

STUDY OF DINAMICS OF WATER VEGETATION IN THE WATER BODIES OF THE SOUTHERN ARAL SEA REGION

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At present, the study and monitoring of the current condition of higher water plants in the water bodies of the lower reaches of the Amudarya and the assessment of the state of the biodiversity of aquatic ecosystems are relevant. We, on the basis of literature data and our own research, present materials on the study of higher water vegetation in the water bodies of Karakalpakstan. Water plants are the main producers of water ecosystems: without them, aquatic animals could not exist. During photosynthesis, they are not only food organic substances, but they release oxygen in the atmosphere, which aerates the water used for breathing by fish and other inhabitants of water bodies. Absorbing dissolved minerals, water plants clean the water of water bodies. Finally, they provide shelter and food for aquatic insects and other small animals, which, in turn, serve as food for fish. Some species of fish, in particular from the cyprinids - grass carp feed directly on macrophytes [3].

Water vegetation of lakes and reservoirs of the lower reaches of the Amudarya in the 70s was of great variety. According to the literature data [1, 2, 5], higher water plants in the 60s–70s included 66 species belonging to 35 genera and 23 families. The water bodies of the delta were characterized by strongly development of water-immersed plants, such as: aldrovanda vesicular (*Aldrovanda vesiculosa* L.), swampweed *Nymphaoides* (*Nymphaoides peltatum*), yellow water lily (*Nyphaea luteum*), pure white water lily (*Nymphaea candida*), common pemphigus (*Utricularia vulgaris*), floating salvinia (*Salvinia natans*), spiral vallisneria (*Vallisneria spiralis*). The dominant position was occupied by sunken hornwort (*Ceratophyllum demersum*), spiked urut (*Myriophyllum spicatum*), sea naiad (*Najas marina*), and comb pondweed (*Potamogeton pectinatus*).

Coastal plants were also represented by wide species diversity: brilliant pondweed (*Potamogeton lucens*), curly pondweed (*Potamogeton crispus*), pondweed (*Potamogeton perfoliatus*), three-leaved arrowhead (*Sagittaria trifolia*), and narrow-leaved cattail (*Typha angustifolia*). The shores of the lakes in the Amudarya delta were occupied by reed beds (*Phragmites communis*), who's area was about 1 million hectares [4].

As a result of the reduction in the areas of water bodies and the deterioration of the physical chemical properties of water have changed qualitative and quantitative indicators of

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phytocenoses of water bodies. By the mid-60s the area reed beds decreased by 6 times and amounted to 251.1 thousand hectares [5].

The long-term dynamics of water vegetation can be characterized by the example of Lake Sudochoye. It was formed in a shallow basin, and its area reached 350 km², with a width of up to 15 km and a length of 250 km. The average depth of the lake reached 2 meters; the water was clear and fresh. Most of the coastal vegetation of the lake was reed (*Phragmites communis*), narrow-leaved cattail (*Typha angustifolia*). The dominant position was occupied by immersed hornwort (*Ceratophyllum demersum*), spiked urut (*Myriophyllum spicatum*), stem-bearing pondweed (*Potamogeton perfoliatus*), and curly pondweed (*Potamogeton crispus*). Species of pondweed - shiny, curly, stalked formed dense thickets, there were also spiral vallisneria [6].

The drying up of the Aral Sea, a sharp reduction in the flow of the Amu Darya and the flow of river water into Lake Sudochoye led to the fact that in 1963-65 all the lakes of the delta became significantly shallower, which also affected the state of Lake Sudochoye. At the end of the 60s, collector waters began to flow into the lake, subsequently on which the water regime was completely dependent on them. The unstable hydrological regime of the lake, for short periods of time, the cessation of the discharge of river water and the penetration of sea water, caused its salinization. Further studies carried out at that time revealed that the water salinity in it reached 41.6‰, the depth decreased to 1.-1.5 m, the lake area decreased to 20 thousand hectares [1].

During these years, the degradation of coastal reed beds began, their width decreased from 1.5 km to 100 m. Of the aquatic vegetation found in those years, curly pondweed, brilliant pondweed, spiral wallisneria, common pemptigus, and floating salvinia have been preserved. However, thickets of spiked urut have disappeared [1]. At present, due to the deterioration of the hydrological regime and the increase in water salinity (5-6 ‰), there is a qualitative and quantitative change in the phytocenoses of water bodies. Here come the change plant communities. The change in the species composition mainly occurs due to the increase in hydro- halophilic and salt-loving species of water-immersed vegetation.

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