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 March 15, 2026, are presented in Figures 1–2 and Tables 1–6. Figures 3 and 4 show the dynamics of the Amu Darya and Syr 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.

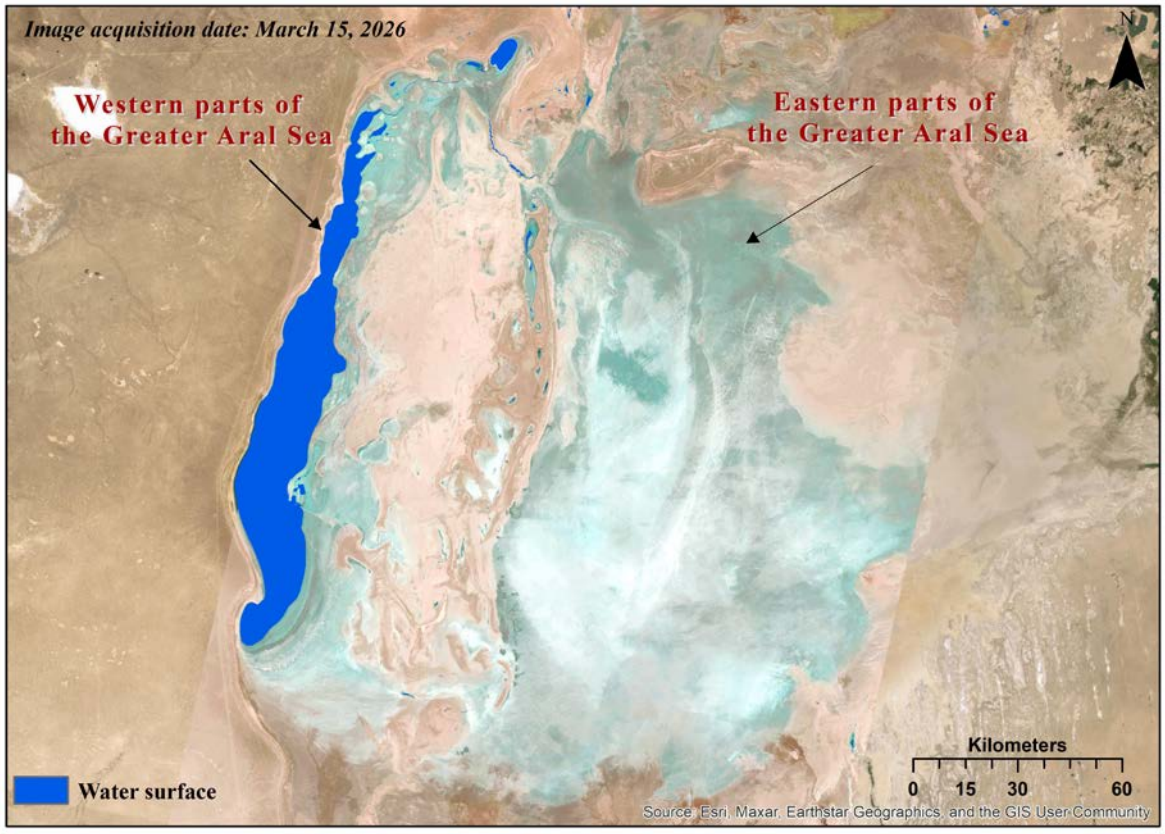

Figure 1. Western and Eastern parts of the Greater Aral Sea based on Landsat 8 imagery (March 15, 2026)

