

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 May 2, 2026, are presented in Figures 1–2 and Tables 1–6. The figure 3 illustrates the dynamics of the Amu Darya River discharge at the Samanbay gauging station.



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.

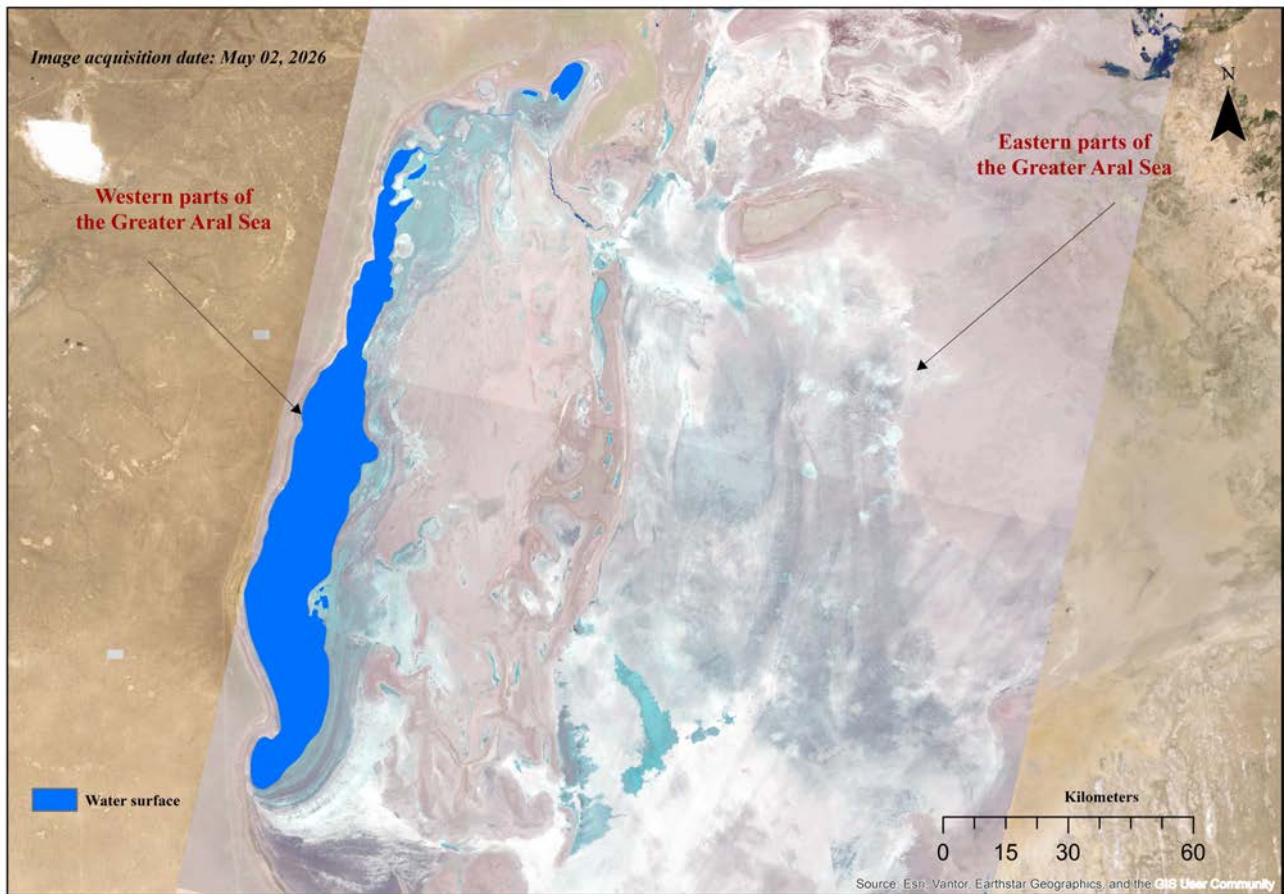


Figure 1. Western and Eastern parts of the Greater Aral Sea based on Landsat 8 imagery (May 2, 2026)

