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ANALYSIS OF GEOGRAPHICAL AND PHYSICAL LOCATION FISHERIES WATER BODIES FOR COMPREHENSIVE RESEARCH

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Abstract: The purpose of this article is to conduct comprehensive scientific research on the fishing grounds of the Caspian Sea within the Mangistau region. The study is focused on the geographical, hydrological and hydrochemical characteristics of reserve fishing areas, as well as the possibilities of their rational use for industrial fishery. Field research was carried out in 2022 at several sites in the Kazakh part of the Middle Caspian, where depth measurements, hydrochemical sampling, and biological observations were conducted. The analysis included the assessment of transparency, oxygen content, pH, and the condition of benthos and zooplankton communities. Particular attention was paid to the ecological state of water bodies, the risks of overfishing, and the depletion of valuable sturgeon species. The results obtained demonstrate that the studied reservoirs differ significantly in depth and physical conditions, which should be taken into account when planning their use for fishery purposes. The introduction of new fishing areas into economic circulation, supported by scientific justification, will enhance the sustainable development of fisheries and contribute to the socio-economic growth of the Mangistau region.

Key words: Mangistau region, hydrochemistry, fishery reservoir.

Introduction

As is known, the Zhaiyk-Caspian basin is a large fishery reservoir of Kazakhstan. The Caspian Sea basin is very promising in terms of the development of marine fisheries. The coastline of the Kazakhstan part of the Caspian Sea has a length of 2320 km. The ice-free part of the south of the Northern Caspian and the entire Middle Caspian with a length of approximately 800 - 900 km is suitable for fishing.

Currently, in the coastal areas of the Mangistau region, industrial and marine fishing is carried out by small fishing enterprises on small floating craft.

However, the bioresources of even the rich Caspian Sea are steadily depleting due to the intensification of industrial fishing, especially the stocks of sturgeon species of fish. [1, 2].

Conducting comprehensive scientific research work on these fishing grounds will speed up the process of introducing them into economic circulation and increase the production of fish and other aquatic animals in the Caspian Sea.

Materials and research methods.

Field studies were conducted from June 27 to July 6, 2022 in reserve fishing grounds located in the waters of the Kazakh part of the middle Caspian within the Mangistau region.

At each studied site, the length, width, area of the maximum and average depth of the sites were measured. The depth of the sites was measured by the echo sounder GARMIN GPSMAP 580/585, samples were taken for hydrochemistry, zooplankton and benthos. Water samples were taken by Molchanov's bathometer. Water-soluble oxygen, pH values, and carbon dioxide were determined. Visual observations were made for the presence of floating oil films, accumulation of dying algae, and the appearance of increased water turbidity [3-4].

Results and discussion.

The studied areas of the reservoir are located in the eastern part of the Caspian Sea and territorially belongs to the Mangistau region. The nearest settlements are the city of Zhanaozen (70 km) and Aktau (170 km), which communicate with each other and the studied district by highways practically By to everything paths following (drawing 1), table 1.

Figure 1 – Location of the study areas in the northern Caspian Sea withinMangistau areas

On each reserve fishing industry plot conducted physical dimensions: length, width, area and depth of the plots. The depth of the plots was measured echo sounder GARMIN GPSMAP 580/585 (table 1).

Table 1 - Meteorological And hydrophysical characteristic reserve plots,2017 G.

Date	Plots	Directionwinds	Sea swell	Depth on place of selection samples, m	Transparency water. m
28.06.22	6.1	Oriental	1-2	10.2	7.0
29.06.22	5.4	West	1	18.0	10.0
01.07.22	4.4	North-west	0.5	22.5	10.0
02.07.22	4.2	North-west	0.5-1	25.0	6.8
03.07.22	2.6	West	0.5	2.5	3.8

For definitions depths, bottom researched fishing areas conducted relevant work. By received data presented transverse cut 5 fishing areas (drawings 2).

