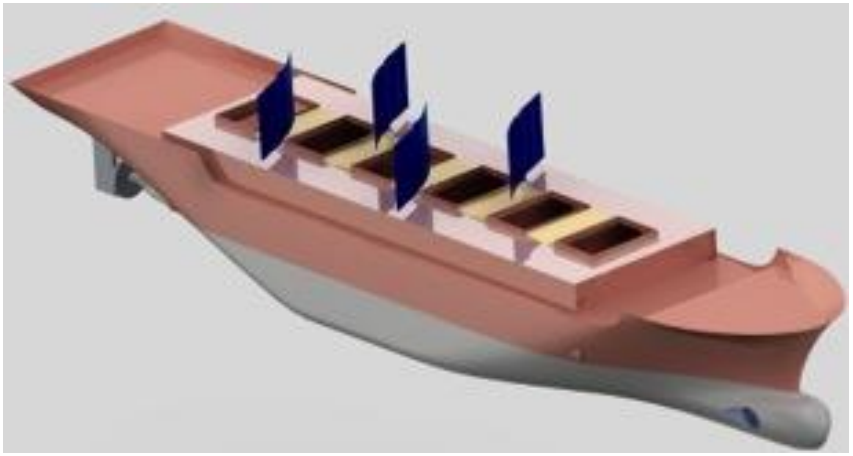
OCIUS TECHNOLOGY LIMITED

The Global Leader in Monitoring and Data for Marine Defence and Security, Oceanographic Science and Research, Hydrography and Commercial



Overview

Ocius Technology Limited

- Owns worldwide patents and designs (**IP**) across its 3 business units.
- Track record in delivering.
- Long established credentials, local and worldwide business relationships.
- Experienced Board and Management.

Ocius Business Units

1. Unmanned Surface Vessels (**USVs**) branded "**BlueBottles**"
2. Hybrid electric solar and wind powered ferries (100-250px) operating in Sydney, Hong Kong, Shanghai and Lake Macquarie **(SolarSailor Ferries)**.
3. Pivotal, wind powered, multi-directional sailing rig for use on all ships – including bulk carriers (**Bulkers**).

IP Worldwide Patents

- Solar Sail patent registered in 26 countries:
  - *Any vehicle with a pivotally mounted solar panel in the shape of a wing that can angle to the sun and/or the wind and fold down.*
- Unmanned Ocean Vehicle registered patent in the USA:
  - *Self sustaining platform with enclosed hull that uses at least solar, wind, wave and water ballast.*
- Provisional patents:
  - *Tilting energy harnessing rig – raising a sailing mast using water ballast.*
  - *Lotus Wing - Opening rigid wing.*
- Trademarks – "Ocius Technology", "solarsailor" and pending "solarsail".

Strategy

1. Research and Development (software and platforms)

✓ Proven survey and classification society approved technology hardware and software working on commercial ferries, research into USVs.

2. IP Registration

✓ Patents registered in 26 countries, recent and new patents being filed.

3. Identify Manufacturing Partners

✓ USVs – Agreements under discussion with Manufacturing Industry Partner with Global Defence Prime Contractor plus others in pipeline.

