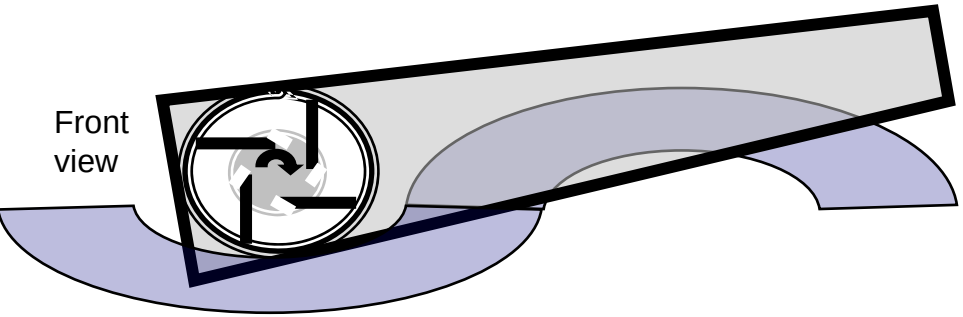
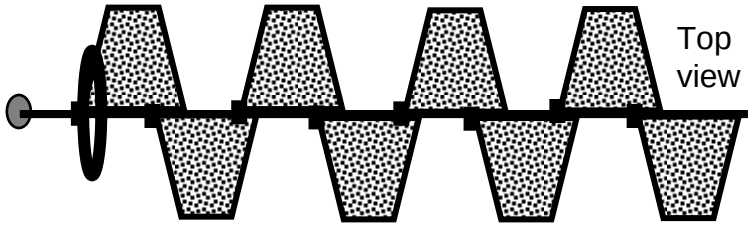
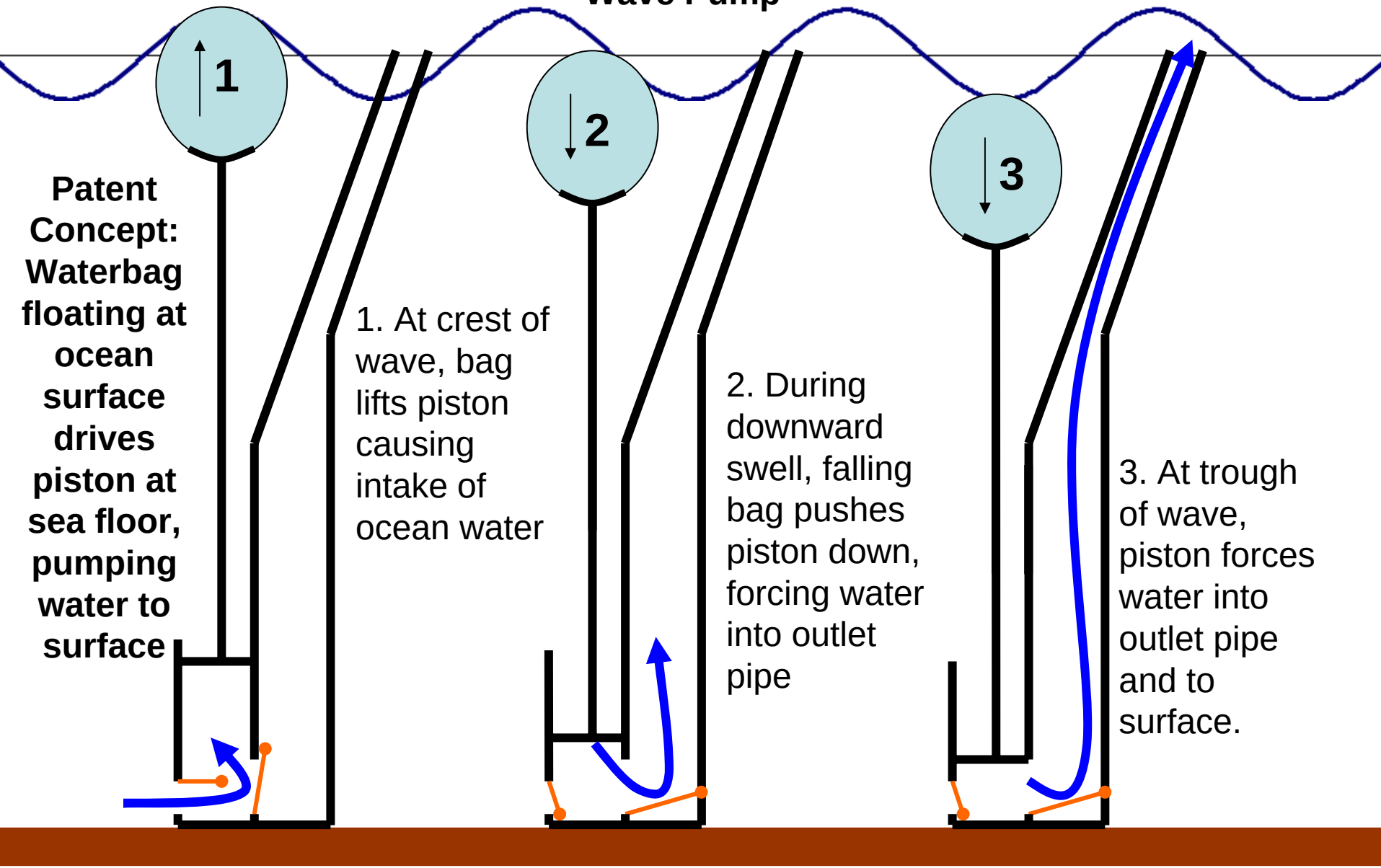


