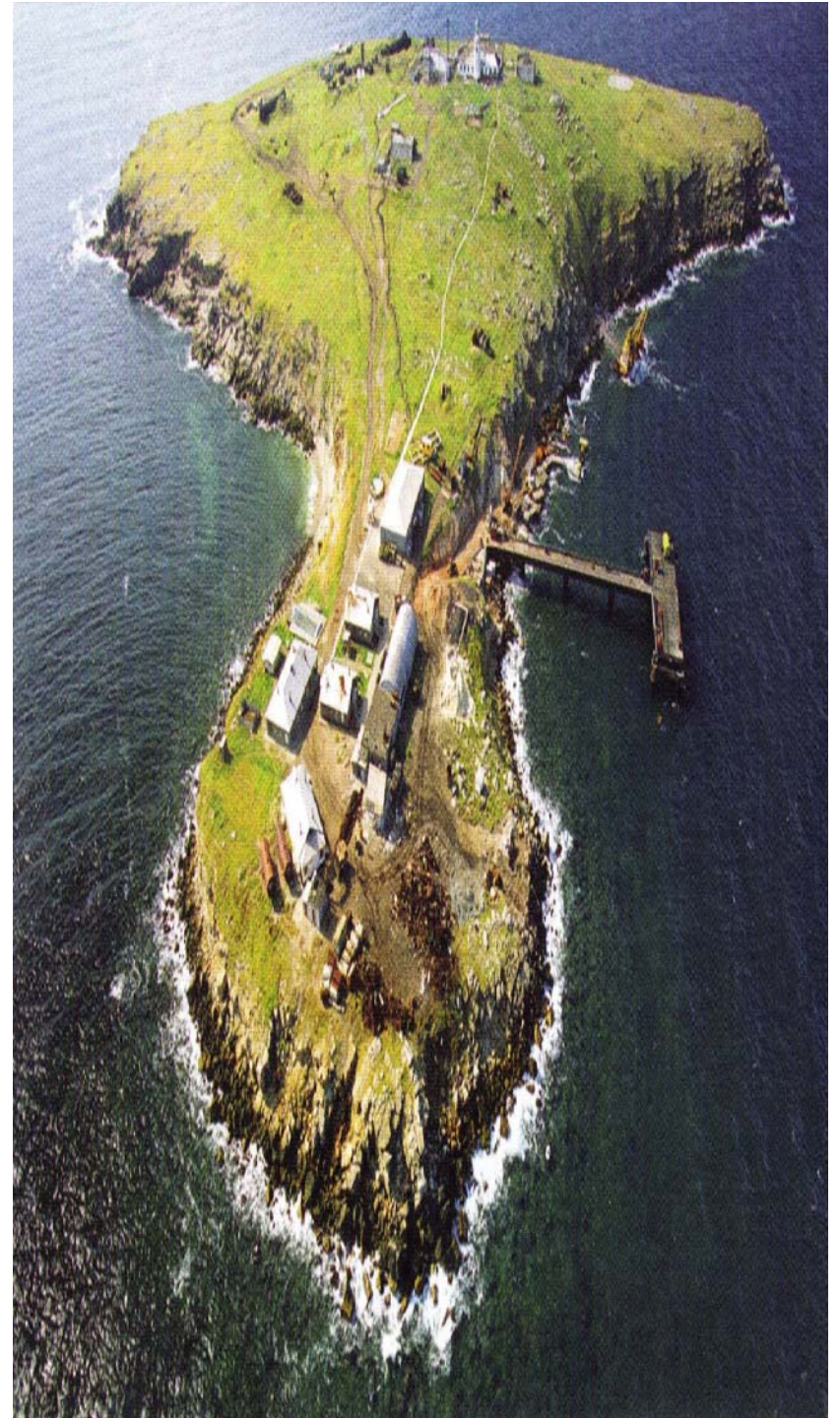
