

In today's ecological crisis, which hit our planet, you must create an environmental liability: such personality traits as self-control, ability to anticipate the immediate and long-term consequences of their actions in the environment, critical attitude towards oneself and others. The moral requirements associated with the attitude to nature, involves the development of conviction, not fear of possible punishment – condemned by others.

Our high school signed a contract on joint activity with the Lyceum N 389. On the basis of this school there was a center of environmental education. For many years, the Centre carries a great job of raising ecological awareness among schoolchildren. After leaving school, few people connect their lives to further the study of ecology. Causes are different: someone were other interests, someone just did not know where you can continue further study in this direction. The emergence of high school in the school as a partner in environmental education, allows students to obtain career-oriented nature of the information. Joint activities: round tables on topical issues of the region's environment and the planet as a whole, allows students compete with students about their knowledge of the merits, students in this situation receive pedagogical skills. Participation of students in the student's scientific conferences allows them to realize the significance of their research and see the range of possible future directions, not only in the field of environmental protection.

One of the activities of eco-educational activities among pupils and students is to hold «round tables».

One of the «round table» was held on Dec. 11, 2009 in the walls of Lyceum N 389 and was devoted to the Baltic Sea, entitled «Complaints Book Baltic Sea». The round table was attended by students' St. Petersburg State University of Cinema and Television and students of the school N 389, as well as teachers and professors of the university. The attention of the «round table» focused on environmental issues Baltic Sea. The issues of water pollution, wastewater treatment, eutrophication and pollution of soil land, illegal dumps, low level of culture in our society. Discussed the topic «If not me, then who?» Between the participants of the round table held a very lively conversation. Participants in the roundtable believed that it is expedient to develop ecological outlook in people of all ages and strata of the population, regardless of financial situation. The need for education starts from school to higher education institutions and further to production. At the end of our discussion, students talked about the International Programme for the Baltic University in which they are trained and what they were doing and showed a small spot, created by them to hold shares in the university in support of the Baltic Sea. In general, the round table left, and the guests and the organizers of the pleasant impression. Such events have become a tradition. In November 2010 we held a round table on the Gulf of Mexico pollution and accidents in Hungary. Also look forward to active participation of schoolchildren in the annual student conferences. In 2010, students participated in the conference. One report was marked by the jury Diploma of 3 degrees.

The result of our joint effort is the emergence of the graduates of the Lyceum as a prospective student of our university and, later, students St. Petersburg State University of Cinema and Television. In 2010 the first applicant who applied to our university to major in environmental protection and rational use of natural resources, was a graduate of this school.

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### **ГИДРОЛОГИЧЕСКАЯ ГИС УСТЬЕВОЙ ОБЛАСТИ РЕКИ КЕРЕТЬ**

Устьевые области рек благодаря своим природным особенностям занимают особое положение среди других географических объектов. Устья рек выполняют роль природных «барьеров» между реками и морями. Устьевые области рек – наиболее экологически уязвимые природные объекты.

С 2006 г. кафедра гидрологии суши совместно с кафедрой физики Земли СПбГУ проводит полевые и экспедиционные работы в устьевой области р. Кереть, впадающей в Белое море. Кереть протекает по территории Керетского заповедника. За период 2007–2010 гг. в ходе экспедиционных полевых работ было накоплено множество материалов, включающих в себя гидрологические, гидроморфометрические, гидрохимические и гидрофизические характеристики вод устьевой области и самой р. Кереть.

Создание геоинформационной системы устьевой области р. Кереть позволило обобщить и систематизировать данные, полученные в ходе экспедиционных работ, создать базу данных гидрохимических и гидрофизических характеристик вод устьевой области; составить электронную батиметрическую карту объекта исследования; создать трехмерную визуальную модель устьевой области, а также выполнить расчеты батиметрических характеристик устьевой области, определить объем приливной призмы и зоны осушения и границы раздела пресных и морских вод.

Созданная гидрологическая ГИС в среде программы ArcGIS устьевой области р. Кереть позволяет определять оптимальное положение станций для наблюдений за гидрологическими, гидрофизическими и гидрохимическими характеристиками в зависимости от особенностей распределения пресных и соленых вод, что позволит в дальнейшем пополнять имеющуюся базу данных.

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### **HYDROLOGICAL GIS OF THE KERET' RIVER ESTUARINE AREA**

River estuaries due to the natural features have a special position among other geographical objects. Estuaries are natural «barriers» between the rivers and seas.

The most part of river sediments are deposited here; dissolved substances are trapped and accumulated, including pollutants; natural and anthropogenic changes of the river and sea regime are greatly appeared. River estuaries are the most ecologically vulnerable natural objects.

Since 2006 the department of a land hydrology together with the department of physics of the Earth of St. Petersburg State University have expeditions to the Keret' River flows into the White sea. Keret' River flows through the territory of the Keretsky Reserve. During the expeditions 2007–2010 a lot of data have been collected, including hydrological, gidromorphometrical, hydrochemical and hydrophysical characteristics of the Keret River estuarine area.

Creation of geoinformation system (GIS) of the Keret river estuary has allowed to compile and organize the data obtained during the field work; to create a database of hydrochemical and hydrophysical characteristics of estuarine water; to make electronic bathymetric map the investigated object; to create three-dimensional visual model of the river mouth area; to execute calculations of depths characteristics, to define volume of a tidal prism and a drainage area and border of section of fresh and sea waters.

Established Hydrological GIS software ArcGIS of the Keret' River estuarine area allows to determine the optimal position of stations for supervision over hydrological, hydrophysical and hydrochemical characteristics depending on features of distribution of fresh water and salt water, which will allows to supplement the existing database.

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### **ИЗУЧЕНИЕ ЭКОЛОГИЧЕСКИХ АСПЕКТОВ ПРИ СЖИГАНИИ РАЗЛИЧНЫХ ВИДОВ ТОПЛИВА В РАМКАХ ДИСЦИПЛИНЫ «ОСНОВЫ ЭКОЛОГИИ»**

В результате сжигания топлива на окружающую среду оказывается негативное воздействие в форме выбросов загрязняющих веществ. Наибольшую опасность представляют сернистый и серный ангидриды, оксиды азота, оксид углерода и углекислый газ, твердые частицы (сажа, зола), углеводороды.

Степень загрязнения окружающей среды зависит как от вида и качества используемого органического топлива, так и от типа энергетических установок. Отходы, образующиеся в процессе сжигания топлива, в несколько раз (при сжигании газообразного в 5, а при сжигании, например, антрацита – в 4 раза) превышают массу используемого топлива.

В энергетике Республики Беларусь в последнее время ежегодно сжигается порядка 12 млн т условного топлива. В структуре топливного баланса природный газ превышает 80%, остальное – сернистый мазут, попутный газ и др.