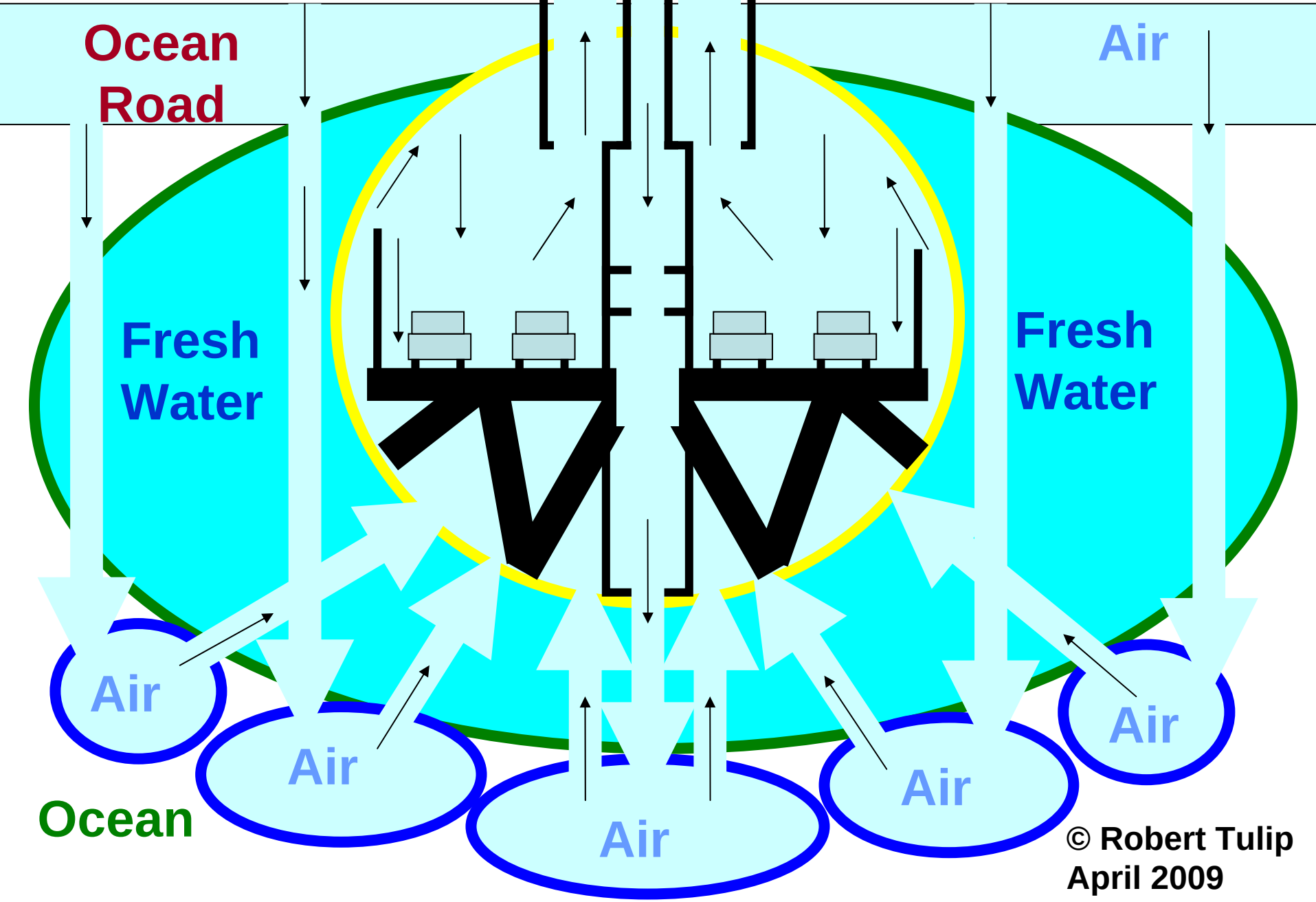


Wave Motor

1. An ocean-going energy production apparatus as depicted in drawings above comprising a drive shaft axle driven by natural energy of ocean waves and floating platforms (wave wings) alongside each axle
2. Each wave wing surrounds the axle by a cylindrical axle housing contained within the base of the wing and fully enclosing the axle
3. The axle is a solid rod joining the wings through the axle housings, and able to spin freely within the axle housings within each wing.
4. Solid bars (ratchet arms) are connected to the wave wing within the axle housing, angled so as to enter corresponding slots within the axle
5. Ocean waves will force the wing to move up and down at its tip. Movement of the wing in one direction (eg upward wave swell) forces the ratchet arms to enter the axle slots and force circular motion of the axle. Movement in the other direction (eg downward wave swell) allows the ratchet arms to leave the axle slots while the axle continues to spin in the direction previously imparted
6. With a propeller or other motor device mounted at the end of the axle, connected so as to convert the energy imparted by the ocean wave through the wings and axle into spinning energy
7. The Designed as auxiliary propulsions system for flexible floating barge (known as waterbag) being mounted by fixed struts on each side of each waterbag to provide it with additional propulsion.