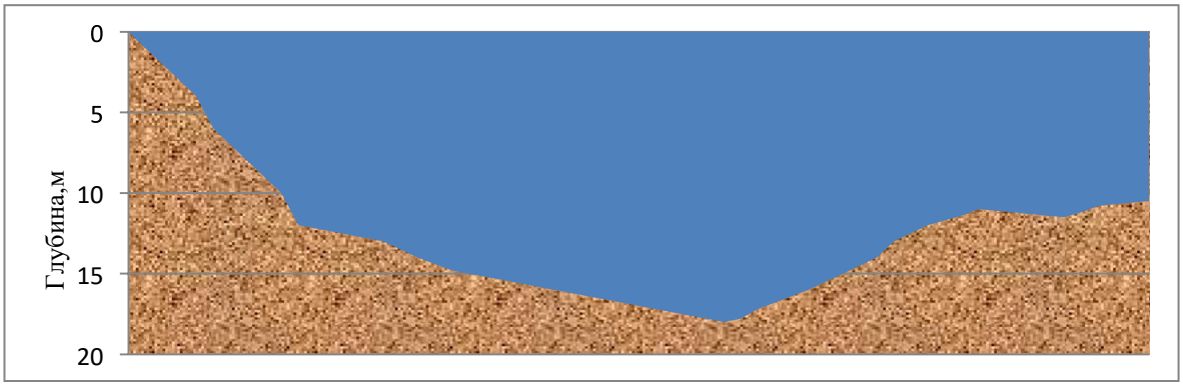
Fishing area 1

IN In the studied section of the fishery, the maximum depth was 10.2 m,average - 7.9 m. The total length of the section from the shore in cross section, which was subjected to bathymetric filming – 6 km; in longitudinal section - 10m.

Drawing 2 - Transverse section of the site 6.1

Fishing area 5.4.

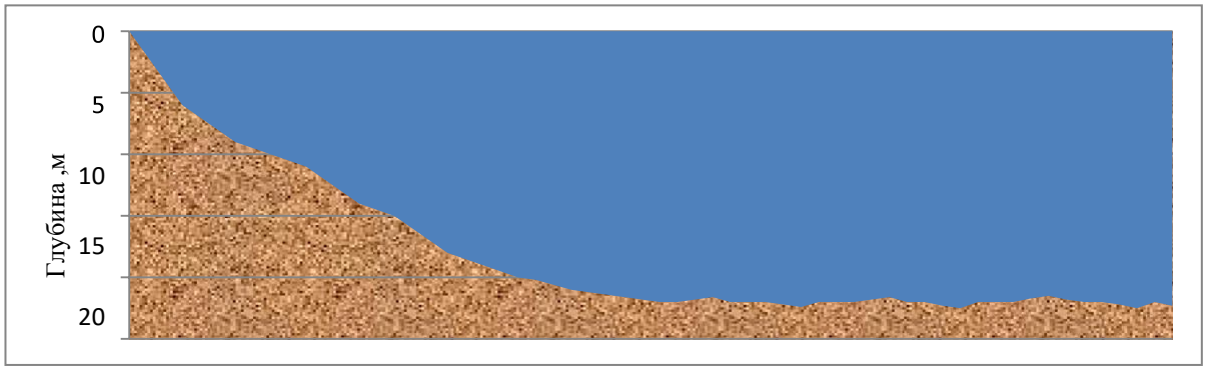
IN in the studied section of the fishery, the maximum depth was 18.0 m,and the average is 12.6 m. The total length of the section from the coast in cross-section is 6 km;longitudinal section – 10m.



