) depending on day of sampling

- Jellyfish size distribution - no statistically significant differences depending on gender ($p > 0.05$) (Fig. 1)
- EC concentration in jellyfish - no statistically significant differences depending on gender ($p > 0.05$) (Fig. 2)
- EC concentration in jellyfish differed in the following measurement days ($p < 0.05$) (Fig.3)
- The estimates of EC concentration in jellyfish from entire period are shown in Tab.1
- On days 27 VII, 3 VIII, 17 VIII, 25 VIII 2021 concentration of EC in seawater SPM was on average over 2 times higher than in SPM from cooler
- Bioconcentration factor (BCF) for all samples was < 1 , indicating that EC does not bioaccumulate in jellyfish tissue

Summary

- EC was present in jellyfish and in seawater of the Port of Gdynia, but its concentration did not show statistically significant differences depending on the gender and size of organisms.
- Higher EC concentration in the seawater SPM than in the seawater SPM from the cooler suggest that jellyfish may secrete more mucus during stress that adsorbs EC from the ambient water.
- The presented results are only preliminary that will be extended as the subject of the master's thesis.

LITERATURE

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