Wave Pump

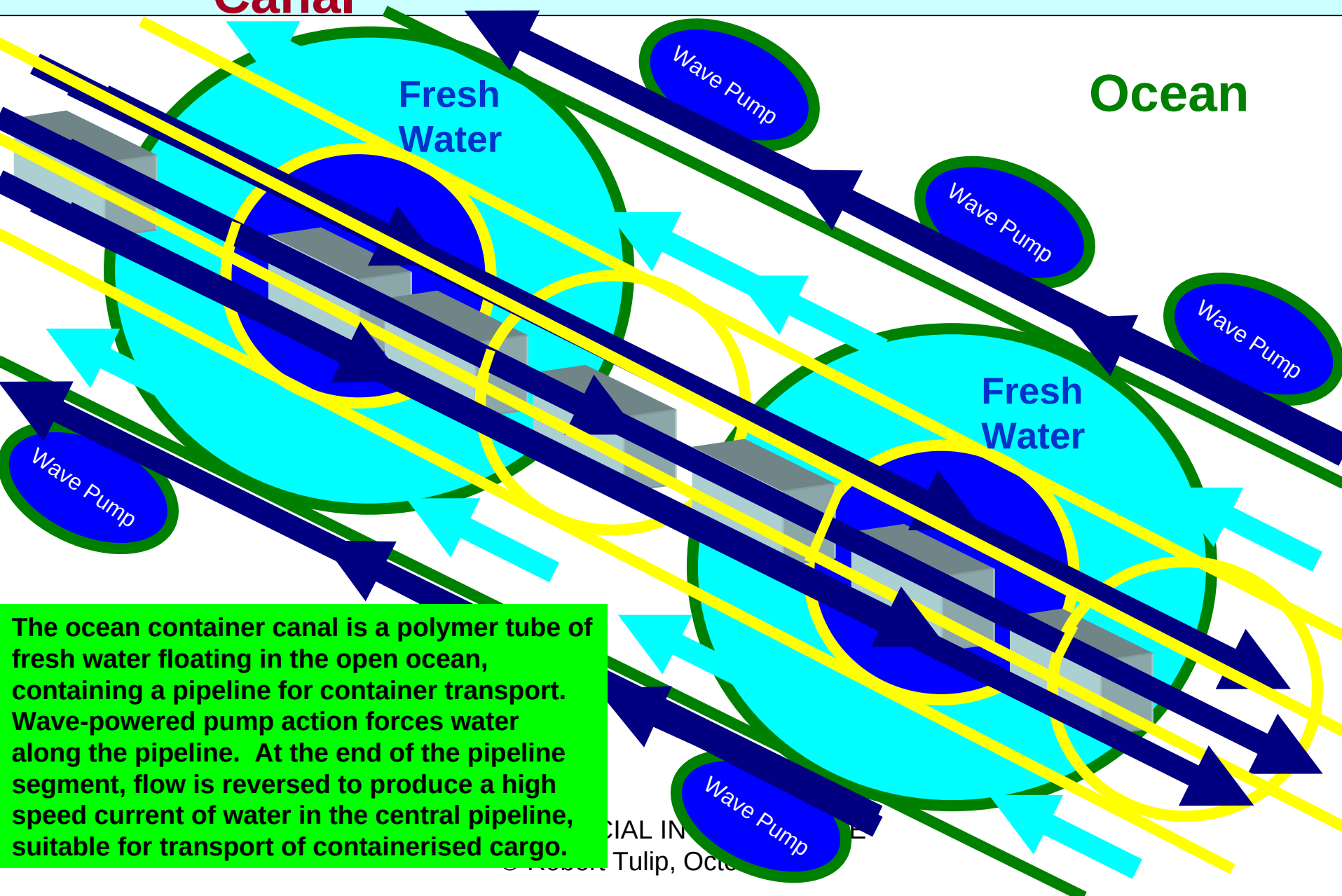




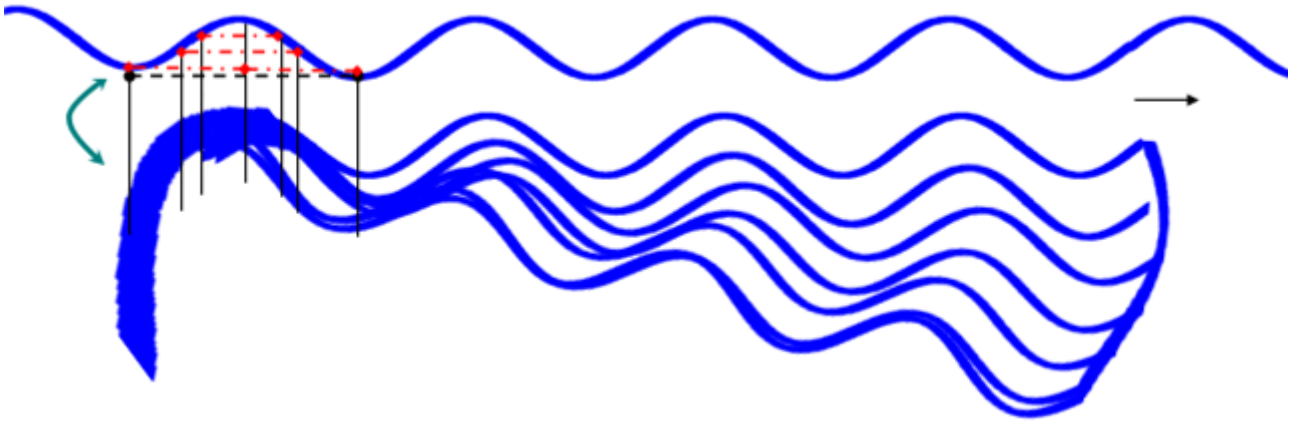
The ocean road is a polymer tube of fresh water floating in the open ocean, containing vehicular motor highway or other tunnel, aerated by wave-powered pump action drawing air through submarine sacks

Ocean Container Canal

Air



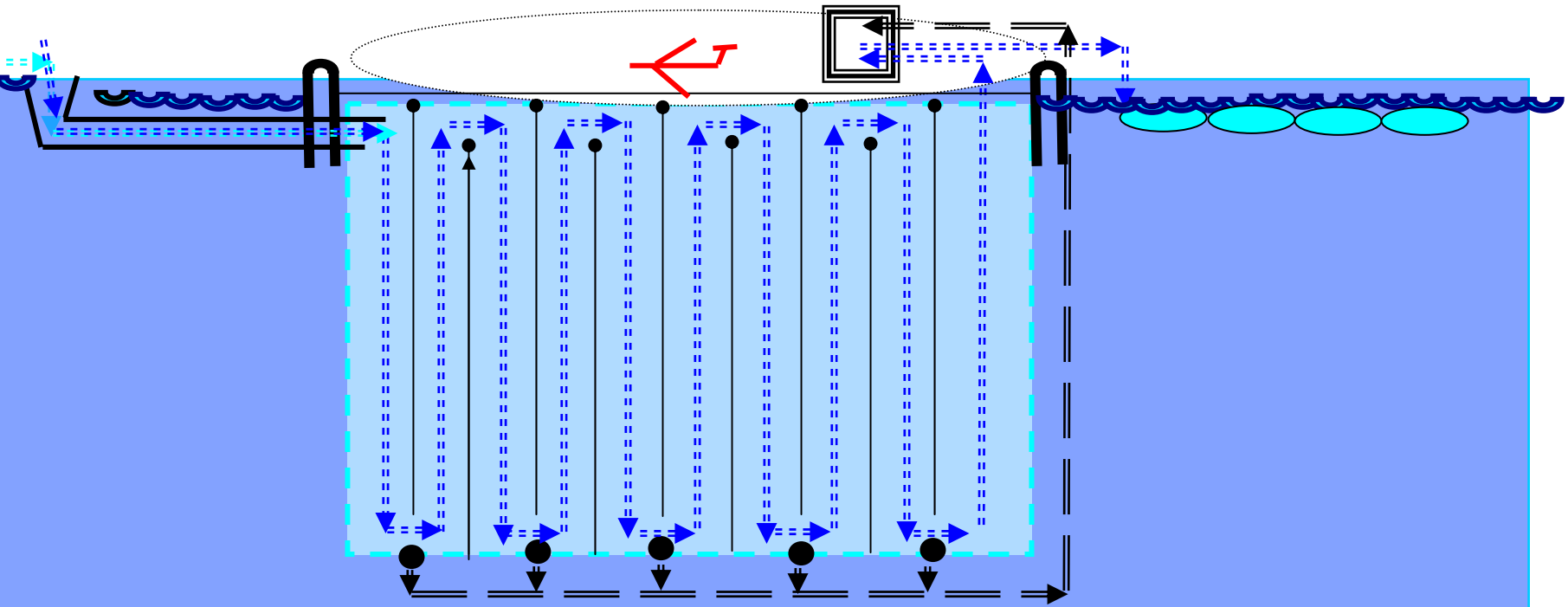
The ocean container canal is a polymer tube of fresh water floating in the open ocean, containing a pipeline for container transport. Wave-powered pump action forces water along the pipeline. At the end of the pipeline segment, flow is reversed to produce a high speed current of water in the central pipeline, suitable for transport of containerised cargo.



