

International Environmental Education and Research Programs are Possible Through the Virtue Project

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The Virtual University Education (VIRTUE) Program first had its beginnings in 1997. VIRTUE was started as a cooperative venture between the University of Maryland, USA, Goteborg University, Sweden, and the University of Bergen, Norway. The program was designed to develop new tools to educate and incorporate “distance teaching” that would enhance each participant’s knowledge base. The initial plan for teleconferencing, seminars, and “transatlantic” lectures has successfully provided each participating university with new insights into the global aspects of environmental sustainability. The VIRTUE program has encompassed three main areas: Public Outreach, research, and PhD courses in environmental science. The Knut and Alice Wallenberg foundation, Sweden, have provided support for this international project.

Public Outreach includes two main components. The first component is the VIRTUE school project. The VIRTUE school project incorporates an experimental design that is both simple and easy to follow. Directions for building and deploying the “biofilm racks” and biodiversity assessments are available online. Teachers can adapt the project to fit the needs of their particular situation. Bays, rivers, lakes and streams can all be studied. More important, the VIRTUE school project is adaptable to all ages. Students are immersed in an international research project that is inexpensive, exciting, and extremely informative. They complete the project better able to defend the importance of protecting and preserving the environment. In addition, Sweden offers continuous education in natural science for all VIRTUE teachers each semester. Often teachers include an interdisciplinary approach that includes using math, poetry, music and art in the overall project. Technology that includes digital cameras, computers, Internet use, computer-based laboratories (CBLs), graphing calculators, teacher designed WebQuests, and designing web pages becomes second nature to the student. Students, and their teachers, use authentic data during the analysis process. This interdisciplinary approach with the Public Outreach project makes conserving our environment more tangible to the students; it becomes very real to them. VIRTUE now embraces schools in Russia, Estonia, Latvia, Norway, Italy, more than twenty schools in Sweden, and more than five schools in Maryland, USA. The second component of Public Outreach is the VIRTUE Newsletter, an online newsletter that is published monthly. It includes updates with information on recent discoveries in VIRTUE environmental research, lectures, current events, teleconferences, and interviews with VIRTUE personnel.

Scandinavia and the United States share common needs and constant environmental challenges in regard to the coastlines and deep water areas of the Artic Ocean, Baltic Sea, North Sea, and Atlantic Ocean. At the onset of the project it was apparent that effective

international education in the marine sciences was of vital necessity. Complimenting this education was the development of research programs in the field of environmental science. There are, to date, at least nine different research projects that are currently active at all three of the universities' research centers.