Table 1

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

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

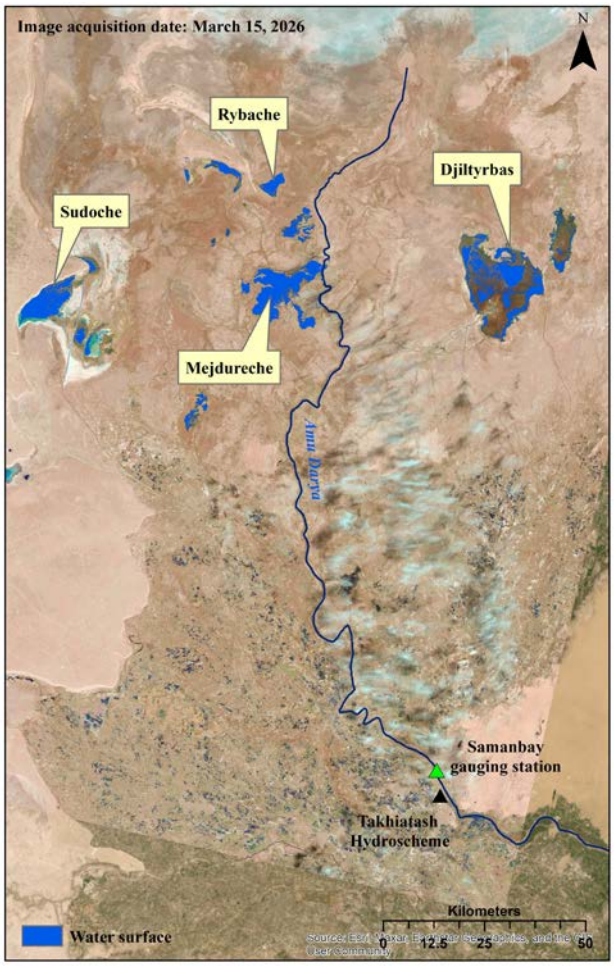

Figure 2. Southern Aral Sea region based on Landsat 9 imagery (March 15, 2026)

Table 2

Wetland areas of the Southern Aral Sea region, ha

Water body	23.11.2025	17.12.2025	15.03.2026
Sudoche	25812	28563	23170
Mejdureche	1691	3064	4301
Rybache	2747	3144	1668
Muynak	6452	5290	3863
Djiltyrbas dam-terminated	2189	3526	17251
Djiltyrbas (together with former right and left streams)	4687	5506	35929
Dumalak	18	16	1731
Makpalkul	1280	1451	993
Mashan Karadjar	1858	3897	2826
Water surface southward of Muynak	123	263	3554
Water surface southward of Kazakhdarya	86	123	1453
Zakirkol	37	79	70
Total:	**46980**	**54922**	**96809**

Table 3

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

Water body	23.11.2025	17.12.2025	15.03.2026
Sudoche	4806	6108	8198
Mejdureche	3580	4643	11718
Rybache	1021	1009	1543
Muynak	202	227	1454
Djiltyrbas dam-terminated	7374	9660	12787
Djiltyrbas (together with former right and left streams)	264	307	1324
Dumalak	0	0	2
Makpalkul	751	1678	1817
Mashan Karadjar	830	949	1083
Water surface southward of Muynak	0	11	158
Water surface southward of Kazakhdarya	0	0	0
Zakirkol	50	100	449
Total:	**18878**	**24692**	**40533**

Table 4

Dried ground area in the Southern Aral Sea region, ha

Water body	23.11.2025	17.12.2025	15.03.2026
Sudoche	42079	38026	41329
Mejdureche	32513	30077	21765
Rybache	7725	7340	8282
Muynak	9510	10647	10847
Djiltyrbas dam-terminated	37909	34286	17434
Djiltyrbas (together with former right and left streams)	94000	93138	61698
Dumalak	16032	16034	14317
Makpalkul	6653	5555	5874
Mashan Karadjar	24513	22355	23292
Water surface southward of Muynak	9482	9331	5893
Water surface southward of Kazakhdarya	4665.5	4628.5	3298.5
Zakirkol	2704.3	2612.3	2272.3
Total:	**287786**	**274030**	**216302**

