

# SID



سرویس های ویژه



سرویس ترجمه تخصصی



کارگاه های آموزشی



بلاگ مرکز اطلاعات علمی



عضویت در خبرنامه



فیلم های آموزشی

## کارگاه های آموزشی مرکز اطلاعات علمی جهاد دانشگاهی



مباحث پیشرفته یادگیری عمیق؛  
شبکه های توجه گرافی  
(Graph Attention Networks)



کارگاه آنلاین آموزش استفاده از  
وب آو ساینس



کارگاه آنلاین مقاله روزمره انگلیسی



مرکز بررسی‌ها و مطالعات دریایی

سازمان بنادر و دریانوردی به عنوان تنها مرجع حاکمیتی کشور در امور بندری، دریایی و کشتی‌رانی بازرگانی به منظور ایفای نقش مرجعیت دانشی خود و در راستای تحقق راهبردهای کلان نقشه جامع علمی کشور مبنی بر "حمایت از توسعه شبکه‌های تحقیقاتی و تسهیل انتقال و انتشار دانش و سامان‌دهی علمی" از طریق "استانداردسازی و اصلاح فرایندهای تولید، ثبت، داوری و سنجش و ایجاد بانک‌های اطلاعاتی یکپارچه برای نشریات، اختراعات و اکتشافات پژوهشگران"، اقدام به ارایه این اثر در سایت SID می‌نماید.



سازمان بنادر و دریانوردی



## RISK ASSESSMENT ANALYSIS FOR THE AZOV SEA COASTS

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Andrei Selivanov, born 1958,  
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Possible global greenhouse-induced sea-level rise would inevitably bring substantial losses from shoreline retreat, underground flooding, and other consequent processes. Indirect consequences of sea-level rise may bring greater damage than direct ones. The anticipating damage in the specific coastal segments depends not only upon the value of property, both economic and cultural, in the zones subject to shoreline retreat, or underground flooding, but also upon the natural peculiarities of the environment. Other conditions being equal, the more sensitive landscapes will exert the greater damage. All these facts make the risk assessment from sea-level rise at a specific coastal segment an extremely complicated but important objective.

An integrated methodology of risk assessment for sea coasts under the possible accelerated sea-level rise in the nearest future is presented. The methodology is based upon the concept of various types of resources (natural, economic, cultural) and a probabilistic prediction of shoreline retreat values for different morphological types of sea coasts. Assessment of anticipated losses of natural resources includes estimation of natural vulnerability to sea-level rise and value of resources on a per unit area basis. Economic losses are presented as a sum of losses of national wealth, national income, and compensation costs. In the small-scale surveys, a per unit area population number and value of economic production may be used as integrated indices of economic resources. Graded scale is constructed to evaluate each type of resources and natural vulnerability in a comparable manner.

The example of risk assessment case studies for the Russian coasts of the Sea of Azov demonstrates their high and extremely high vulnerability to the possible rise in the global mean sea level by 1 m until 2100. Major premises for the dramatic impact of sea-level rise on these coasts include: (1) The prevalence of land subsidence and, therefore, higher regional estimates of the relative sea-level rise in comparison to the globally averaged values; an (2) intensive retreat of the prevailing loess coastal scarps substantially aggravated by landsliding processes and degradation of depositional coastal bodies composed presumably of detrital sands; (3) high economic development of coastal zones with intensive crop- and fruit-growing on rich black earth soils, as well as cultivation of white beet, corn, and sunflower, and food industry, including fish processing, and light industry as a principal economic strategies; and (4) relatively high sensitivity of natural steppe and meadow ecosystems and even higher sensitivity of anthropogenic ecosystems to soil moisture content and, therefore, to the possible underground flooding.

Therefore, the sustainable management methodology is of urgent need for the area. An application of this methodology to the case study area appears to be promising for comparative analysis of effectiveness of various response strategies to the anticipated sea-level rise (retreat, accommodation and protection). A choice of the specific strategy depends primarily upon the economic development



of the area. In total, it is recommended to intensively protect nearly 15% of the coastline, to retreat from 25% and accommodate at 60%.

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