4. USV Product Testing

2014 Focus – first fully operational, full-time USV positioned off coast of Australia

5. First Commercial Sales (prototypes)

Sales of USVs and/or data

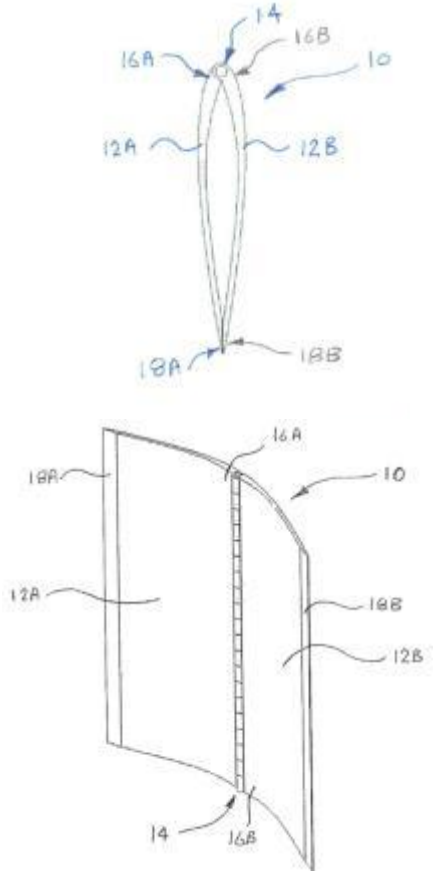
6. Long Term Contracts

Technology

Solar Sail

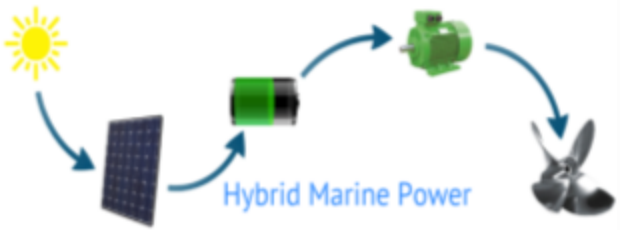
- Patented pivotal wing with solar panels
- Harnessing both sun and/or wind
- Proven seaworthy, reliable and efficient
- New development is opening rigid wing

Lotus Wing - Open Rigid Wing



Hybrid Marine Power

- Our Hybrid Marine Power (**HMP**) is similar to the hybrid car
- Can add sun and wind power
- Batteries are useful ballast
- Fuel savings, environment savings
- Zero emission mode – WHO



