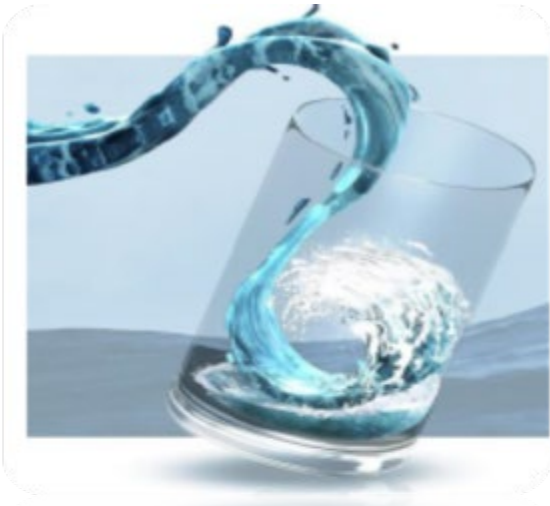


## **Waves to Water Team-Simplicity**



Mark Woolley of Dearborn, MI  
mdwoolleyjr@yahoo.com  
<https://www.linkedin.com/in/mark-woolley-jr-85982246/>  
<https://youtu.be/svnzJWuz7Vk>

To achieve the goal of desalinating sea water into fresh water, Team Simplicity has designed a system that uses distillation powered by a hybrid of solar and wave energy. This system has less than four moving parts, is self cleaning, can be set up in less than 2 hours by two able bodied adults, and is able to operate in wave conditions from 1 to 10 feet.

The major benefit to this system is reliability through simplicity.

## Technical Information

System will consist of three major components: feed and power (**F&P**), distillation and condensation (**D&C**), and Collection.

**Feed and Power-** System will consist of piston-pump to drive water that is driven by wave oscillation, and an electrical generator that will be powered by rotating floats attached to pump head. Generator will power batteries on D&C component. System is to be anchored into seabed between 4 and 12 feet of water, depending on surf and shoreline.

**Distillation and Condensation-** System will consist of multiple 2 cubic foot pods that will have water fed through Stainless Steel pipe into evaporation chamber. Energy for evaporation will be provided by a combination of direct solar energy and heating coils powered by batteries. Water vapor will condense on metal feed pipe and attached heat syncs that is cooled by incoming seawater, then collect into surrounding PVC pipe that will feed out to collection component. System will have ball float cut-off to stop in-flow when chamber is full. System also has cleanout valve on bottom for flush cycle.

**Collection-** Collection component will be 55 gallon drum, with top inlets for pipes and ball float shut-off valve.

**Self Cleaning-** Flush cycle will be engaged when collection container is full. Cycle will be triggered by ball float in collection container; causing D&C cleanout valve to open, outflow valve to close, and seawater to wash system out flowing back to water source.

## Scalability and Other Benefits

This system is easily scaled by adding F&P heads, additional D&C pods and collection containers based on water needs. This system can also be adapted for used in rivers and streams to clean unsuitable fresh water drinking sources by changing pump from piston to rotary and add second set of rotating floats.

## Team and Resources

Team Simplicity is based in Dearborn Michigan. Team lead Mark Woolley has been in manufacturing sales, application, and design for over seven year. Mark will be handling all design and build aspects of systems, and utilizing additional resources at Employer, Apex Cutting Tool, for manufacturing and CAD work.