

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 July 13, 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.

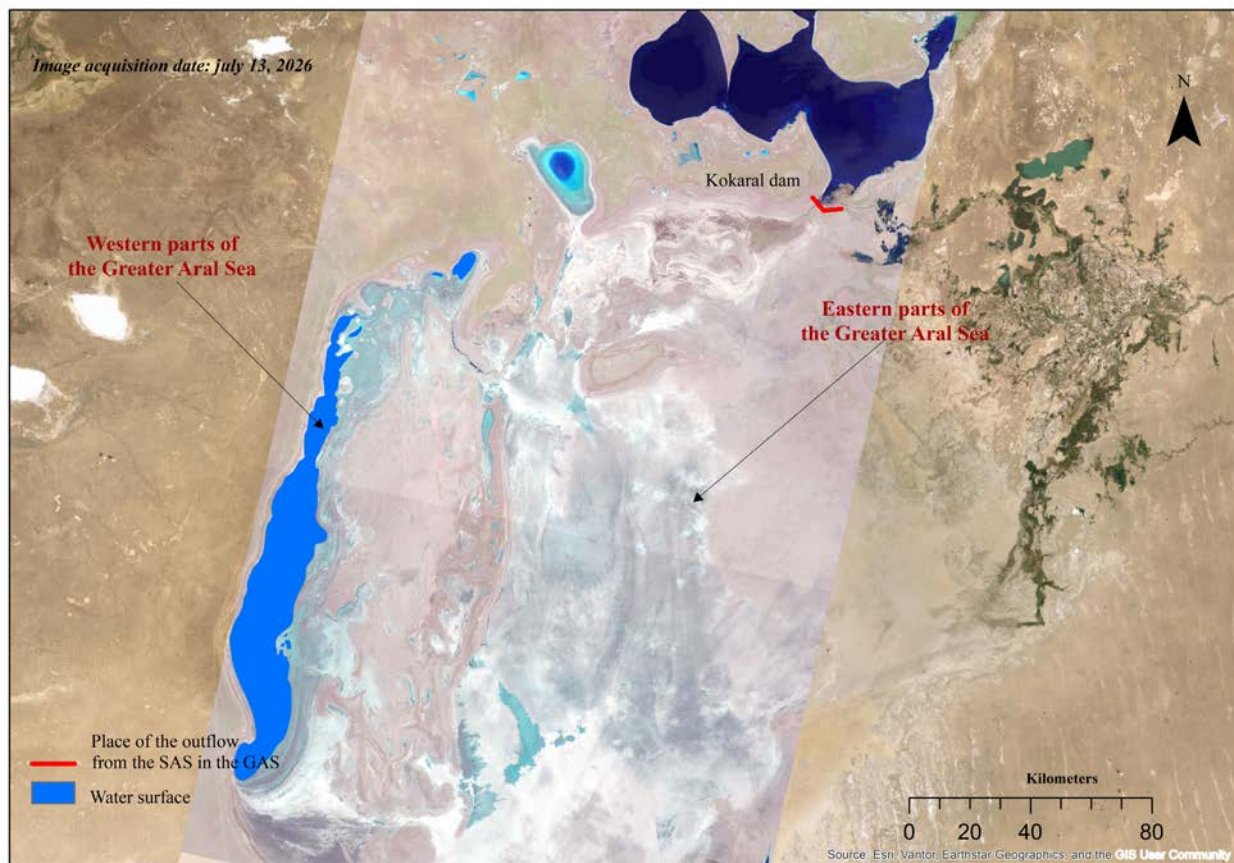


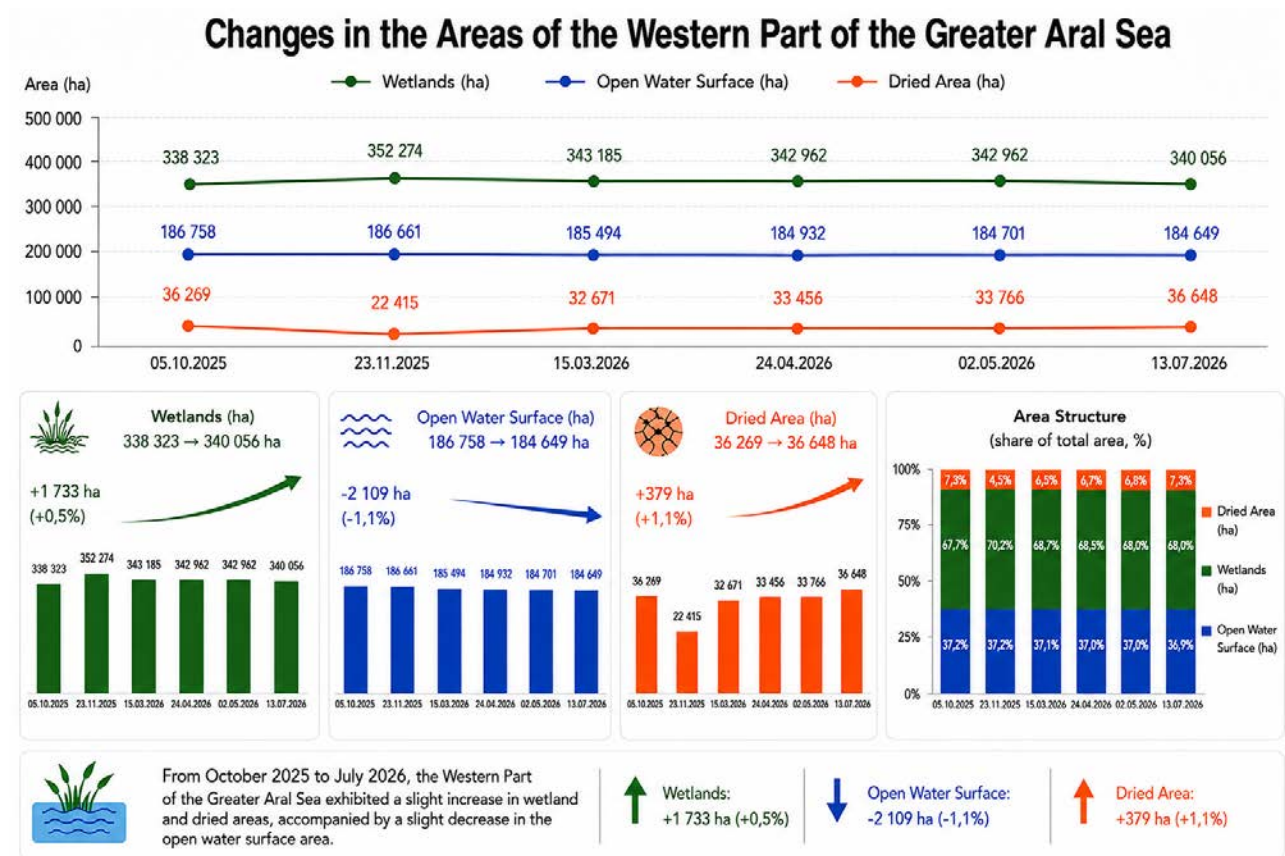
Figure 1. Western and Eastern parts of the Greater Aral Sea based on Landsat 8 imagery (July 13, 2026)

Table 1

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

	23.11.2025	15.03.2026	24.04.2026	02.05.2026	13.07.2026
Western part of the Aral Sea, ha					
Wetland	352274	343185	342962	342883	340056
Water surface	186661	185494	184932	184701	184649
Dried area	22415	32671	33456	33766	36648
Eastern part of the Aral Sea, ha					
Wetland	1483877	1452192	Cloudy	1471028	Cloudy
Water surface	37	571		420	
Dried area	12910	44061		33766	

Following the regression of the Aral Sea, zones with shallow groundwater tables (0.5–3 m) formed on the desiccated seabed, facilitating capillary moisture rise and the maintenance of moist soils. These hydrogeological conditions provide the basis for the persistence of wetlands and the development of hydrophilic vegetation even in the absence of open surface water.¹



¹ Sektimenko V. The change in soil cover on the exposed bed of the Aral Sea. Journal of Marine Systems, 47(1–4), 121–125. DOI: 10.1016/j.jmarsys.2003.12.014