Products

CIUS
OCEAN TECHNOLOGY

Technology

Solar Sails, opening rigid wing

Hybrid Marine Power

Business Units

Unmanned Surface Vehicle

Hybrid Ferries

Commercial shipping

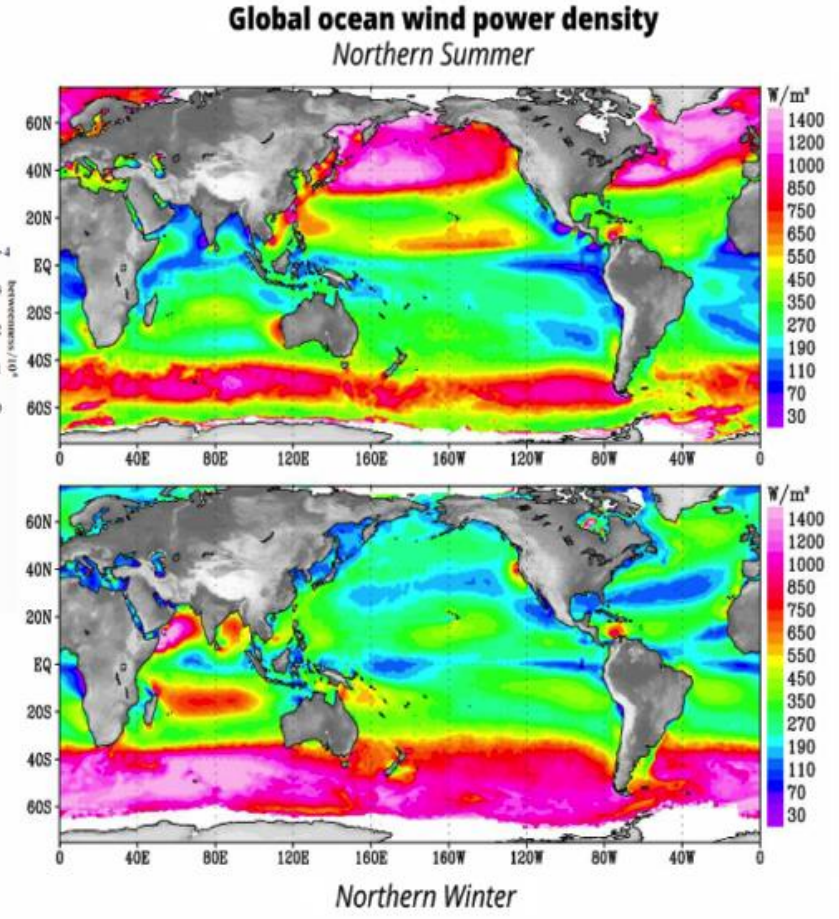
Overview

Commercial Shipping Megatrends

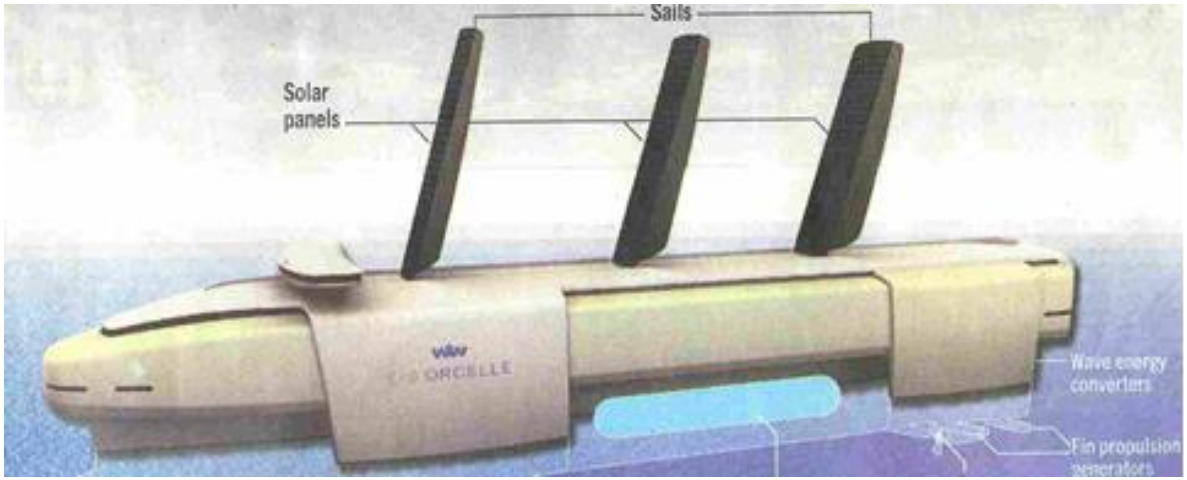
- Trade by Shipping – Increasing
- Cost of Oil – Increasing
- Price on Carbon – Increasing
- Regulations (IMO) – Increasing
- Cost of Technology - Decreasing

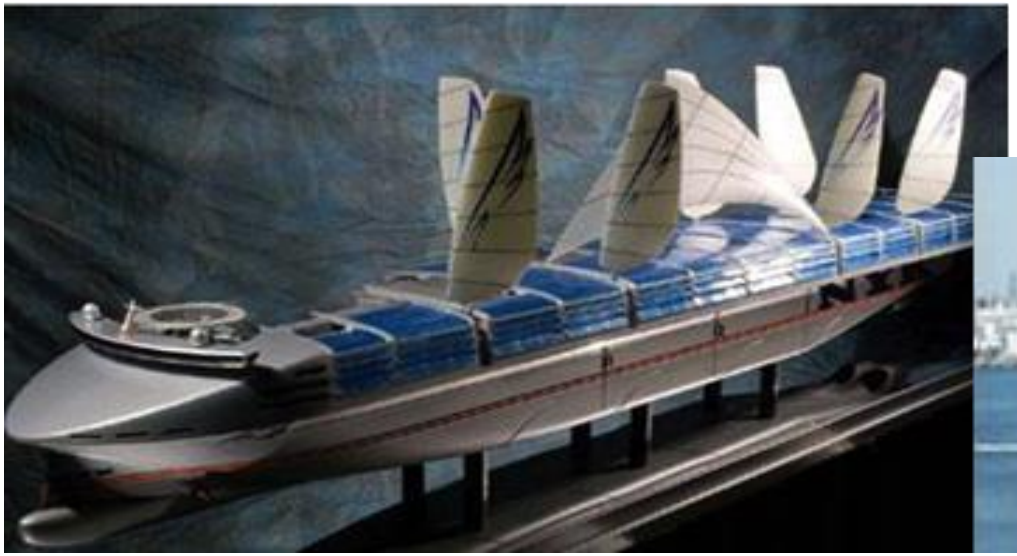
- There are now in excess of 6,200 ships over 10,000 DWT operating today – all potentially suitable for immediate refit to Ocius' Opening Rigid Sail.

