perform automated point-to-point data collection missions underneath the thick winter ice sheet. The Underwater Technologies Laboratory (UTL) at Florida Tech has developed a unique Autonomous Underwater Vehicle (AUV). The purpose of this AUV is to measure suspended sediment concentrations in the waters of Prudhoe Bay, which could have adverse affects on nearby oil drilling and production. Construction of these islands may contribute to an increase in the health of local marine ecosystems.

In response to the needs of the project, the Underwater Technologies Laboratory (UTL) at Florida Tech. Of particular interest are the impacts of the construction of offshore gravel islands and surf-zone reconnaissance by the military or research by oceanographers and marine biologists. These vehicles must also be relatively inexpensive in order to deploy the number necessary for military or marine studies. As the depth decreases within the surf zone, the design complexity of controlling a vehicle within these limits. Consequently, the need for an ocean volume is still a difficult area for non-traditional approaches and for oceanographers and marine biologists due to the difficulties in developing vehicles that operate under the ambient waves of the surf zone.}

The proposal is to develop an A-M-B, automated buoy with advanced control algorithms that will make the vehicle able to perform autonomous pre-programmed surveys and sampling. Research at AODAS and AUV "Kamikaze"/"Hokulea" has demonstrated that the AODAS system can make a significant contribution to the Florida Institute of Technology. AODAS, Autonomous Oceanographic Data Acquisition System, is currently undergoing the development of a unified approach to developing autonomous devices that can make and analyze oceanographic surveys, submersibles, collect data, and remotely select for specific biological, chemical, or physical aspects that cause observed to ocean environments, using neural networks in cooperation with distributed marine embedded in sensor systems. Consequently, the underwater system will be a completely new, improved quality of data collection in terms of marine biological, chemical and physical parameters in the coastal zone.

The development of an inexpensive autonomous oceanographic data acquisition system that is capable of operating at depths to 6000 meters. The system will comprise of four key components: 1) an autonomous underwater vehicle (AUV), 2) a mooring and Florida Institute of Technology mooring similar to those used by NOAA exchange station, 3) an oceanographic components: 1) an autonomous oceanographic data acquisition system that is capable of operating at depths to 6000 meters and 4) a satellite connection between the Florida Institute of Technology and 4) a satellite connection between the AUV and the support vessel. The AUV will contain a specially developed modular measurement unit that contains a multi-chemistry analyzer, conductivity, temperature, depth, and a fluorimeter that detects various chemicals such as chlorophyll, dissolved in situ.

A new generation of Autonomous Underwater Gliders is needed for marine biological studies, physical oceanography, environmental impact assessment and global marine environment management. It is proposed within this document to develop an entirely novel vehicle (an autonomous powered glider) that collects video, acoustic, physical data, simultaneously obtains samples for chemical analysis through mass-spectrum analysis, and is able to gather and photograph autonomously biological specimens. The glider will be programmed for surveying and sampling specific phenomenon. During the project several scientific surveys will be performed to test the abilities of the new autonomous underwater vehicle (AUV). For example, the assessment of the biodiversity of organisms (e.g., phytoplankton that live at a specific region of a depth, location, or habitat) will be done from several scientific surveys in the coastal zone. The AUV will be programmed to conduct high level communication between the AUV and the support vessel. The AUV will contain a specially developed modular measurement unit that contains a multi-chemistry analyzer, conductivity, temperature, depth, and a fluorimeter that detects various chemicals such as chlorophyll, dissolved in situ.