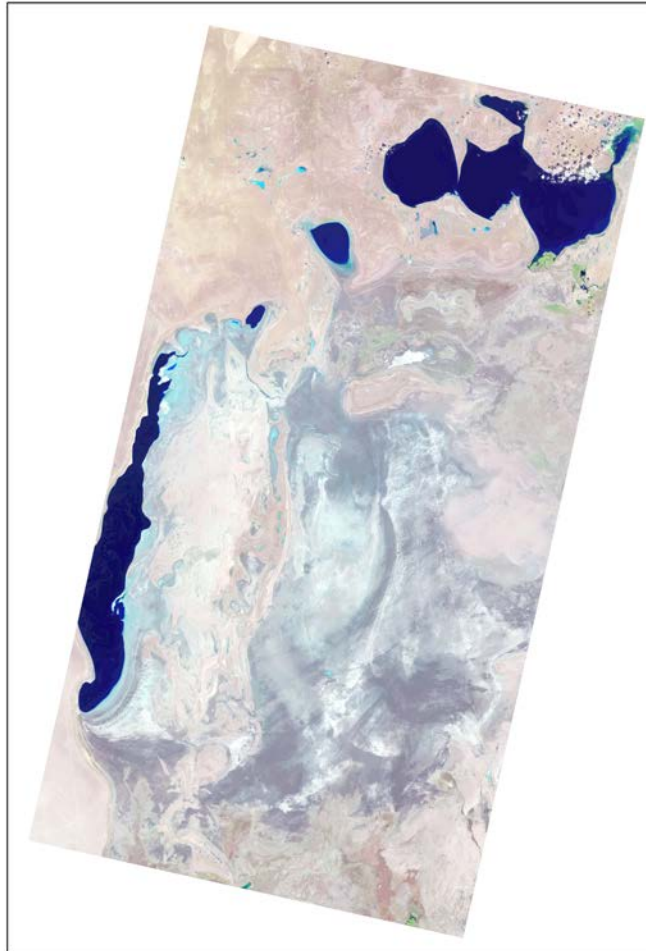


Monitoring of changes in the water surface and wetland area of the Aral Sea and the Aral Region

SIC specialists are constantly monitoring the state of the Southern Aral Sea and parts of the Greater Aral Sea by using the Landsat 8-9 OLI images. The use of the NDVI index with refined threshold values has been started, which allow recognizing three categories of surfaces: 1) open water surface, 2) wetlands, 3) land. According to the image from 23 September 2023, the areas of wetlands and open water surface were determined



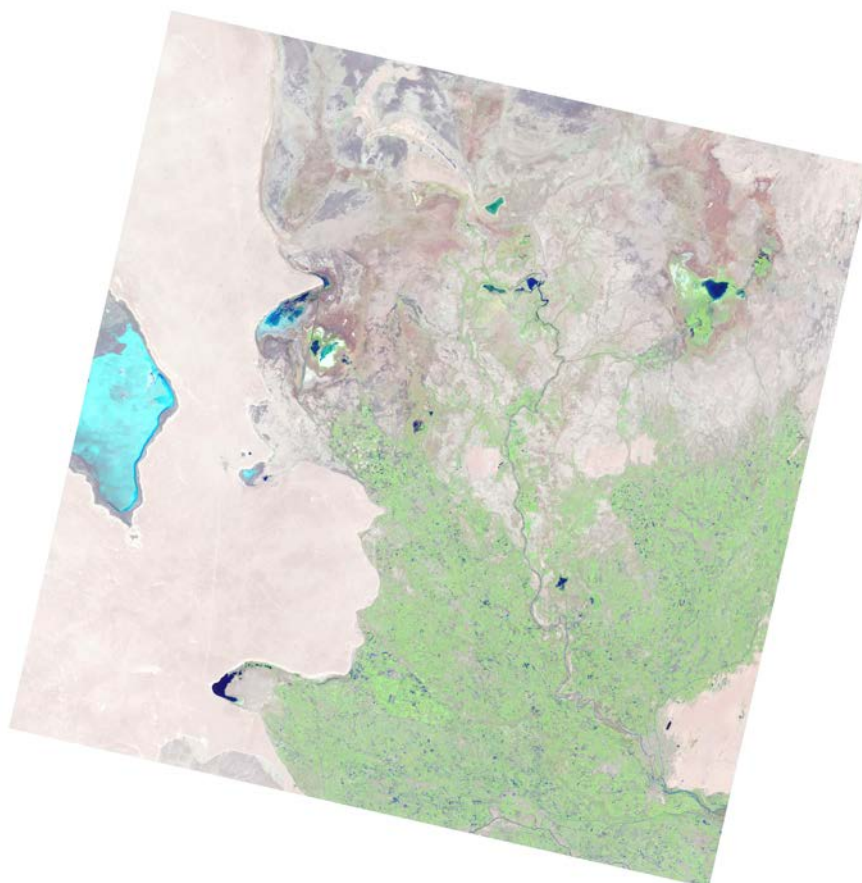
**Figure 1 Western and Eastern parts of the Aral Sea
Landsat 8-9, 23 September 2023**