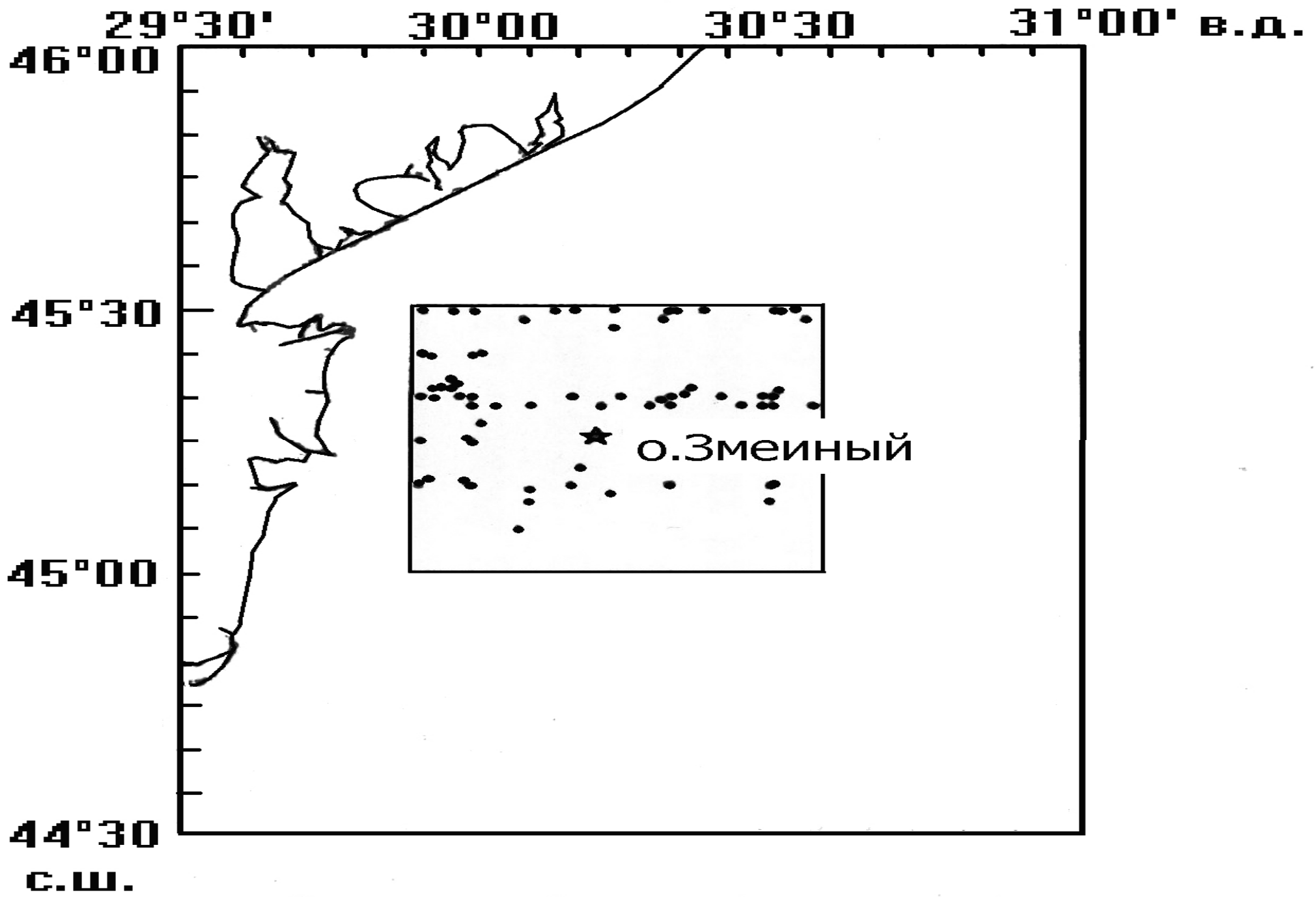


