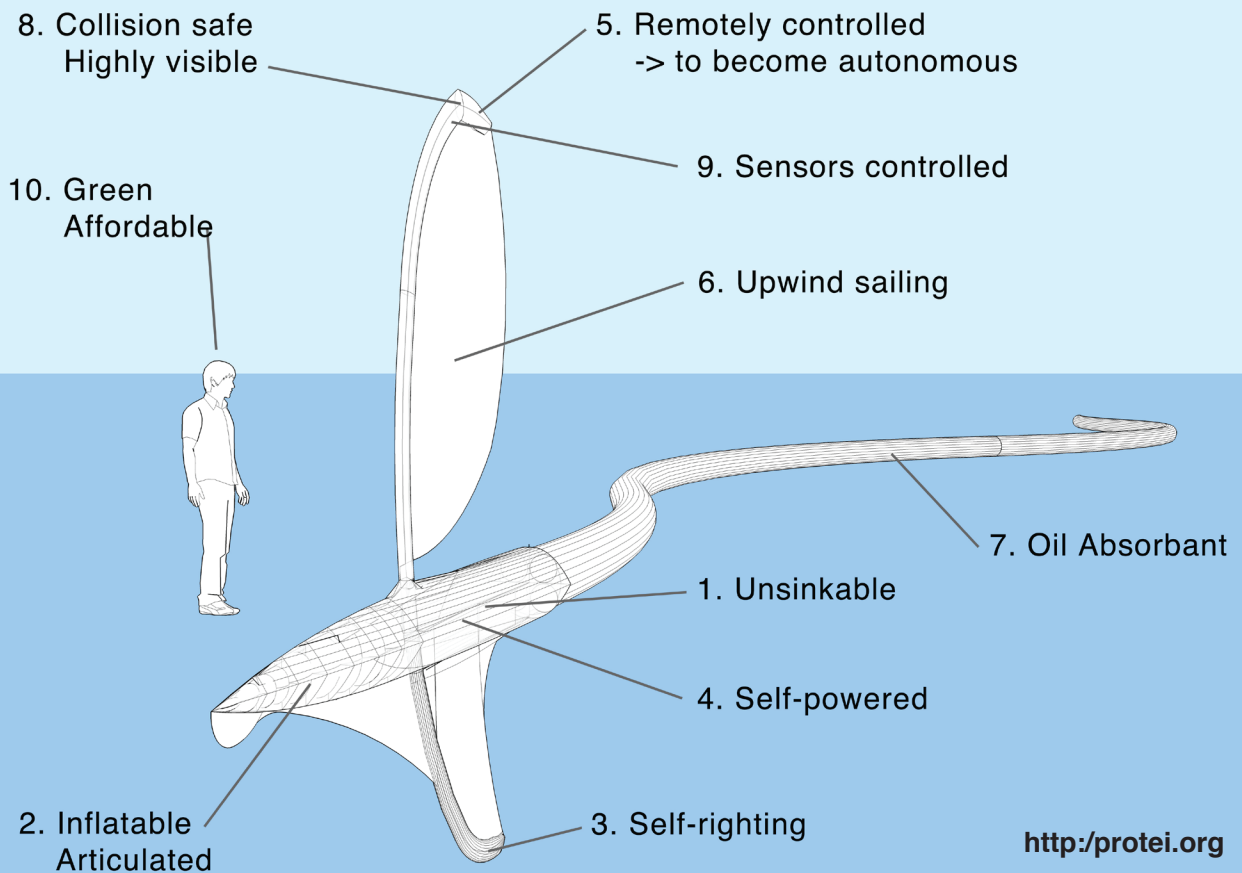# Protei

Open Hardware Oil Spill Collecting Sailing Drone Fleet
By Open_Sailing + randomwalks + V2_
Thanks to LA Bucket Brigade, Suzette Toledano