Table 1

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

| | 15.03.2023 | 26.05.2023 | 27.06.2023 | 13.07.2023 | 22.08.2023 | 23.09.2023 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <i>Western part of the Aral Sea, ha</i> | | | | | | |
| Wetland | 335 725 | 335 540 | 336 388 | 271 323 | 311 505 | 318 556 |
| Water surface | 213 212 | 210 294 | 206 861 | 208 318 | 203 458 | 201 970 |
| Dried ground* | 12 413 | 15 516 | 18 101.2 | 81 709 | 46 387 | 40 823 |
| <i>Eastern part of the Aral Sea, ha</i> | | | | | | |
| Wetland | 1 342 826 | 1 405 970 | 1 446 824 | 1 430 500 | 1 445 526 | 1 457 765 |
| Water surface | 1 128.5 | 2 588 | 699 | 406 | 12 | 26 |
| Dried ground* | 152 869 | 88 266 | 49 190 | 65 918 | 51 286 | 39 033 |

* bare soil, dense or rare vegetation



**Рис. 2 Южное Приаралье.
На основе снимка Landsat 8- 9. 23 September 2023**

Table 2

Areas of wetlands in the Aral Region, ha

| Water body | 15.03.2023 | 26.05.2023 | 27.06.2023 | 13.07.2023 | 22.08.2023 | 23.09.2023 |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sudoche | 21213.18 | 21413 | 22414.68 | 23579.01 | 17992.35 | 2110.94 |
| Mejdureche | 6117.48 | 2249 | 1629.36 | 1320.21 | 293.85 | 210.96 |
| Rybache | 1711.26 | 805 | 974.61 | 1043.73 | 42.57 | 15.75 |
| Muynak | 2277.09 | 310 | 220.59 | 188.19 | 93.96 | 79.2 |
| Djiltyrbas dam-terminated | 17639.1 | 3606 | 2024.55 | 2024.37 | 874.71 | 1012.95 |
| Djiltyrbas (together with former right and left streams) | 30863.79 | 23991 | 13947.57 | 15009.66 | 1868.4 | 2443.32 |
| Dumalak | 2446.83 | 1184 | 840.69 | 740.7 | 24.3 | 14.85 |
| Makpalkul | 2466.63 | 778 | 238.95 | 141.66 | 67.41 | 21.69 |
| Mashan Karadjar | 4158.36 | 2638 | 1595.43 | 1256.4 | 319.23 | 1040.85 |
| Water surface southward of Muynak | 1116.18 | 823 | 609.48 | 594.45 | 83.43 | 7.11 |
| Water surface along Kazakhdarya river channel | 589.23 | 172 | 163.44 | 84.15 | 1.17 | 3.51 |
| Zakirkol | 151.02 | 21.06 | 3.09 | 2.34 | 0.09 | 0.63 |
| Total: | 90 750.15 | 57 990.06 | 44 662.44 | 45 984.87 | 21 661.47 | 6 961.76 |