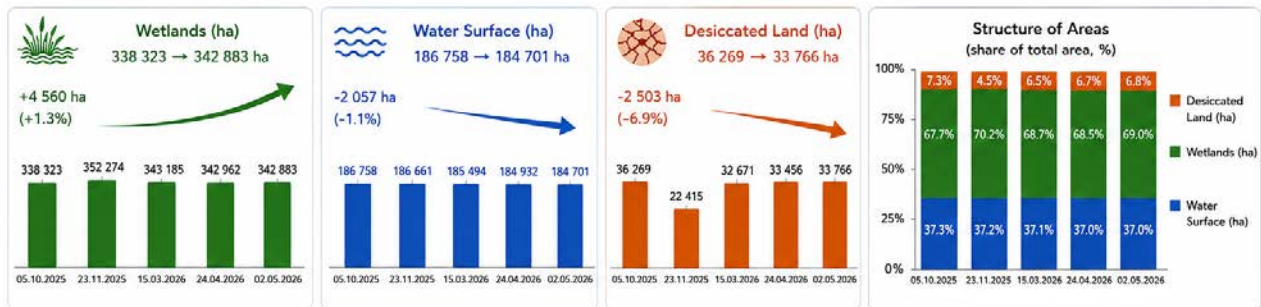
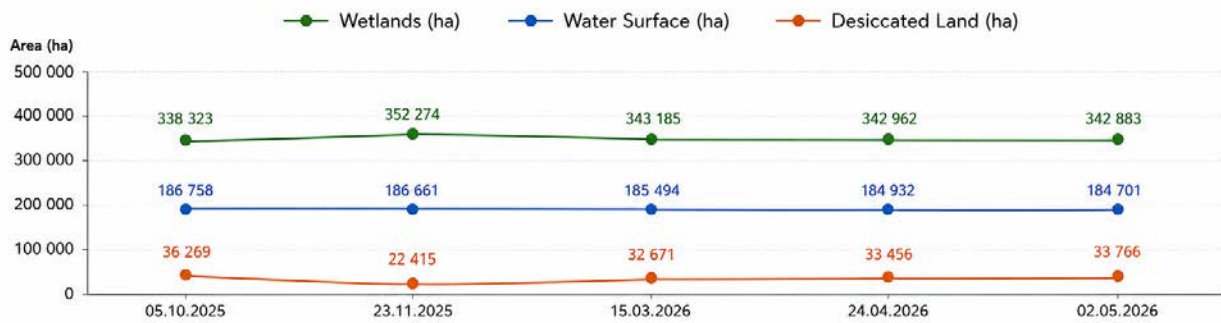
Table 1

The area of wetlands, open water surfaces and dried area 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	02.05.2026
Western part of the Aral Sea, ha						
Wetland	333464	338323	352274	343185	342962	342883
Water surface	188184	186758	186661	185494	184932	184701
Dried area	39702	36269	22415	32671	33456	33766
Eastern part of the Aral Sea, ha						
Wetland	1458456	1459973	1483877	1452192	Cloudy	1471028
Water surface	10	10	37	571		420
Dried area	38358	36841	12910	44061		33766

Dynamics of changes in the areas of the Western and Eastern parts of the Greater Aral Sea