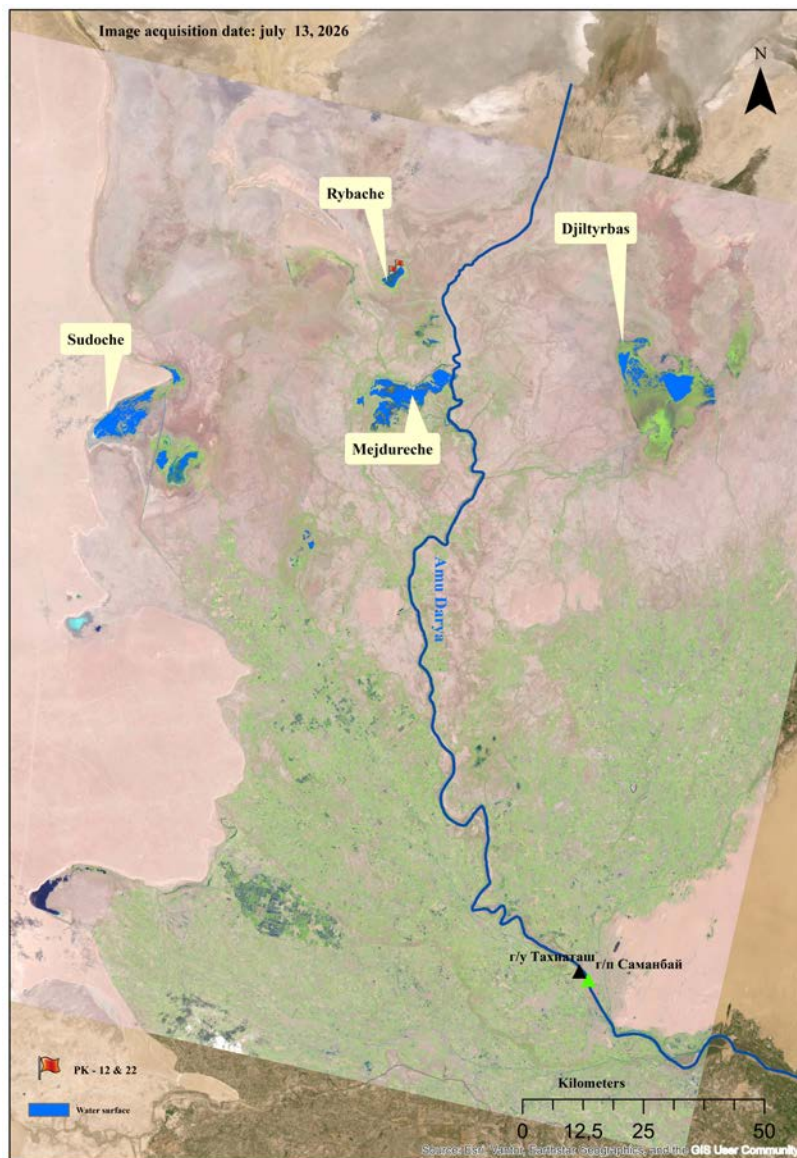


Figure 2. Southern Aral Sea region based on Landsat 9 imagery (July 13, 2026)

Table 2

Wetland areas of the Southern Aral Sea region, ha

Water body	15.03.2026	02.05.2026	27.06.2026	13.07.2026
Sudoche	23170	8223	5280	7973
Mejdureche	4301	715	634	805
Rybach	1668	123	113	147
Muynak	3863	537	129	56
Djilyrbas dam-terminated	17251	13167	1745	713
Djilyrbas (together with former right and left streams)	35929	6058	407	377
Dumalak	1731	21	4	4
Makpalkul	993	535	23	63
Mashan Karadjar	2826	602	206	118
Water surface southward of Muynak	3554	21	0	0
Water surface southward of Kazakhdarya	1453	10	0	0
Zakirkol	70	39	19	15
Total:	96809	30051	8560	10271

