Monitoring of changes in the water surface and wetland area of the Aral Sea and the Aral Region

SIC specialists are constantly monitoring the state of the Western and Eastern parts of the Greater Aral Sea and the water surface of the Southern Aral Sea by using the Landsat 8-9 OLI images. Areas of open water surface, wetlands, and dried territories within the study polygon were identified based on satellite imagery. The results as of April 24, 2026, are presented in Figure 1 and Tables 1–3. The figure 2 shows the dynamics of the Amu Darya River inflows to the Aral Sea.

The Southern Aral Sea region *is a natural-geographical area whose territory includes the water bodies of the Amu Darya River delta and the Main South Karakalpak Collector (MSKC).*

Water body *is a natural or artificial water feature characterized by specific morphometric parameters (area, volume, depth).*

Water surface *refers to the portion of a water body directly covered by open water at a given time; it is one of the main indicators of the water body's condition.*

Wetlands *are natural complexes characterized by excessive moisture; they represent part of the water body territory.*

Dried area *is a territory previously occupied by water surface but transformed into land due to declining water levels during monitoring; it represents part of the water body territory.*

Polygon *is a spatial object representing a closed area with defined boundaries, used for mapping and analysis of territories in satellite imagery.*

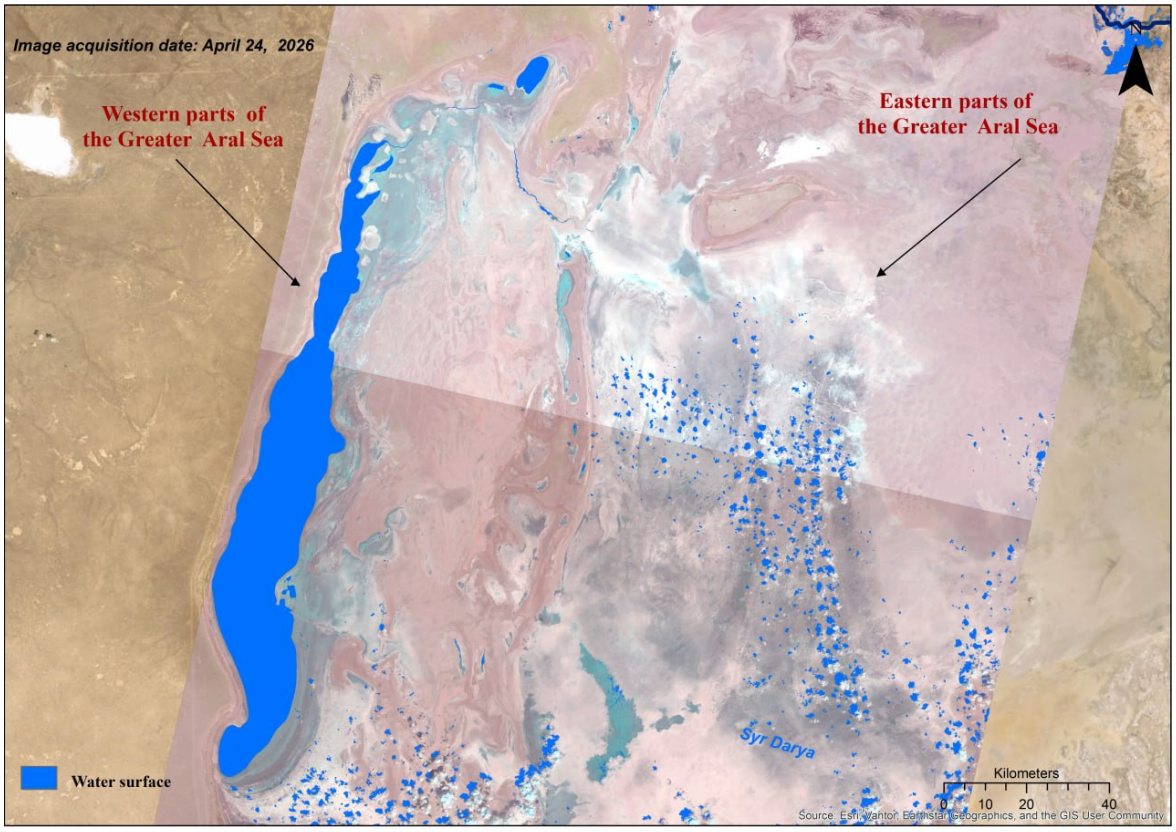

Figure 1. Western and Eastern parts of the Greater Aral Sea based on Landsat 8 imagery (April 24, 2026)

Table 1

The area of wetlands, open water surfaces and dried ground in the Western and Eastern parts of the Greater Aral Sea

	04.09.2025	05.10.2025	23.11.2025	15.03.2026	24.04.2026
Western part of the Aral Sea, ha					
Wetland	333464	338323	352274	343185	342962
Water surface	188184	186758	186661	185494	184932
Dried ground	39702	36269	22415	32671	33456
Eastern part of the Aral Sea, ha					
Wetland	1458456	1459973	1483877	1452192	Cloudy
Water surface	10	10	37	571	
Dried ground	38358	36841	12910	44061	

Figure 2. Dynamics of the Amu Darya River runoff at the Samanbay gauging station

Table 2

Inflow to the Southern Aral Sea region, mln m^3

Month	Delta			MSKC***	Total
	From Amu Darya River*	From canal systems**	Collector-drainage runoff**		
January	126	46	41	17	**230**
February	110	38	33	21	**202**
March	88	0	75	36	**199**

*Source: Uzhydrometeoservice

** Source: Ministry of Water Resources of the Republic of Uzbekistan

***Source: BWO “Amu Darya”

Table 3

Outflow to the Greater Aral Sea, mln m^3

Month	Outflow from the Southern Aral Sea	Outflow from SAS*	Total
January	230	0	230
February	202	0	202
March	199	0	199

* Small Aral Sea

The monitoring results are as follows:

1. In the western part of the Aral Sea, a gradual decrease in the water surface area is observed, accompanied by an expansion of exposed dry areas. A satellite image of the eastern part of the Aral Sea as of April 24, 2026 does not allow for detailed analysis due to cloudy conditions. However, based on data from March 2026, a sharp increase in both the water surface area and exposed land can be noted, along with a simultaneous reduction in wetland areas. This indicates an unstable hydrological regime and a high dependence on annual water availability.
2. A satellite image of the eastern part of the Aral Sea as of April 24, 2026 does not allow for detailed analysis due to cloudy conditions. However, based on March 2026 data, the area of open water surface increased by more than twofold, indicating an improvement in regional water availability. The most significant growth was observed in large water bodies (Mezhdurechenskoye, Jyltyrbas, Sudochye).
3. The total inflow of water to the Southern Aral Sea region shows a moderate decrease during the period from January to March (down to 199 million m^3). The main contribution is formed by the flow of the Amu Darya River, with additional input provided by canals and the collector-drainage system.

Prepared by: L. Sichugova, I. Ruziev and I. Ergashev