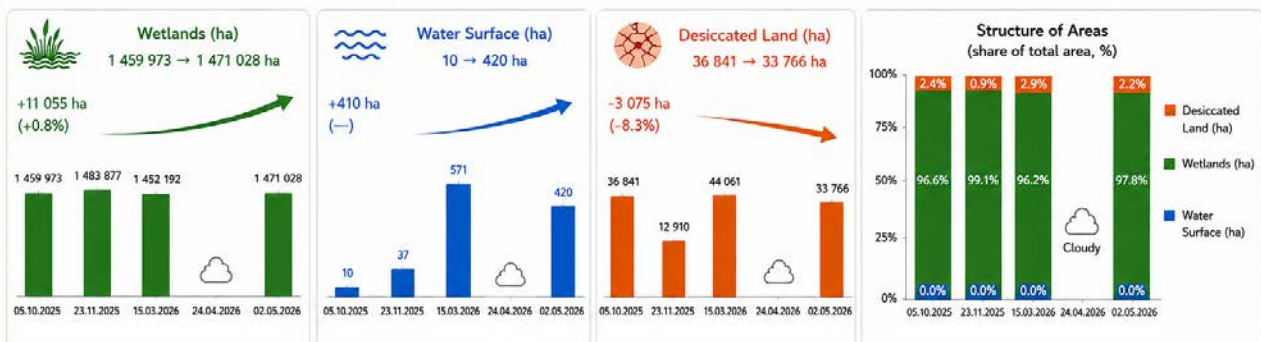
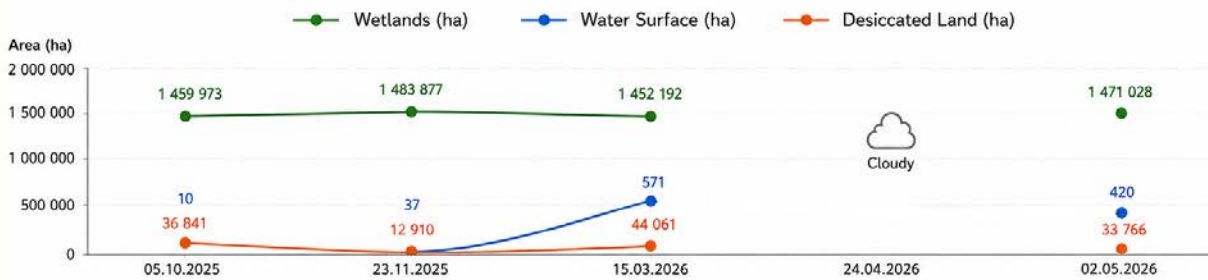
Changes in the Areas of the West Part of the Greater Aral Sea



From October 5, 2025 to May 2, 2026 in the West Part of the Greater Aral Sea, an increase in wetlands area and a decrease in water surface and desiccated land area are observed.

- ↑ Wetlands: +4 560 ha (+1.3%)
- ↓ Water Surface: -2 057 ha (-1.1%)
- ↓ Desiccated Land: -2 503 ha (-6.9%)

Changes in the Areas of the East Part of the Greater Aral Sea



From October 5, 2025 to May 2, 2026 in the East Part of the Greater Aral Sea, an increase in wetlands area and water surface area, and a decrease in desiccated land area are observed.

- ↑ Wetlands: +11 055 ha (+0.8%)
- ↑ Water Surface: +410 ha (-)
- ↓ Desiccated Land: -3 075 ha (-8.3%)