Table 3

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

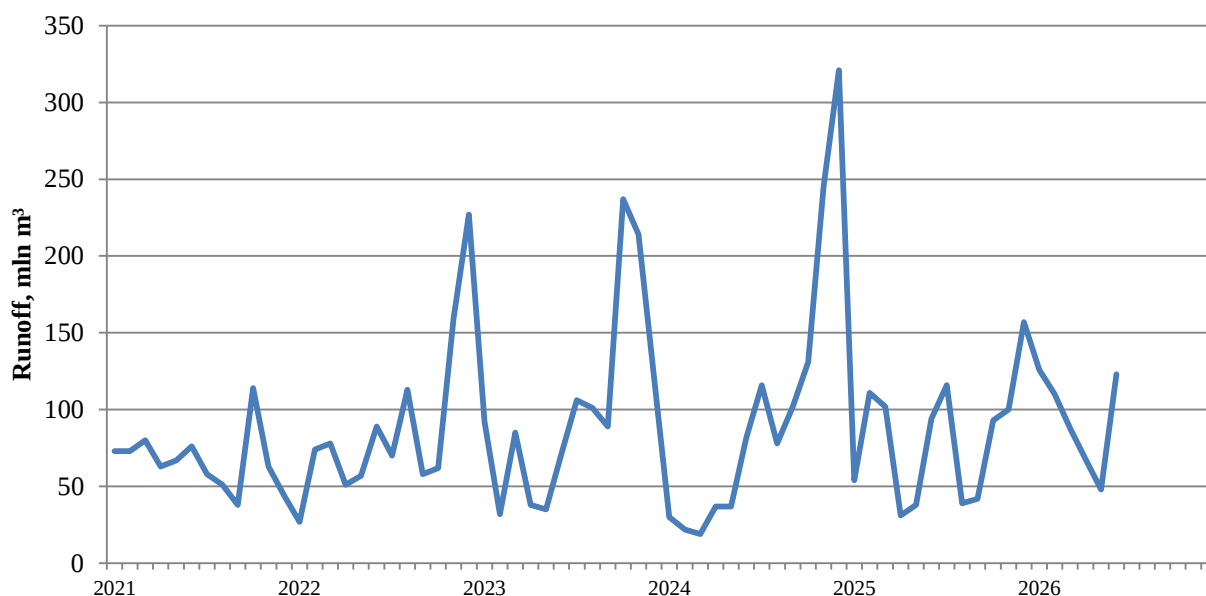
Water body	15.03.2026	02.05.2026	27.06.2026	13.07.2026
Sudoche	8198	12227	6228	5785
Mejdureche	11718	9952	4182	5762
Rybach	1543	1035	233	374
Muynak	1454	320	43	15
Djilyrbas dam-terminated	12787	10654	5007	4741
Djilyrbas (together with former right and left streams)	1324	2606	69	18
Dumalak	2	0	0	0
Makpalkul	1817	817	56	128
Mashan Karadjar	1083	1026	284	198
Water surface southward of Muynak	158	0	0	0
Water surface southward of Kazakhdarya	0	0	0	0
Zakirkol	449	476	148	147
Total:	40533	39113	16250	17168

Table 4

Dried area in the Southern Aral Sea region, ha

Water body	15.03.2026	02.05.2026	27.06.2026	13.07.2026
Sudoche	41329	52247	61189	58939
Mejdureche	21765	27117	32968	31217
Rybach	8282	10335	11147	10972
Muynak	10847	15307	15992	16093
Djilyrbas dam-terminated	17434	23651.39	40720	42018
Djilyrbas (together with former right and left streams)	61698	90287	98475	98556
Dumalak	14317	16029	16046	16046
Makpalkul	5874	7332	8605	8493
Mashan Karadjar	23292	25573	26711	26885
Water surface southward of Muynak	5893	9584	9605	9605
Water surface southward of Kazakhdarya	3298.5	4741.5	4751.5	4751.5
Zakirkol	2272.3	2276.3	2624.3	2629.3
Total:	216302	284480	328834	326205