Changes of the sea water characteristics in the region of Zmiyinyy Island

A.S. Matygin,
V.V. Ukrainskiy,
and
Y.U. Popov

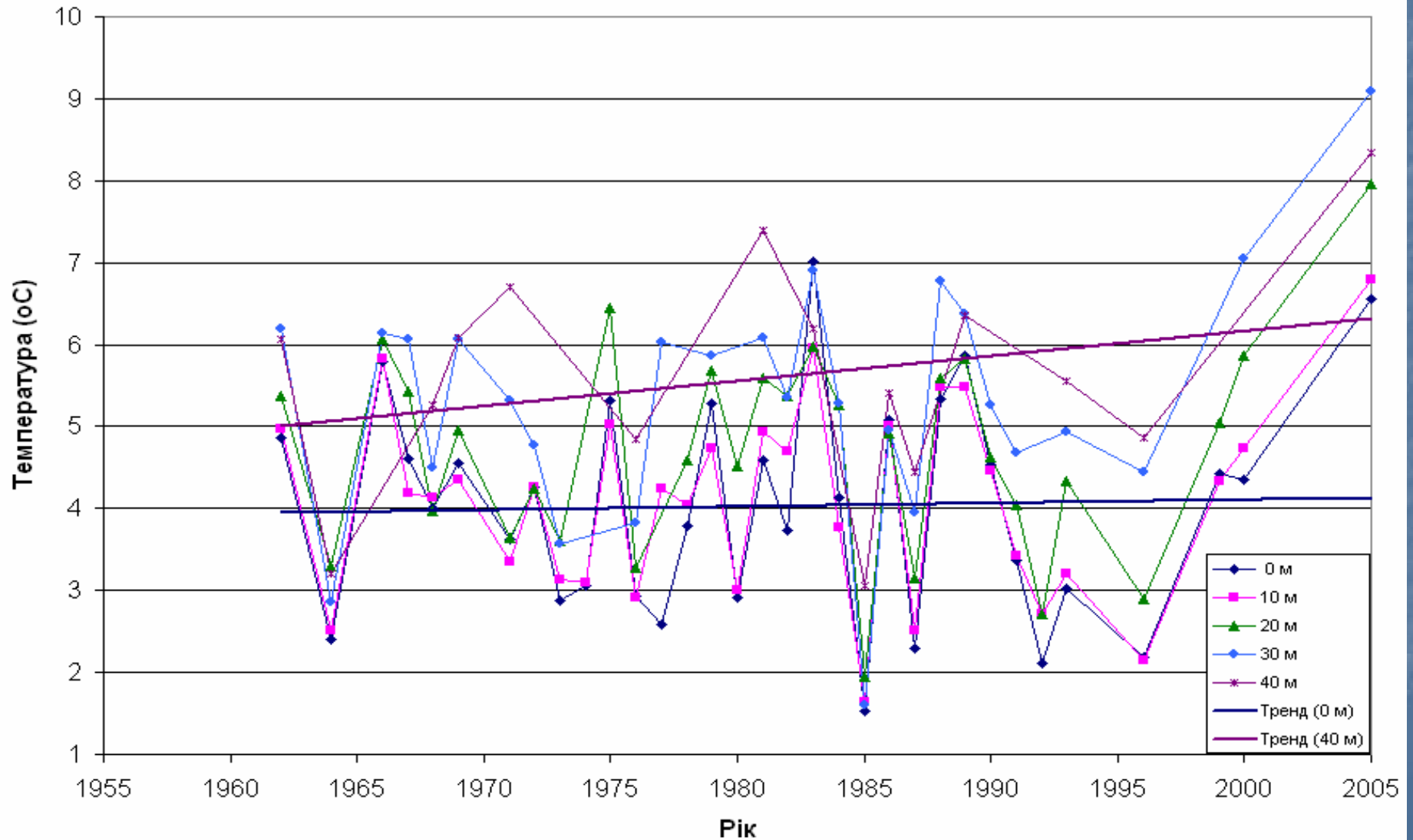
Ukrainian Scientific Center of Ecology
of Seas, Odessa, Ukraine