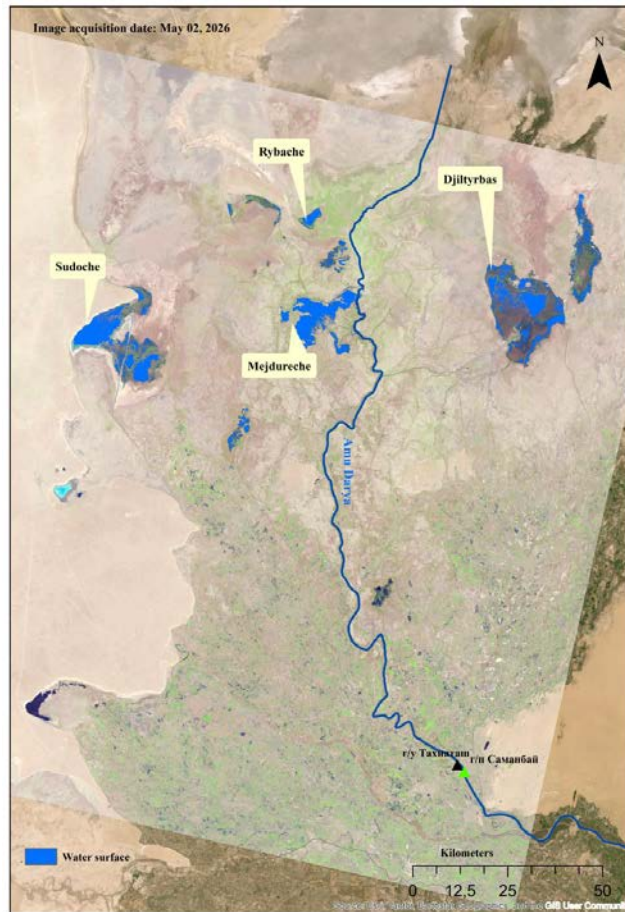


Figure 2. Southern Aral Sea region based on Landsat 9 imagery (May 2, 2026)

Table 2

Wetland areas of the Southern Aral Sea region, ha

Water body	17.12.2025	15.03.2026	02.05.2026
Sudoche	28563	23170	8223
Mejdureche	3064	4301	715
Rybache	3144	1668	123
Muynak	5290	3863	537
Djiltyrbas dam-terminated	3526	17251	13167
Djiltyrbas (together with former right and left streams)	5506	35929	6058
Dumalak	16	1731	21
Makpalkul	1451	993	535
Mashan Karadjar	3897	2826	602
Water surface southward of Muynak	263	3554	21
Water surface southward of Kazakhdarya	123	1453	10
Zakirkol	79	70	39
Total:	54922	96809	30051

Table 3

The area of open water surface in the Southern Aral Sea region, ha

Water body	17.12.2025	15.03.2026	02.05.2026
Sudoche	6108	8198	12227
Mejdureche	4643	11718	9952
Rybatche	1009	1543	1035
Muynak	227	1454	320
Djilyrbas dam-terminated	9660	12787	10654
Djilyrbas (together with former right and left streams)	307	1324	2606
Dumalak	0	2	0
Makpalkul	1678	1817	817
Mashan Karadjjar	949	1083	1026
Water surface southward of Muynak	11	158	0
Water surface southward of Kazakhdarya	0	0	0
Zakirkol	100	449	476
Total:	24692	40533	39113

Table 4

Dried area in the Southern Aral Sea region, ha

Water body	17.12.2025	15.03.2026	02.05.2026
Sudoche	38026	41329	52247
Mejdureche	30077	21765	27117
Rybatche	7340	8282	10335
Muynak	10647	10847	15307
Djilyrbas dam-terminated	34286	17434	23651.39493
Djilyrbas (together with former right and left streams)	93138	61698	90287
Dumalak	16034	14317	16029
Makpalkul	5555	5874	7332
Mashan Karadjjar	22355	23292	25573
Water surface southward of Muynak	9331	5893	9584
Water surface southward of Kazakhdarya	4628.5	3298.5	4741.5
Zakirkol	2612.3	2272.3	2276.3
Total:	274030	216302	284480

