

**CYSTOSEIRA BARBATA, MACROPHYTE IN THE TILIGUL ESTUARY
(NORTH-WESTERN BLACK SEA REGION)**

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Cystoseira barbata (Stackhouse) C.A. Agardh, 1820. It is perennial brown algae belonging to the class of Phaeophyceae, attached to the genus *Cystoseira*. A characteristic feature of this type *Cystoseira* is the branching of the thalom which is growing under water. The height length of thalom reaches 1.0 meter to 1.2-1.3 meters. The central part of the thalom is thick, 0.5-0.6 centimeters. The color of thalom is brown-green, which is attached to the underwater substrate, such as: reefs, large shells, single stones at the bottom of coastal and deep layers of water in brackish of the Tiligul estuary.

Cystoseira barbata (Stackhouse) C.A. Agardh, 1820, is represented by estuary population, which is considered as a reserve for its restoration in the Tiligul esatuary.

Cystoseira barbata (Stackhouse) C.A. Agardh, 1820, population practically disappeared in the Tiligul estuary in the 80s years of the 20 century. Over time, through the canal connecting from the Black Sea to the Tiligul estuary, it was brought in by sea water. Where it settled in area of the village «Koshary» in coastal and deep in water estuary areas.

During 2015-2017, ecological situation in estuary worsened the mostly due to the fact that the flow of water through the connected canal the Black Sea to the Tiligul estuary. This happended due to silting of the canal. The flow of water from the Black Sea to the Tiligul estuary has stopped. During the summer in July and August due to heat happen greatest evaporation of the water mirror dispite the fact that flow of water into the Tiligul estuary was replenished exclusively by rainfall who were few. In connection with this, salinity of water in the estuary increased and in some water areas reached up to 32-33‰ at a time when normal values were 20-21‰. In this regard, the species composition of macrophytes has decreased. During 2017. The channel was reconstructed and started into operation December 27, 2017. With the commissioning of the canal, water from see began to flow from the Black Sea into the Tiligul estuary. Currently built hydro technical structures, locks regulate the replenishment of water and the passage of fish into the canal and from the canal to the Black Sea. At the time of 2022-2023, the water in the Tiligul estuary reached its maximum filling. The salinity of the water returned to its previous indices and now is

19-21‰. Water flooded the coastal areas from the side of the village of «Koshary» and the dacha cooperative «Delta» and rests against the base of coastal cliffs along the coast of estuary. During negative ecological condition in the Tiligul estuary at 2015-2017, *Cystoseira barbata* (Stackhouse) C.A. Agardh, 1820, got morphological adaptation to new condition of estuary associated with a decrease in functional activity in condition of changing trophicity. During 2015-2017 average number near to coast of Tiligul estuary was 2-3 specimens per square meter. In present time we can find 4-6 specimens per square meter. *Cystoseira barbata* (Stackhouse) C.A. Agardh, 1820 restores lost population. Lately average biomasse $123,7 \pm 42,1$ grams per square meter. Although similar figures in 2013-2014 were higher in terms of mass $154 \pm 56,4$ grams per square meter of thalom.

Due to reconstructed channel connected by Black Sea to the Tiligul estuary ecological situation in the Tiligul estuary completely normalized now.

References

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