

Hydrographic and biotical conditions in North Adriatic

IX. Hydrochemistry and some factors influencing the hydrography.

by

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From September 1966 till October 1968 at three fixed hydrographic stations off the west Istrian coast once a month various meteorological and hydrographical factors were determined. The position of the station was : Station A₁₁ - φ 45°03' N and λ 13°22' E; Station A₂₀ - φ 45°01' N and λ 13°10' E; Station A₁ - φ 45°04' N and λ 13°37' E. The analytical methods used were mainly those described by STRICKLAND & PARSONS (1965).

Results

The space and time distribution of some of the measured parameters is shown in Figure 1.

The thermohalinic values were in the following range : temperature 8.55 - 26.55° C, salinity 32.16 - 38.40 ‰, density 21.28 - 29.79. The summer periods were characterised by layer structure with well developed thermocline, halocline and pycnocline. In winters isohalin, isothermal and isopycnic relations were dominant. The biggest variations in the mentioned parameters were observed at station A₂₀ due to the influence of Po river runoff, while the near shore station A₁ was influenced by the ascendent Adriatic current.

The transparency estimated by a 50 cm diameter Secchi disc showed big variations with the highest values in summer.

At all the three stations considerable variations in pH (7.80 - 8.35), total alkalinity (2.44 - 2.97 meq/l) and specific alkalinity (0.12 - 0.15 meq l⁻¹/Cl⁰/‰) were observed reflecting the influence of currents and water masses from different origins.

In winter when the absorption of oxygen combined with good mixing of water masses is predominant over the chemical and biological processes, oxygen supersaturation was recorded in surface layers. In summer and especially in autumn nearly the whole water column was undersaturated.

Variations in phosphorus content were remarkable (total 0.05 - 0.2 µg at/l, reactive 0.02 - 0.1 µg at/l). The highest values were found during winter in surface layers and in bottom layers during summer. Reactive silicates were in the range of 1 - 2 µg at/l; the lower layers being usually richer. Both nutrients showed an increase going from the coast westward.

Conclusions

As a consequence of particular and relatively complicated meteorological, geographical, hydrodynamical and morphological conditions the investigated parameters show a considerable variation, as it was already found earlier [NÜMANN, 1941; PICOTTI, 1954; MOSETTI, 1966-67; ŠKRIVANIĆ; 1968].

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These variations as well as the other relatively favourable biological conditions might be responsible for the high productivity rate of the North Adriatic [KVEDER & KEČKEŠ, 1968; KEČKEŠ *et al.*, 1968], what renders this area very interesting from the standpoint of radioecological investigations.

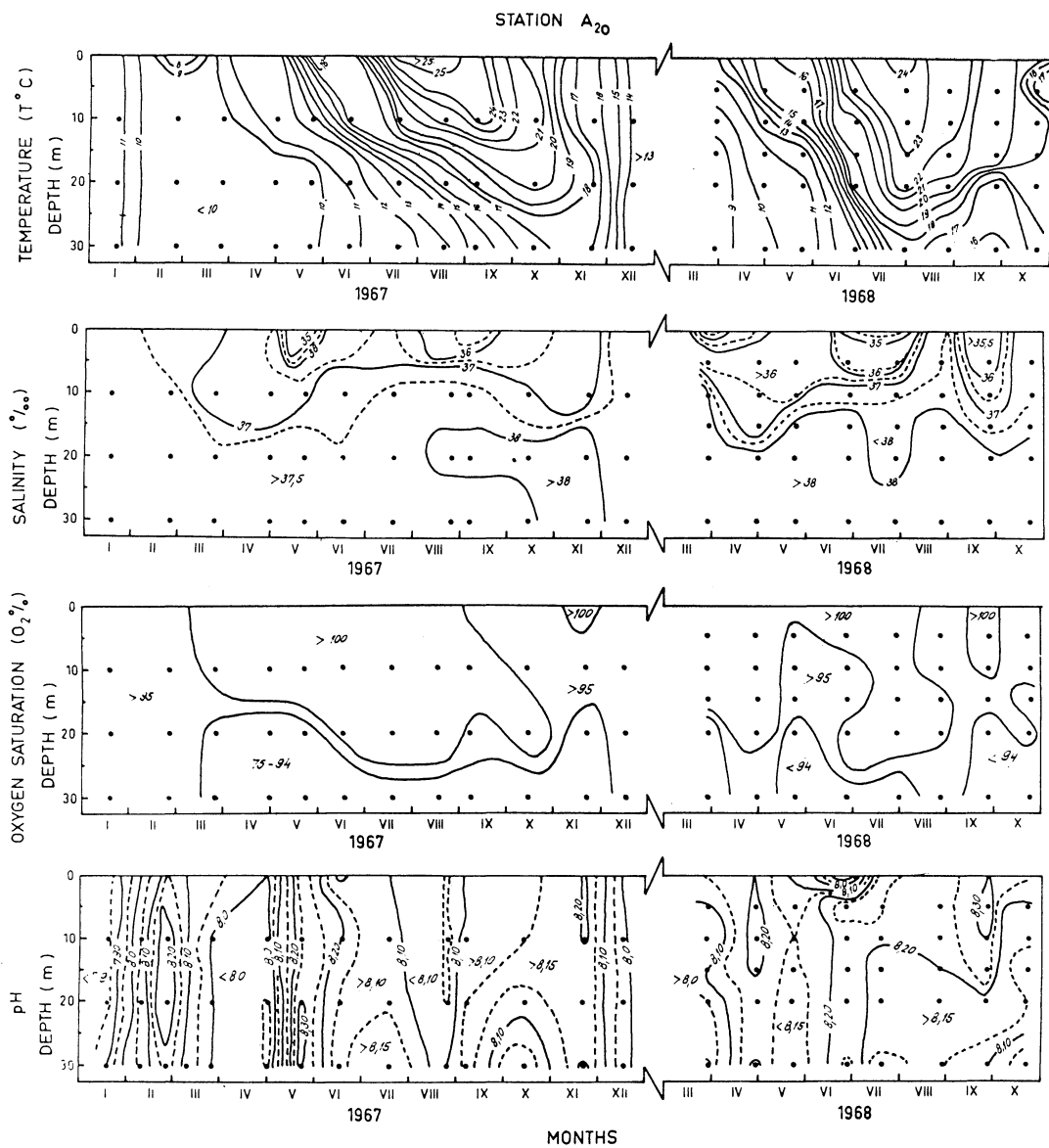


FIG. 1. — Variation of some parameters in time and space at Station A₂₀.

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