Figure 3. Dynamics of the Amu Darya River runoff at the Samanbay gauging station

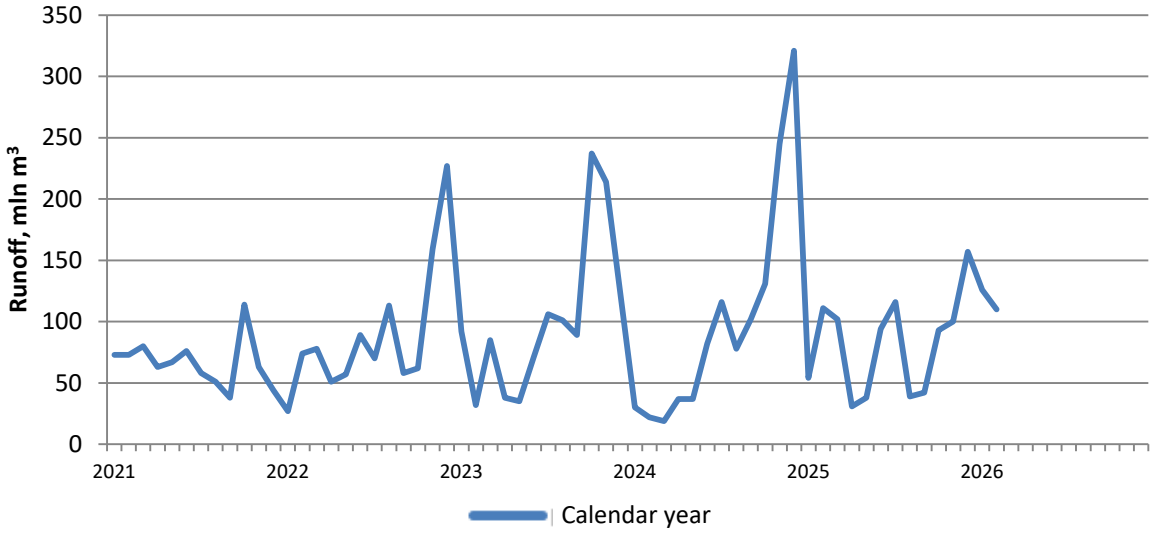

Figure 4. Dynamics of the Syr Darya river flow along the Karateren gauging station

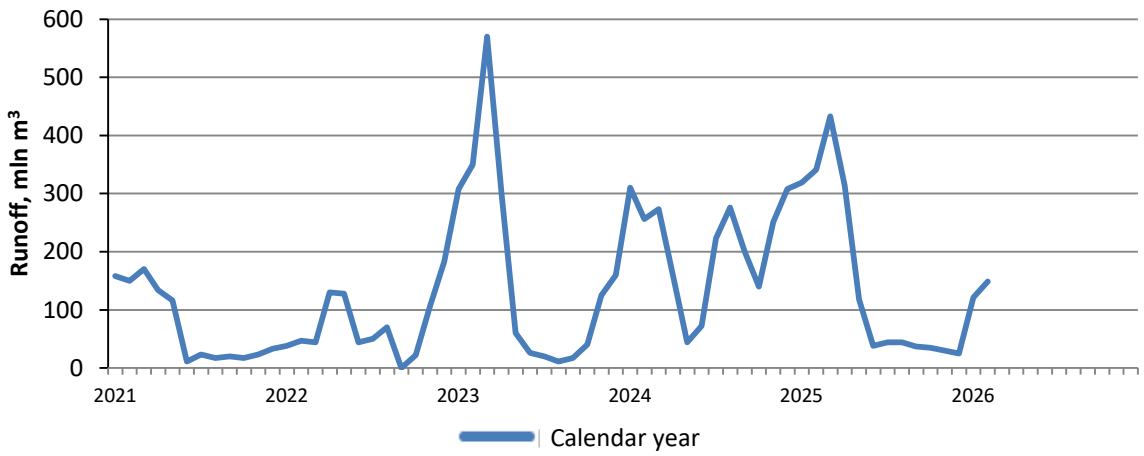

Table 5

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**

*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 m^3

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

* Small Aral Sea

The monitoring results are as follows:

1. In the Western part of the Aral Sea, a gradual decrease in water surface area is observed alongside an increase in dried territories. In the Eastern part, despite a slight growth in water surface, high variability persists: after a reduction in the dried area by November 2025, a sharp increase is observed by March 2026, pointing to an unstable water regime and dependence on the annual water availability.
2. In the water bodies of the Southern Aral Sea region, a significant increase in open water surface area is observed (more than doubled during the monitoring period), reflecting improved water availability in the region. The largest growth is recorded in the major reservoirs (Mehdureche, Djiltyrbas, Sudoche), indicating active filling of the water systems during the winter period.
3. The overall inflow to the Southern Aral Sea during the winter period shows a moderate decline from January to February (from 230 to 202 mln m^3). The main contribution comes from the Amu Darya River, with additional supply provided by channels and the collector-drainage system.

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