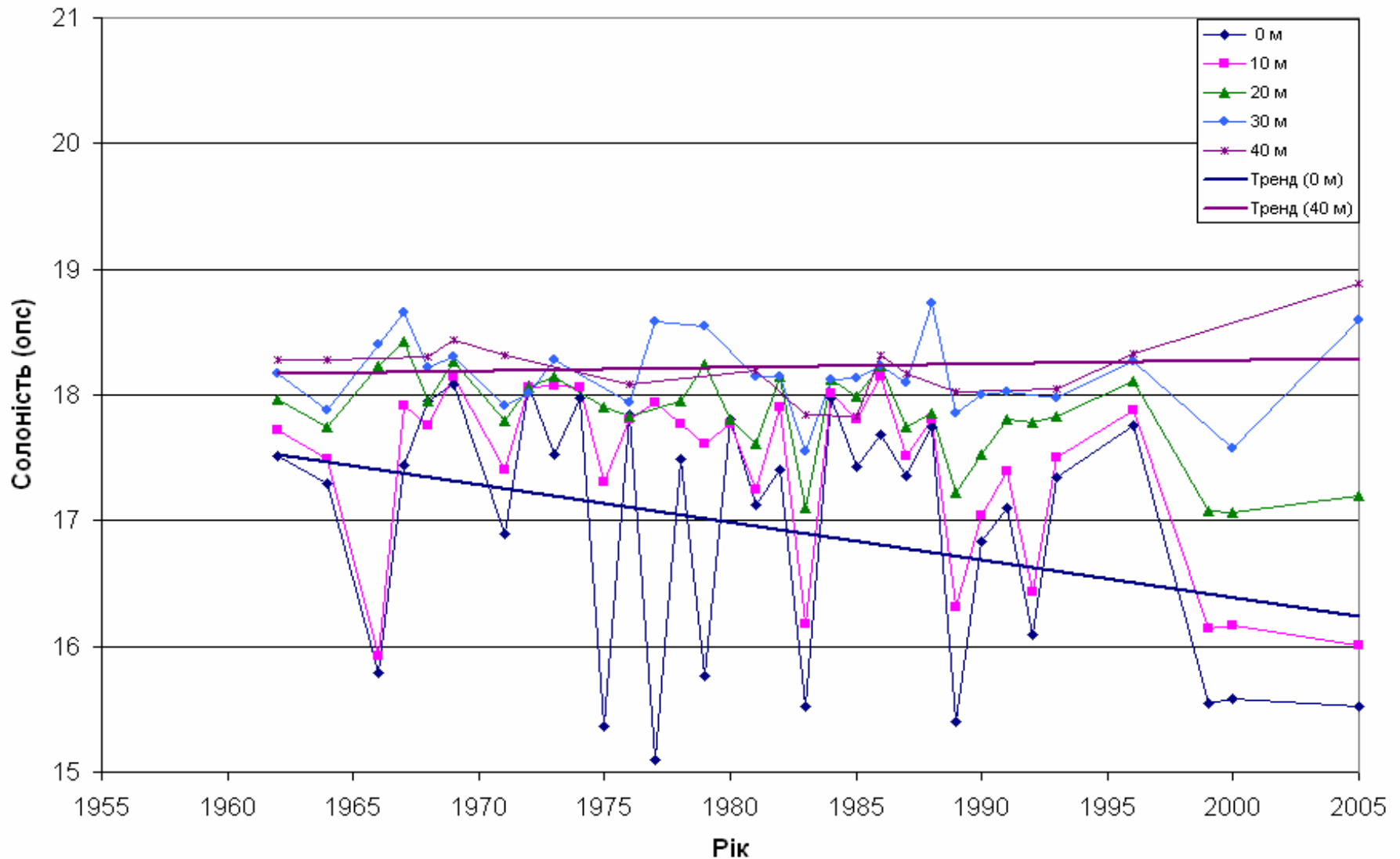


Plan station on region Zmiyinyy island
1986-1995 гг.-357 stations, 1996-2005 гг. 197 stations

Long-term course of an average winter water temperature in the western part of NWS (45°-46° n, 30°-31° e)
(A positive trend on benthonic horizon)



Long-term course of an average winter water salinity in the western part of NWS (45°-46° n, 30°-31° e)
(A negative trend on benthonic horizon)



Average and extreme values of temperature and salinity of water by results of expedition researches for the periods 1996-2005 (numerator) and 1986-1995 (denominator).