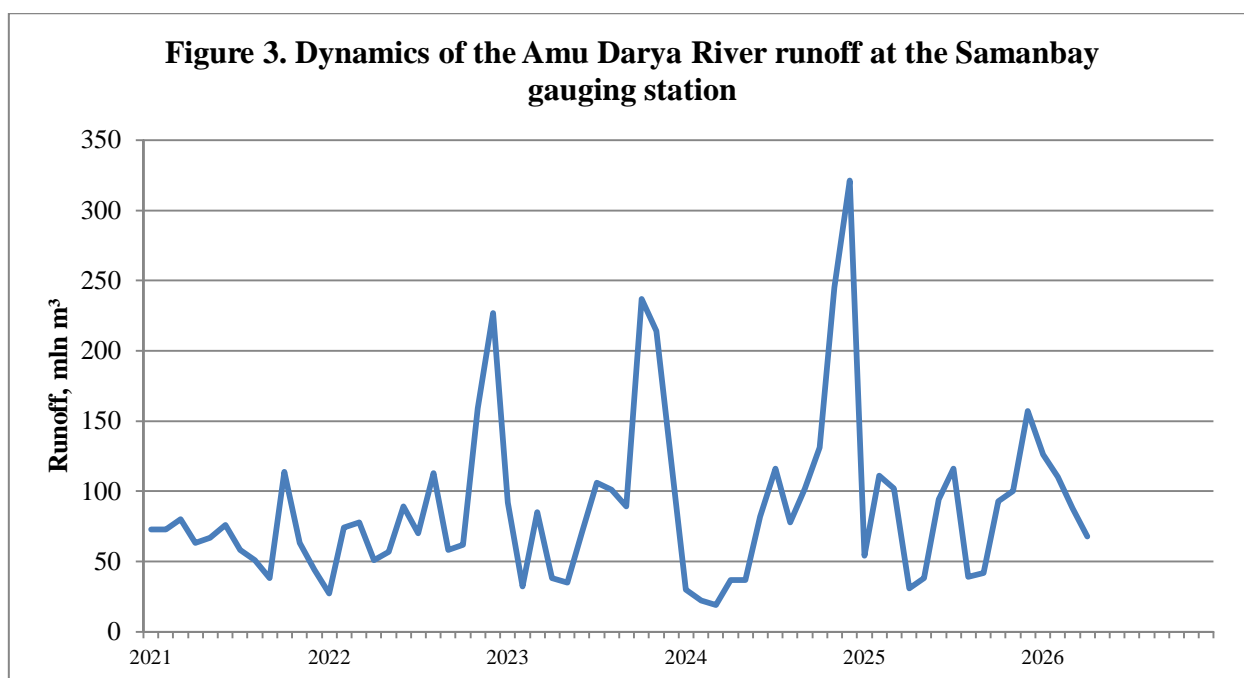


Table 5

Inflow to the Southern Aral Sea region, mln m³

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
April	68	0	107	52.6	227.6

*Source: Uzhydrometeoservice

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

***Source: BWO “Amu Darya”

Table 6

Outflow to the Greater Aral Sea, mln m³

Month	From Amu Darya River	MSKC*	Outflow from SAS**	Total
January	0	17	0	17
February	0	21	0	21
March	0	36	0	36
April	0	52.6	0	52.6

*Source: BWO “Amu Darya”

** Small Aral Sea

The monitoring results are as follows:

1. As of 2 May 2026, a reduction in the water surface area was observed in the Western Aral Sea. Compared to March 2026, the water surface area decreased by 793 ha. At the same time, an increase in dried areas was recorded, with their area expanding by 1095 ha by May 2026 relative to March 2026. However, over the observed period from October 2025 to May 2026, an increase in wetland areas and a decrease in both the water surface and the exposed dry bottom were observed in the Western part of the Greater Aral Sea. The increase in wetlands in the Western part of the Greater Aral Sea is associated with the reduction of the water surface and the exposed dry bottom, which may be due to surface moistening caused by atmospheric precipitation. Analysis of the satellite image of the Eastern Aral Sea as of 2 May 2026 also revealed a reduction in the water surface area. Compared to March 2026, the water surface area decreased by 151 ha. The area of dried area also decreased by 10.3 thousand ha relative to March 2026. At the same time, the wetland area increased by 18.8 thousand ha.
2. As of May 2026, the water bodies of the Southern Aral Sea region exhibited an overall reduction in wetland areas accompanied by an increase in dried areas. Compared to March 2026, the total wetland area decreased from 96.8 thousand ha to 30.1 thousand ha, while the area of dried areas increased from 216.3 thousand ha to 284.5 thousand ha. At the same time, the area of open water surface decreased from 40.5 thousand ha to 39.1 thousand ha. The most pronounced changes in May were observed in the Sudoche, Jiltyrbas, and Muynak systems, where exposed areas expanded and wetlands declined. These changes may be associated with the seasonal reduction in water inflow and increased evaporation during the spring period.
3. In April 2026, an increase in the total water inflow to the Southern Aral Sea region was recorded, reaching 227.6 million m³ after lower values in the preceding months. The main contribution was provided by the discharge of the Amu Darya River, while additional inflow was supplied through canals and the collector-drainage system.

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