Amphibious Boat Dock Dolly

Overview
Lakes in the northeast freeze in the winter and the resulting ice causes severe damage to docks. Lake Hauto, a private lake in Nesquehoning PA, does not allow the use of bubblers. Therefore, owners must remove their docks from the water each year. A need exists for a simple device that will reduce the effort required to remove a dock from the water. This removal includes detaching the dock section from its supports and transporting it ashore for storage.

Objectives
The final design will be a simple device that allows one user to remove a dock with minimal effort. This device will have the capability to remove a dock section from its supports, transport the section to the shoreline, and bring the section on land to its storage location. In addition, the device will be used to reinstall the dock sections in the spring. Lastly, the design will resist damage from the elements in order to last for many seasons.

Approach
- Visited our sponsor at his house to better understand the problem and his needs
- Generated many different ideas for a solution to the problem
- Through concept selection, decided on the “PVC rollers” as our design choice
- Created CAD models to help us visualize the design
- Researched and ordered materials that would be cost effective and corrosion resistant
- Worked in the Learning Factory to manufacture the design
- Built a mock dock section for testing purposes
- Took the device to Whipple Dam to test
- Proved that the device provided enough buoyant force to hold the mock dock section
- Proved that the device was sealed completely to keep water out
- Showed that the dock could support at least the weight of the dock without the top decking

Outcomes
We believe that our project was successful and has met all the goals of the project. It is easy to use by one person and can support the weight of the dock without the decking. Our sponsor is very satisfied with the design and will use the final prototype to install the dock sections this spring. Additionally, the project was successfully completed under budget and ahead of schedule, without having to sacrifice build quality or testing time.