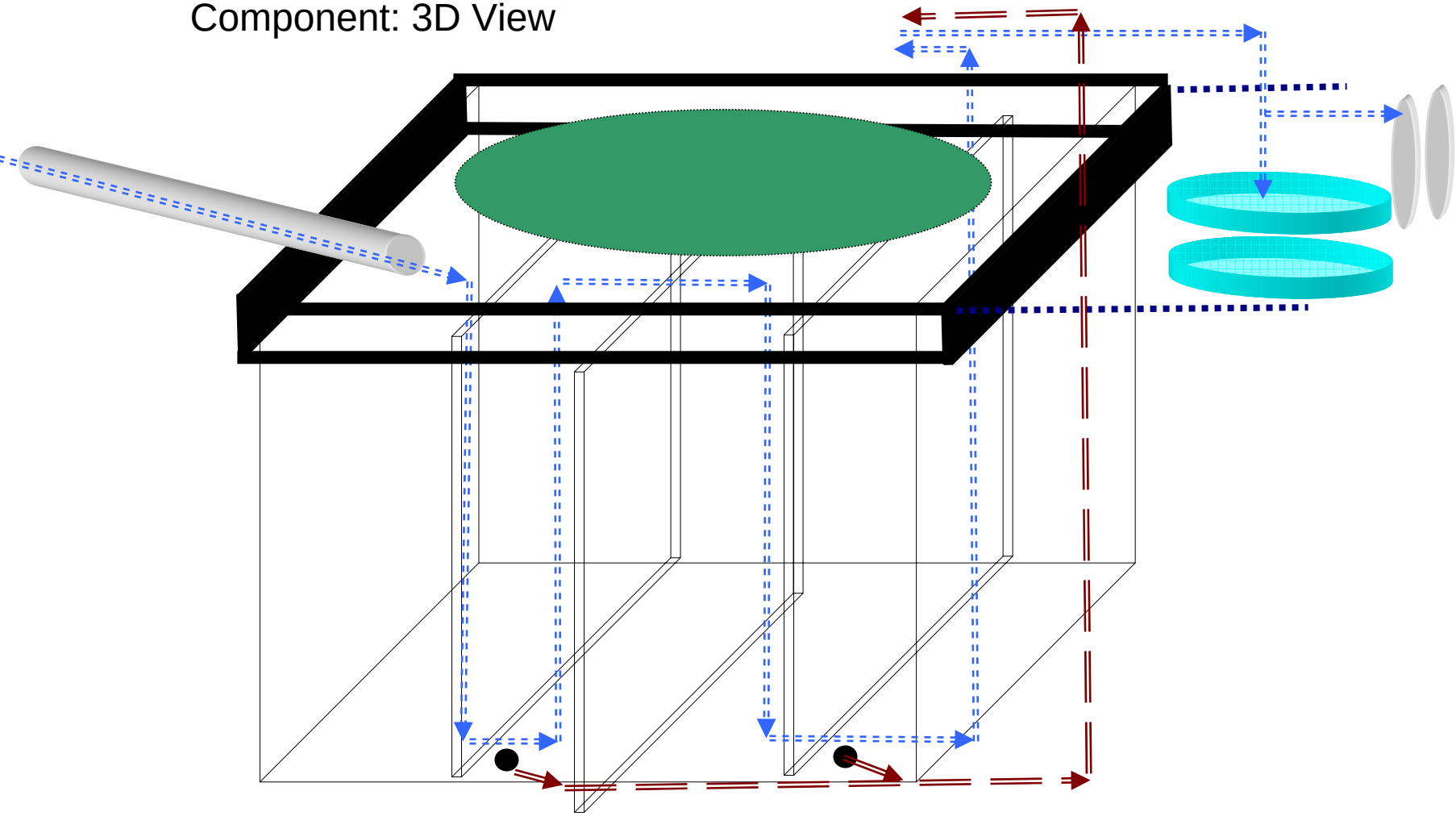
Whale Fluke Wave Propulsion Component

1. **Waterbag designed to transform ocean wave power into propulsive force.**
2. **Narrowing conical diameter from head to tail of impermeable fabric bag containing fresh water floating in ocean, with broad horizontal rear paddle in shape of whale flukes, enables accumulation of wave power to whip flat tail as whale flukes. Flexible skeletal structure obtains energy from vertical wave motion.**
3. **Diagram shows sine wave shape of whale waterbag, with internal vertebral frames connected to tail. Up and down wave motion at head of whale is concentrated into connected internal flat sheets functioning as spines imparting energy to tail.**
4. **Flukes impart propulsive force to vessel with each up and down wave motion. Robot design based on whale adaptive shape provides robust and renewably powered self steered ocean vessel suitable for long distance transport of fresh water and other goods, or as keel of solid vessel.**
5. **Harmonic gearing system in final wave length at base of tale enables doubling, tripling and further harmonic multiple increases in transmission of wave speed into fluke beat. Gearing is applied as to a musical string, enabling wave vibration in equal parts of the whole segment.**
6. **System for water intake at mouth based on adaptive whale feeding method. Overlaid fabric sheets forming valve allow intake when open and retain liquid when closed.**