8. Collision safe
Highly visible

5. Remotely controlled
-> to become autonomous

10. Green
Affordable

9. Sensors controlled

6. Upwind sailing

7. Oil Absorbant

1. Unsinkable

4. Self-powered

2. Inflatable
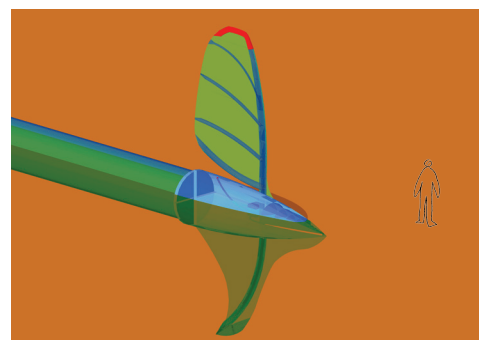Articulated

3. Self-righting

http:/protei.org

Human resources are limited and cleaning oil means being exposed to toxic pollutants. Cleaning oil spills could happen much more efficient and safe when vessels would operate autonomously. Protei is a fleet of autonomous oil spill collection vessels. Each Protei vessel consists of a sailing propulsion head and a long oil absorbing tail. Protei is based on the simple premise that because an oil spill moves and spreads down winds, currents and waves, the most efficient way to clean it is to use these same natural forces to sail upwind while capturing oil.

To collect the oil, Protei is equipped with a conventional oil absorbing boom as tail. This boom tail can take up to 25 times its own mass in oil and can be reused many times. A Protei fleet can reach far remote places to collect a spread oil spill and can operate in storms and difficult waters due the inflatable, self-righting and collision-safe design of the individual vessels. This design is extremely affordable, and distributed as Open Hardware so anyone can contribute, use, modify and commercialize it.

All over the world oil and various other pollutants are spilled in our waters constantly, and every spill's context is different from another. Therefore, Protei is not only a powerful water cleaning design, but also adjustable to any local condition by anyone due to its Open Hardware philosophy. You can be part of its development.

1. Unsinkable
2. inflatable articulated
3. Self-righting
4. Self-powered
5. Remotely controlled
6. Upwind Sailing
7. Oil Absorbant
8. Collision safe
9. Sensor controlled
10. Green, affordable
11. Open hardware

Research prototypes

2010 06 22 : v000
Built in a day with plastic bags and duct tape, we tested this 1m inflatable prototype. It sailed in a gentle breeze with an articulated front steering.

2010 08 12 : v001
Based on a classic remote control sail boat, Protei001 pulls and controls a 4m tail with a 14cm front rudder : great pulling power for a little controlling power.

2010 08 16 : v002
Protei002 is the same size as 001, same remote control and electronic system on board. 002 is articulated, the entire body acts as steering : powerful, precise, rugged.


2010 08 21 : v003
protei003 is 6m high from keel to mast, 4 m long. Inflatable and flexible, we call it the "ocean blimp". It resembles the envisioned final design.

2010 09 01 : v004
We made a swarm of Protei as an art installation in Korea (non functional).

2010 09 12 : v005
50cm semi-autonomous version, with stereo ultra-sound collision avoidance, wind -sensing and accelerometers on board. Made in Seoul Korea .
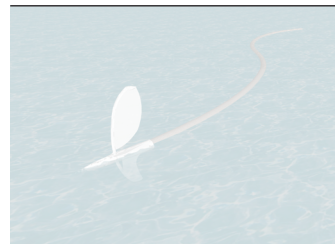
2010 xx xx : v006
Learning from previous prototypes, we are currently designing the next version. You can be the autor of it !

Development : Protei is developed in an iterative hands-on process. This means that when we have an idea, we build it and test it immediately on the water. We document and share the process, technical drawings, schematics, codes, supplier list, cost as we go, so everyone can take part in the development of Protei. It is a viable long term business model : in addition of developing a great technology, we create a motivated community of experts.

Objectives : Summer 2011, we want to have one full scale working prototype, about 8 meters high, test it in the real conditions at sea. Immediately after we will work on the manufacturing rationalization, optimizing materials and fabrication to reduce environmental and economical cost establishing a new standard for this new family of articulated inflatable vessels. Summer 2012 we want to have a fleet of Protei operational. The potential of Protei goes far beyond oil spill cleaning : the tail (payload) can be almost anything from water sampling, to radio equipment to fresh water shipment...

Collaborate : we are currently looking for financial support to develop the Protei (see development plan), partners in the industry, academia, institutions and non-profit partners, sailors, electromechanicians, inventors... Work with us.

http://protei.org