SUMMER

Characteristic	Temperature, ° C				Salinity, ‰			
	Depth, m				Depth, m			
	0	10	20	30	0	10	20	30
Middle	<u>22.67</u>	<u>18.36</u>	<u>12.36</u>	<u>8.40</u>	<u>15.56</u>	<u>16.56</u>	<u>17.28</u>	<u>17.65</u>
	22.03	20.21	11.78	7.34	15.27	16.44	17.66	17.98
Min	<u>15.85</u>	<u>6.54</u>	<u>6.34</u>	<u>6.18</u>	<u>11.50</u>	<u>13.96</u>	<u>14.03</u>	<u>15.22</u>
	17.26	6.48	5.22	5.68	4.00	13.47	14.57	17.01
Max	<u>27.26</u>	<u>23.50</u>	<u>22.40</u>	<u>21.24</u>	<u>17.95</u>	<u>18.18</u>	<u>18.32</u>	<u>18.18</u>
	26.18	25.62	22.10	14.53	17.92	18.32	18.85	18.38

Average and extreme values of temperature and salinity of water by results of expedition researches for the periods 1996-2005 (numerator) and 1986-1995 (denominator).

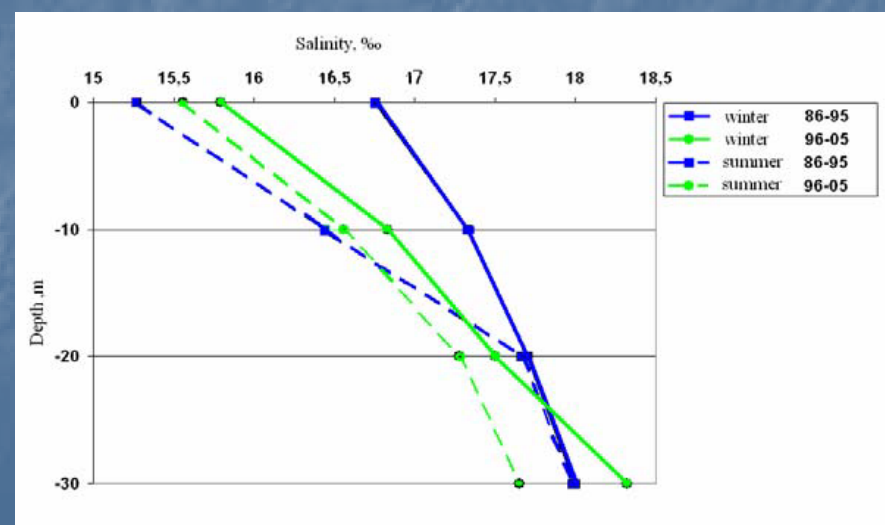
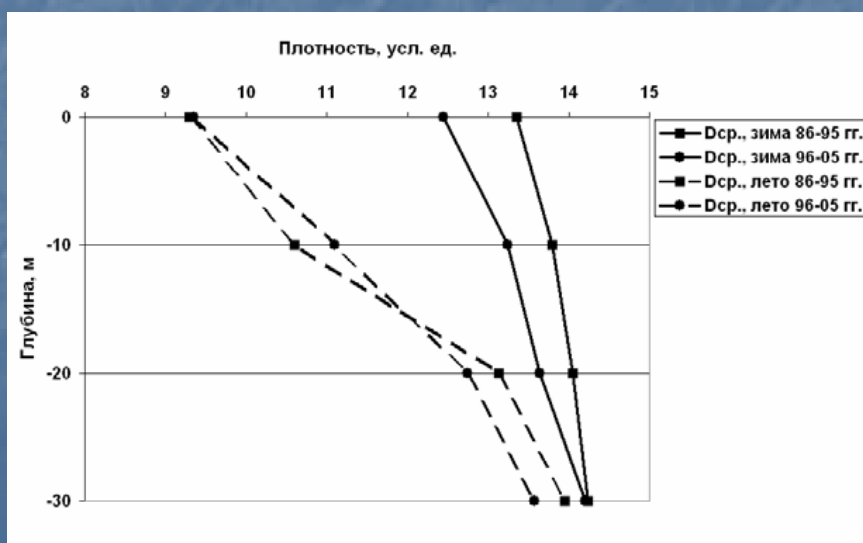
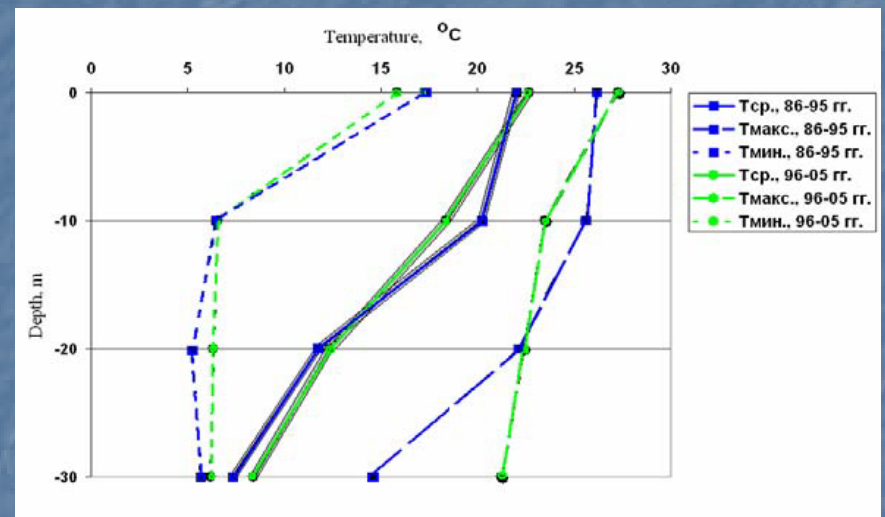
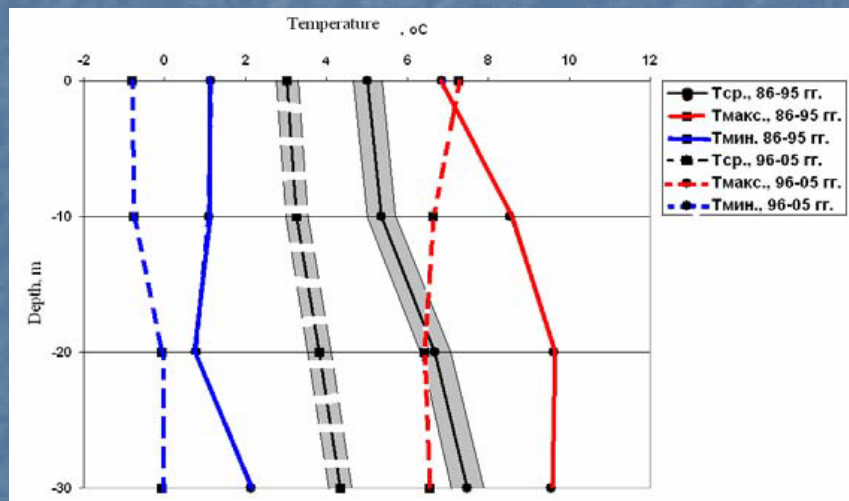
WINTER