Ocean Dam
Component: Side View



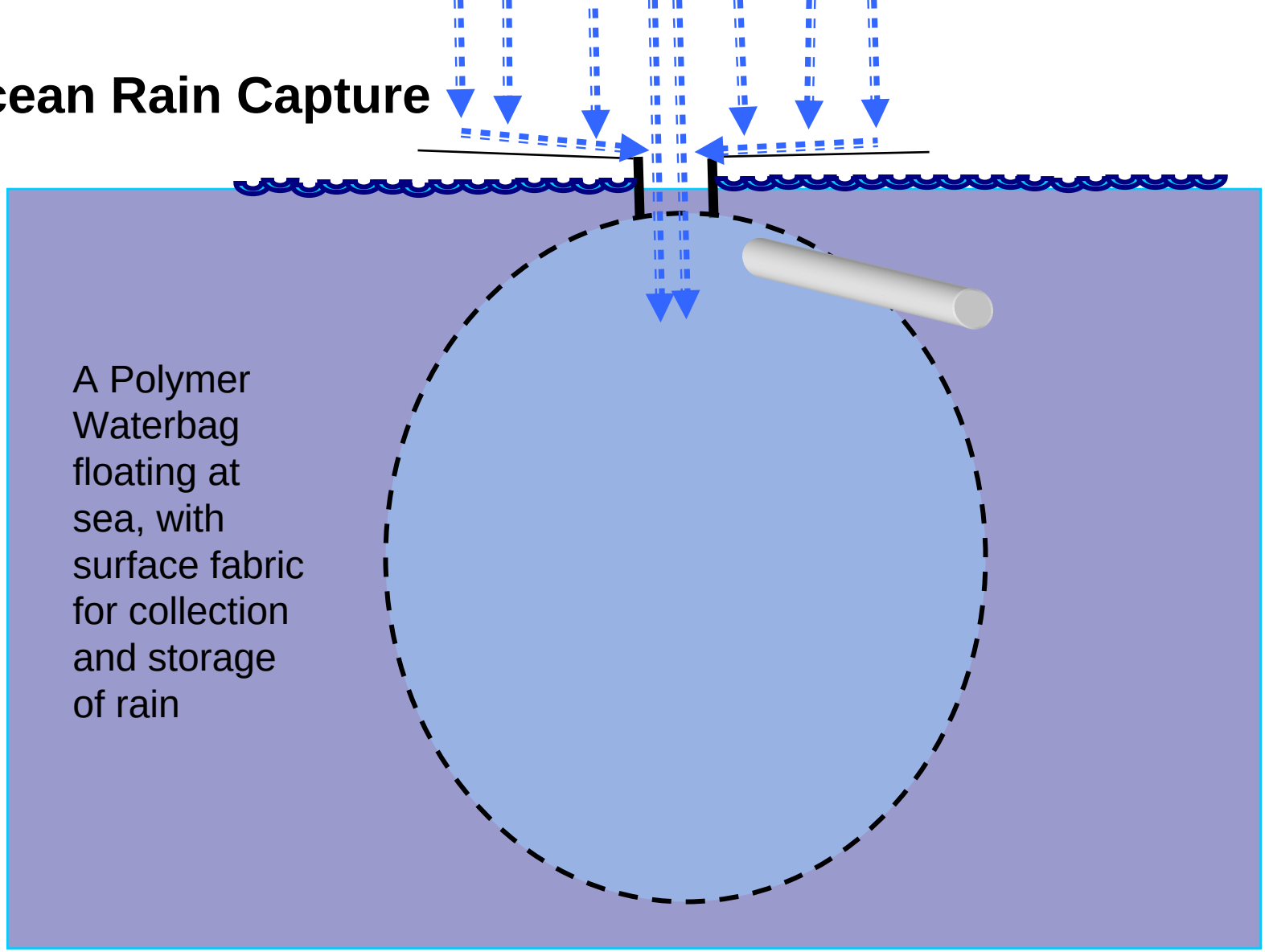
Ocean Dam
Component: 3D View



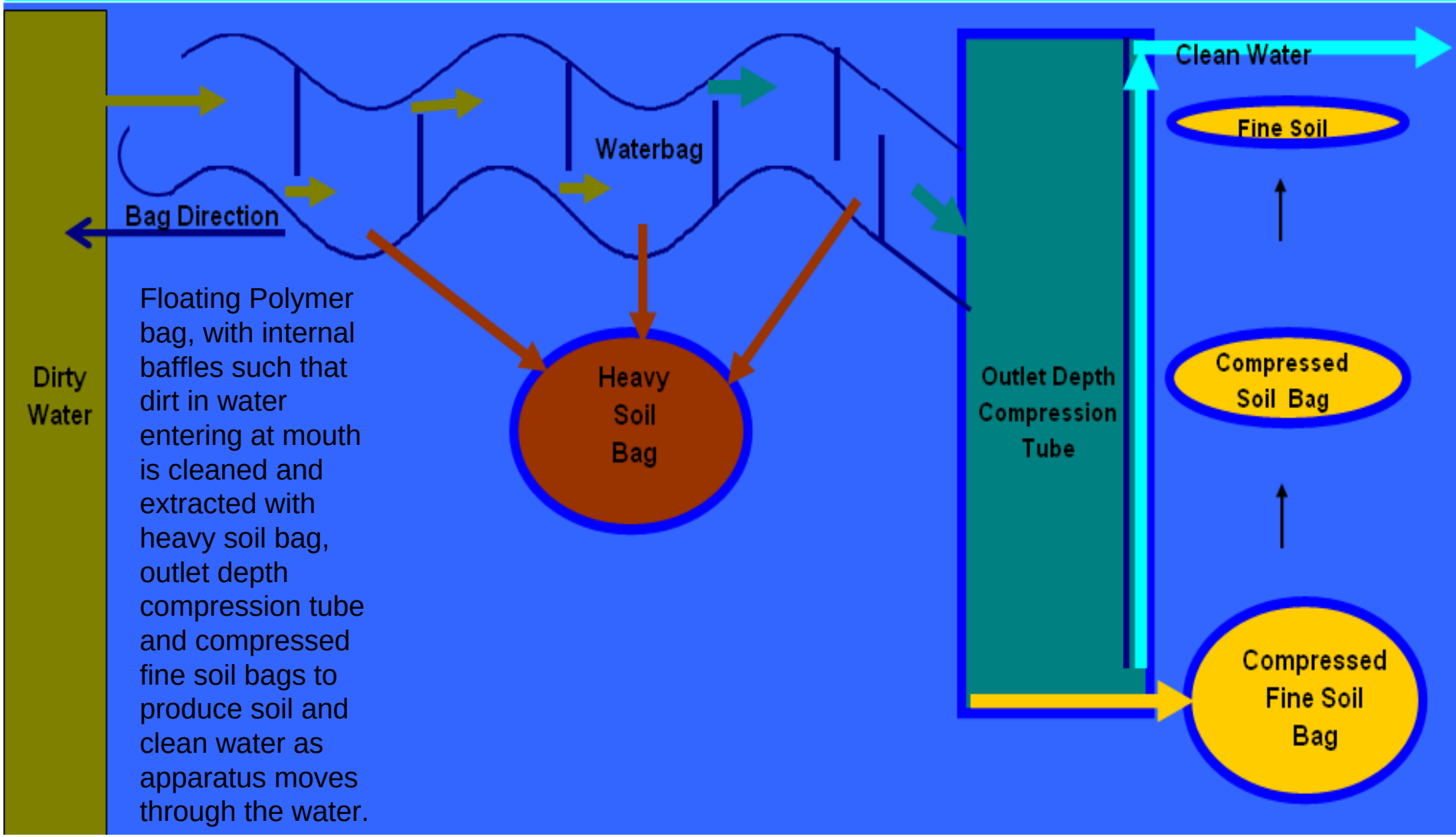
Ocean Dam Component

1. External concrete barrier rises and falls with the ocean swell, and protects the internal fabric water container
2. Contained fresh water provides buoyancy for the whole structure
3. 2.5% of the fresh water container is above ocean level due to relative density of salt/fresh water = 41/40
4. Teralitre dam can support ¼ gigatonne surface structure
5. Ocean dams can collect water from heavy coastal rains which had previously flowed to sea – suggested maximum diversion 10%
6. Construction on top of the dams drives economic impact
7. The top of the dam can be used as a stable platform for construction of algae production base station, or of airports, factories, farms, housing, seaports, offices and sewerage works.
8. Ocean dams provide a solution for the longstanding problem of finding suitable sites for new airports.
9. Building new airports on ocean dams will move aircraft noise away from populated areas and release valuable city land.
10. Fresh water can provide buoyancy for undersea road and train links between airport dams and the land.
11. Shallow dams can be used for irrigated agricultural production, CO2 and methane capture, urban and industrial construction and sewage treatment.
12. The main dams could be up to four kilometers deep
13. Dams as shallow as ten metres can grow biofuel crops
14. Layer of soil on top fertilises crops and pressurises dam reservoir to enable natural irrigation via standpipes distributed through the fields.