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



Changes in the Areas of Water Bodies in the Southern Aral Sea Region, ha

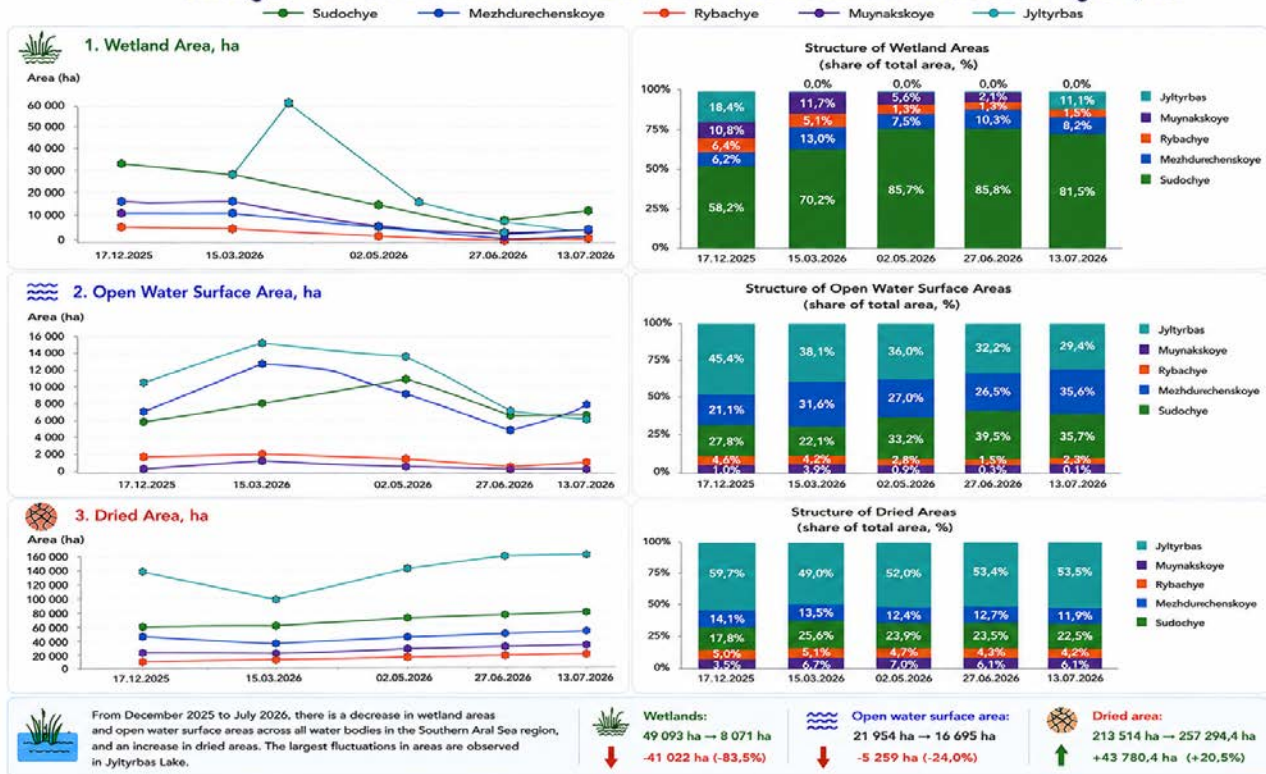


Table 5

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
May	48	0	67	174.7	289.7
June	123	0	54	211.3	388.3

*Source: Uzhydrometeoservice (Samanbay) (fig. 2)

** Source: Ministry of Water Resources of the Republic of Uzbekistan (Suenli, Bozatau, and Kyzketken canals), (collectors KS-1, KS-3, KS-4, and KKS)

***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
May	0	174.7	0	174.7
June	0	211.3	0	211.3

* Aral Sea Delta Management Authority, Rybachye Dam, PK 12 and PK 22 (fig. 2)

**Source: BWO “Amu Darya”

*** The National Hydrometeorological Service of Kazakhstan (fig. 1)

The monitoring results are as follows:

1. As of 13 July 2026, the Western Aral Sea showed a decrease in the open water surface area (by 52 ha) compared to May 2026, while wetland areas and dried territories increased by 2,827 ha and 2,882 ha, respectively.
2. As of 13 July 2026, the following changes were observed in the water bodies of the Southern Aral Sea region: compared to June 2026, the total wetland area increased from 8.5 thousand ha to 10.2 thousand ha, the open water surface area increased from 16.2 thousand ha to 17.1 thousand ha, while the area of dried territories decreased from 328.8 thousand ha to 326.2 thousand ha.
3. In June 2026, an increase in the total water inflow to the Southern Aral Sea region was observed, reaching 388.3 million m³ after lower values recorded in the previous months. The main contribution was provided by the flow of the Amu Darya River, while additional water supply was ensured through canals and the collector-drainage system.

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