Characteristic	Temperature, ° C				Salinity, ‰			
	Depth, m				Depth, m			
	0	10	20	30	0	10	20	30
Middle	<u>5.02</u>	<u>5.35</u>	<u>6.68</u>	<u>7.47</u>	<u>15.79</u>	<u>16.83</u>	<u>17.50</u>	<u>18.32</u>
	3.02	3.25	3.81	4.33	16.75	17.33	17.70	18.00
Min	<u>1.13</u>	<u>1.09</u>	<u>0.78</u>	<u>2.14</u>	<u>12.69</u>	<u>14.95</u>	<u>16.47</u>	<u>17.12</u>
	-0.82	-0.76	-0.80	-0.79	12.40	15.80	16.32	17.67
Max	<u>6.85</u>	<u>8.54</u>	<u>9.61</u>	<u>9.56</u>	<u>18.28</u>	<u>18.28</u>	<u>18.60</u>	<u>18.71</u>
	7.27	6.63	6.41	6.54	18.18	18.19	18.21	18.43

Difference middle and extreme values of the temperature water °C
upon materials investigations 1996-2005 and 1986-1995

Depth, m	Summer			Winter		
	Middle	min	Max	Middle	min	Max
0	0.64	-1.41	1.08	2.00	1.95	-0.42
10	-1.85	0.06	-2.12	2.10	1.85	1.91
20	0.58	1.02	0.80	2.87	1.58	3.20
30	1.06	0.50	6.71	3.14	3.93	3.02

- The middle values temperature of the sea water in the region Zmiynnyy Island in winter and summer seasons (above), density and salinity in winter and summer seasons (below) in periods : 1986-1995 and 1996-2005.



Change transparency of the sea water in North-West shelf of the Black Sea