15. Wave power can generate large energy source including biofuel harvesting and transport and dam propulsion
16. Rivers send vast quantities of water and silt to sea, eg Amazon 5000 km3/year, Congo 1000 km3/year.
17. Pipelines can take dirty water from these rivers into ocean based water treatment works, to divide raw water into drinking water, dam water and soil for agricultural dams.
18. Raw river water can be separated by internal barriers inside the production dam. Heavy silt settles and can be separated and pumped away for use, while cleaner water rises to the surface on the other side of the internal wall.
19. Solids are pumped to the water surface from a sink hole at the base of the dam section. Baffles, with surface reed beds in between, produce large volumes of pure water.
20. Shallow dams are used to grow biofuel to sequester atmospheric carbon
21. Crops such as elephant grass, canola, sugar cane and oil palm provide climate-neutral sources of energy and material, and make carbon for human use and to sequester, for example by sinking in deep ocean trenches
22. Estimated quantity of production is seventy two tonnes of carbon per hectare per year.
23. These big dams would affect ocean ecology.
24. Aim is that the resources they provide will enable scrutiny and control of climate impact and of fishing on the high seas
25. By capturing the sunlight they slow the rise in ocean temperatures (in addition to longer term CO2 capture).
26. Fish can swim around these new objects, which are relatively small compared to the immensity of the oceans.