Table 3

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

| Water body | 15.03.2023 | 26.05.2023 | 27.06.2023 | 13.07.2023 | 22.08.2023 | 23.09.2023 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sudoche | 7324.56 | 9473 | 5393.61 | 3101.49 | 2491.38 | 4561.47 |
| Mejdureche | 7929.36 | 1827 | 855.54 | 1104.48 | 1478.07 | 1057.41 |
| Rybatche | 2119.68 | 1871 | 1292.22 | 531 | 0 | 0.09 |
| Muynak | 1300.41 | 129 | 37.99 | 16.38 | 6.57 | 6.75 |
| Djiltyrbas dam-terminated | 6652.89 | 5300 | 3746.61 | 2890.82 | 2179.71 | 2168.73 |
| Djiltyrbas (together with former right and left streams) | 162.18 | 175 | 14.31 | 10.71 | 7.47 | 433.89 |
| Dumalak | 0 | 0 | 0 | 0.54 | 0 | 0 |
| Makpalkul | 2005.47 | 409 | 149.31 | 60.93 | 134.64 | 2.88 |
| Mashan Karadjar | 1351.26 | 663 | 206.28 | 160.83 | 76.77 | 348.39 |
| Water surface southward of Muynak | 4.86 | 0 | 0 | 0 | 0 | 0 |
| Water surface along Kazakhdarya river channel | 0 | 0 | 0 | 0 | 0 | 0.09 |
| Zakirkol | 281.61 | 22.14 | 0 | 0 | 0 | 0 |
| Total: | 29 132.28 | 19 869.14 | 11 695.87 | 7 877.18 | 6 374.61 | 8 579.7 |

Table 4

Dried ground area* in the Aral Region, ha

| Water body | 15.03.2023 | 26.05.2023 | 27.06.2023 | 13.07.2023 | 22.08.2023 | 23.09.2023 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sudoche | 44159.26 | 41811 | 44888.71 | 46016.5 | 52213.27 | 66024.59 |
| Mejdureche | 23737.16 | 33708 | 35299.1 | 35359.31 | 36012.08 | 36515.63 |
| Rybatche | 7662.06 | 8817 | 9226.17 | 9918.27 | 11450.43 | 11477.16 |
| Muynak | 12586.5 | 15725 | 15905.42 | 15959.43 | 16063.47 | 16078.05 |
| Djiltyrbas dam-terminated | 23180.4 | 38566.39 | 41701.23 | 42557.20 | 44417.97 | 44290.71493 |
| Djiltyrbas (together with former right and left streams) | 67925.03 | 74785 | 84989.12 | 83930.63 | 97075.13 | 96073.79 |
| Dumalak | 13603.17 | 14866 | 15209.31 | 15308.76 | 16025.7 | 16035.15 |
| Makpalkul | 4211.9 | 7497 | 8295.74 | 8481.41 | 8481.95 | 8659.43 |
| Mashan Karadjar | 21691.38 | 23900 | 25399.29 | 25783.77 | 26805 | 25811.76 |
| Water surface southward of Muynak | 8483.96 | 8782 | 8995.52 | 9010.55 | 9521.57 | 9597.89 |
| Water surface along Kazakhdarya river channel | 4162.27 | 4579.5 | 4588.06 | 4667.35 | 4750.33 | 4747.9 |
| Zakirkol | 2358.67 | 2748.1 | 2788.21 | 2788.96 | 2791.21 | 2790.67 |
| Total: | 233 761.7 | 275 784.9 | 297 285.8 | 299 782.1 | 325 608.1 | 338 102.7 |

*bare soil, dense or rare vegetation

Table 5

Inflow to Inflow to the Aral Region and Aral Sea

| Year | Month | Inflow to Inflow to the Aral Region and Aral Sea, mln.m ³ | | | | | Runoff from North Aral Sea, mln.m ³ |
|------|-------|--|--------------------|---------------------------|------------|------|--|
| | | From Amu Darya River | from canal systems | collector-drainage runoff | Total | Plan | |
| 2023 | Jan | 92 | 8 | 40 | 140 | 774 | 0 |
| | Feb | 32 | 98 | 45 | 175 | 167 | 0 |
| | Mar | 85 | 50 | 122 | 257 | 185 | 0 |
| | Apr | 38 | 0 | 214 | 252 | 180 | 0 |
| | May | 35 | 0 | 71 | 106 | 336 | 0 |
| | June | 71 | 0 | 91 | 162 | 391 | 0 |
| | July | 106 | 0 | 99 | 205 | 480 | 0 |
| | Aug | 101 | 0 | 131 | 232 | 391 | 0 |

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