Drawing 3 - Transverse section of the site 5.4

Fishing industry plot 4.4

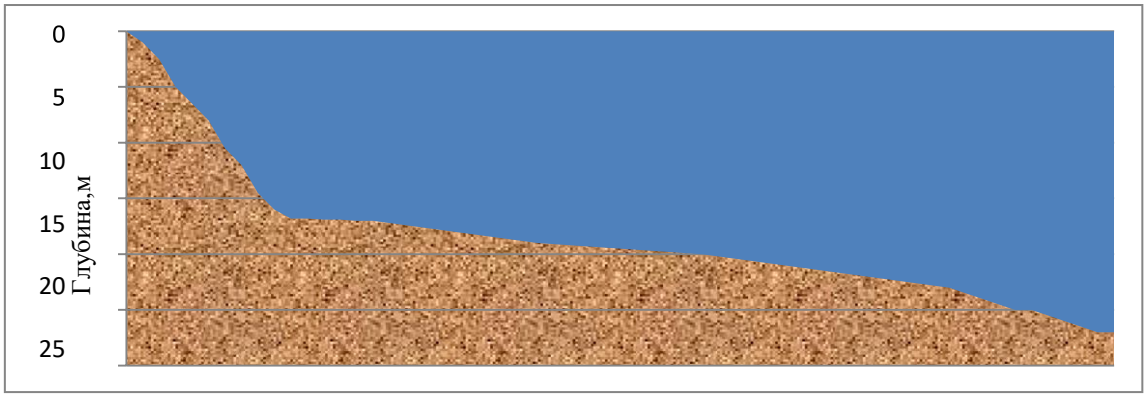
IN in the studied section of the fishing area the maximum depth was 22.5 m,average - 18.0 m. General length plot from banks V transverse in section - 6 km.



Drawing 4 - Transverse cut plot 4.4

Fishing area 4.2

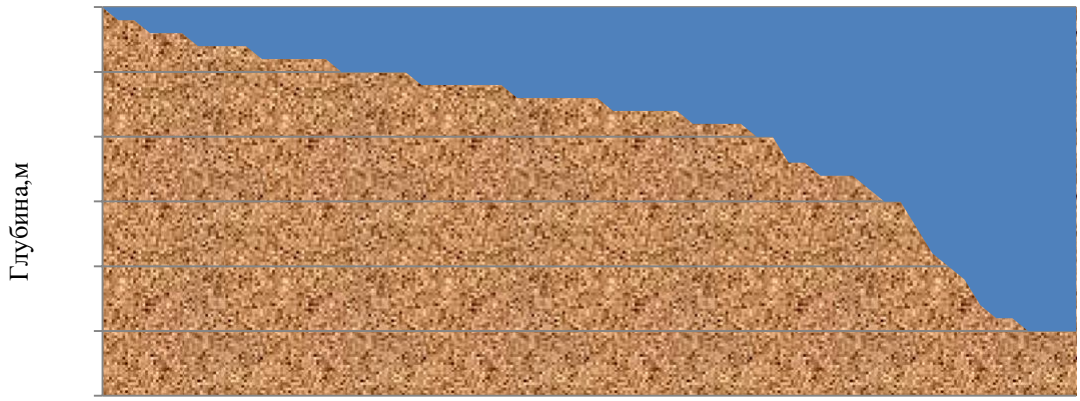
IN under study in between fishery maximum depth compiled - 27 m,average -18.5m. General length plot from banks V transverse section - 6 km.



Drawing 5 - Transverse cut plot 4.2

Fishing industry plot - 2.6

Maximum depth 3.8 m, average 1.5 m. General length plot frombanks V transverse section up to 6 km.



Drawing 6 - Transverse section of the site 2.6

As can be seen from the bathymetric data, the bottom bed of the area under study is 5.4 The terrain is hilly and the depth of the area in cross-section varies greatly and exceeds 15 m. Plots 4.4., 4.2, 2.6 have a smooth and relatively smooth bias towards to the sea.

Conclusions. An analysis of the conducted studies showed that the reserve fishing waters are located at various depths from 3.8 m to 25.0 m (maximum during the study period) and were daily exposed to the influence of natural factors (waves, transparency).

LITERATURE

1. Sharapova L.I., Falomeeva A.P. Methodological manual for hydrobiological fishery research of water bodies of Kazakhstan. – Almaty, 2006. – P. 10-23.

2. Atlas of invertebrates of the Caspian Sea edited by /Ya. A. Birshtein et al. Moscow: Food industry, 1968. - P.76 - 95,120 – 184.

3. Fisheries research in the Caspian Sea (Results of research for 2002). – Astrakhan, 2003. – 560 p.

4. Alekin O.A. Methods of studying organic properties and chemical composition of water. Life of fresh waters of the USSR. - M.: USSR Academy of Sciences, 1959. - V.4 - P.213 - 298.