27. Dams also served as wildlife sanctuaries, providing secure habitat for endangered animals.
28. Climate impact from biofuel for sequestration.
29. By pumping carbon into the deep ocean trenches for storage, up to ten kilometres below the surface, the carbon dioxide level in the atmosphere can return to normal.
30. Instead of the sunlight going into the ocean and heating it up, energy can be stored through biofuel farms.
31. Ocean based agriculture is entirely controlled and scientific, making it competitive with land based farms, many of which can revert to forest.

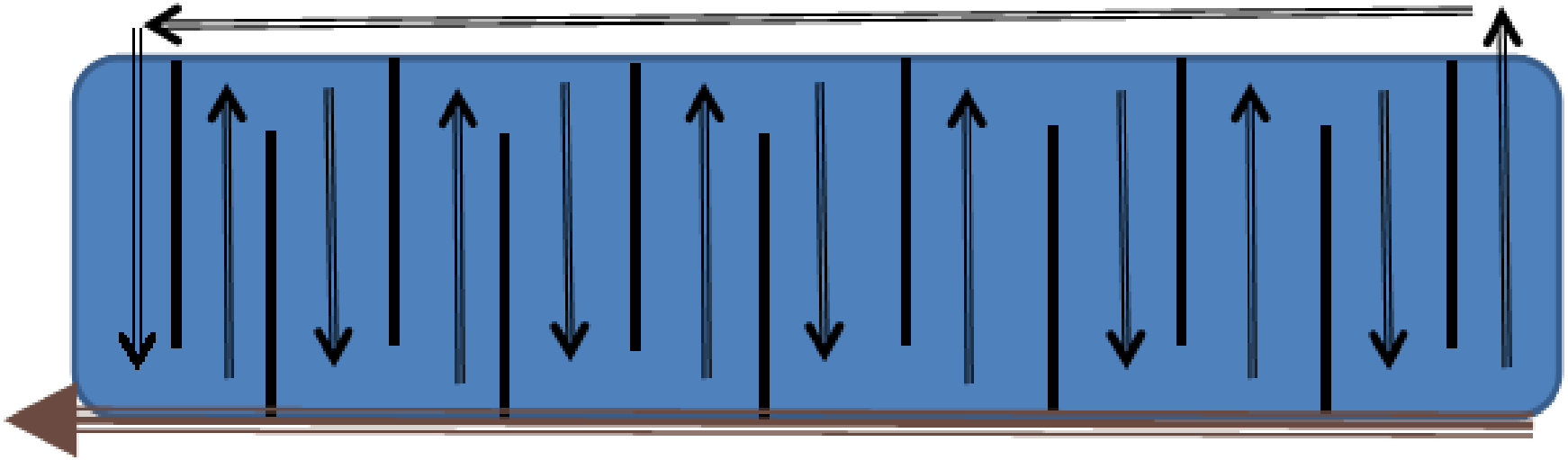
Ocean Rain Capture



Floating Polymer Waterbag - Water Cleaning System
Schematic Side View



Floating Polymer bag, with internal baffles such that dirt in water entering at mouth is cleaned and extracted with heavy soil bag, outlet depth compression tube and compressed fine soil bags to produce soil and clean water as apparatus moves through the water.



Waterbag with internal baffles for preliminary treatment of waste water

Direction of internal water flow

Solid waste collection

Concept: Untreated water transported by waterbag can have solids removed during transport by pumping enclosed water through vertical baffle system contained within waterbag. Water from front of bag is pumped through hose along the top to the rear of the bag. Inside, the water slowly moves from rear to front, through vertical baffle system. Solid matter settles at base of bag, and is collected in a drain running the length of the base of the bag.