5. Velikova, V., et al. (2021). Sturgeon conservation and fisheries management in the Caspian Sea. ICES Journal of Marine Science, 78(4), 1192–1201.

6. Pourkazemi, M. (2016). Current status of the Caspian Sea sturgeon populations and the need for regional cooperation. Aquatic Living Resources, 29, 103–111.

7. Gunduz, A., et al. (2020). Impact of overfishing and pollution on aquatic biodiversity in the Caspian basin. Environmental Monitoring and Assessment, 192, Article 246.

АНАЛИЗ ГЕОГРАФИЧЕСКОГО И ФИЗИЧЕСКОГО РАСПОЛОЖЕНИЯ РЫБОХОЗЯЙСТВЕННЫХ ВОДОЕМОВ ДЛЯ ПРОВЕДЕНИЯ КОМПЛЕКСНЫХ ИССЛЕДОВАНИЙ

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Аннотация: Аннотация: Целью данной статьи является проведение комплексных научных исследований рыбопромысловых участков Каспийского моря в пределах Мангистауской области. Исследование сосредоточено на географических, гидрологических и гидрохимических характеристиках резервных рыбопромысловых участков, а также возможностях их рационального использования для промышленного рыболовства. В 2022 году были проведены полевые исследования на нескольких участках в казахстанской части Среднего Каспия, где проводились измерения глубины, гидрохимический отбор проб и биологические наблюдения. Анализ включал оценку прозрачности, содержания кислорода, pH и состояния сообществ бентоса и зоопланктона. Особое внимание было уделено экологическому состоянию водоемов, рискам перелова и истощению запасов ценных видов осетровых. Полученные результаты свидетельствуют о том, что исследуемые водоемы существенно различаются по глубине и физическим условиям, что следует учитывать при планировании их использования в рыбохозяйственных целях. Введение в хозяйственный оборот новых рыбопромысловых районов, подкрепленное научным обоснованием, будет способствовать устойчивому развитию рыболовства и способствовать социально-экономическому росту Мангистауской области.

Ключевые слова: Мангистауская область, гидрохимия, рыбохозяйственный водоем.

КЕШЕНДІ ЗЕРТТЕУ ҮШІН БАЛЫҚ ШАРУАШЫЛЫҒЫ СУ ОБЪЕКТІЛЕРІНІҢ ГЕОГРАФИЯЛЫҚ ЖӘНЕ ФИЗИКАЛЫҚ ОРНАЛАСУЫН ТАЛДАУ

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Аннотация: Бұл мақаланың мақсаты-Маңғыстау облысы шегіндегі Каспий теңізінің балық аулайтын жерлеріне кешенді ғылыми зерттеулер жүргізу. Зерттеу резервтік балық аулау аймақтарының географиялық, гидрологиялық және гидрохимиялық сипаттамаларына, сондай-ақ оларды өнеркәсіптік балық аулау үшін ұтымды пайдалану мүмкіндіктеріне бағытталған. Далалық зерттеулер 2022 жылы орта Каспийдің қазақстандық бөлігіндегі тереңдікті өлшеу, гидрохимиялық сынамалар алу және биологиялық бақылаулар жүргізілген бірнеше учаскелерде жүргізілді. Талдау мөлдірлікті, оттегінің құрамын, рн деңгейін және бентос пен зоопланктон қауымдастықтарының жағдайын бағалауды қамтыды. Су объектілерінің экологиялық жағдайына, артық балық аулау қаупіне, бекіре тұқымдас балықтардың құнды түрлерінің сарқылуына ерекше назар аударылды. Алынған нәтижелер зерттелетін су қоймаларының тереңдігі мен физикалық жағдайлары бойынша айтарлықтай ерекшеленетінін көрсетеді, бұл оларды балық аулау мақсатында пайдалануды жоспарлау кезінде ескерілуі керек. Ғылыми негіздемелермен расталған жаңа балық аулау аймақтарын экономикалық айналымға енгізу балық шаруашылығының тұрақты дамуын күшейтеді және Маңғыстау облысының әлеуметтік-экономикалық өсуіне ықпал етеді.

Түйін сөздер: Маңғыстау облысы, гидрохимия, балық шаруашылығы тоғаны.