Shipping Routes and Wind Energy



Modern wind ships?





Disadvantages – safety, capital cost, complexity, durability, crew

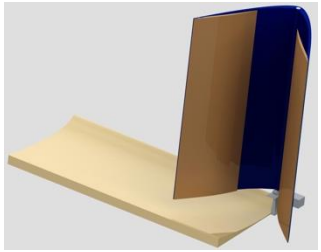
‘Lotus’ Opening Rigid Wing

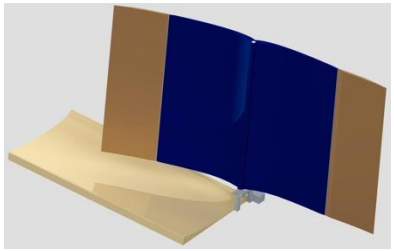
Applications

- Bulkers - retrofit and new builds
- Tankers - retrofit and new builds
- Cargo - new builds

Potential Market

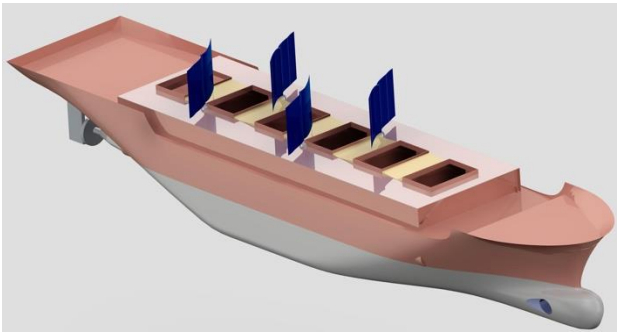
- 6,100 ships over 10,000 DWT for retrofit

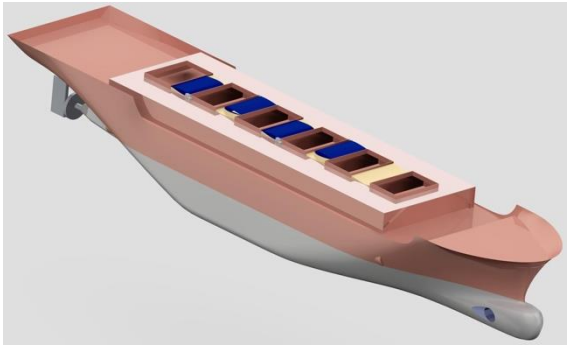




Why Our Technology?

- Simple and robust - made of steel, built at ship yard for low cap cost compared to competitors which use complicated design and exotic materials
- Can change sail area and camber for different angles to wind and conditions
- Wind only – no solar – makes it cheap and rugged
- Fold down or ‘reef’ or ‘stow’ automatically or press of a button in minutes
- No interference to cargo handling in port
- Handles green water on deck
- Mechanics in the upper ‘hopper’ tank
- Minimal penetrations of deck/space
- Visibility in harbour
- Stability/roll dampening effect





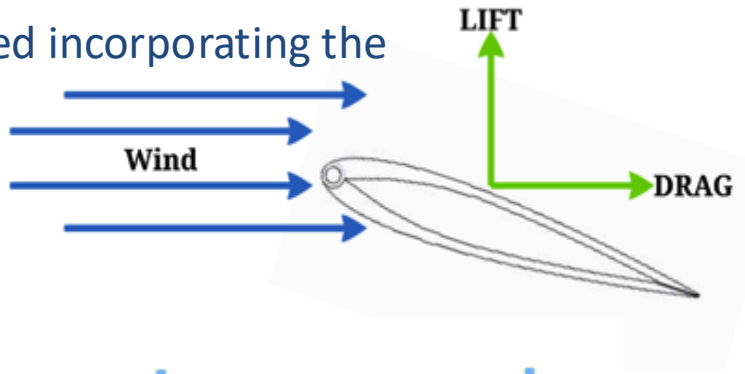
Animation

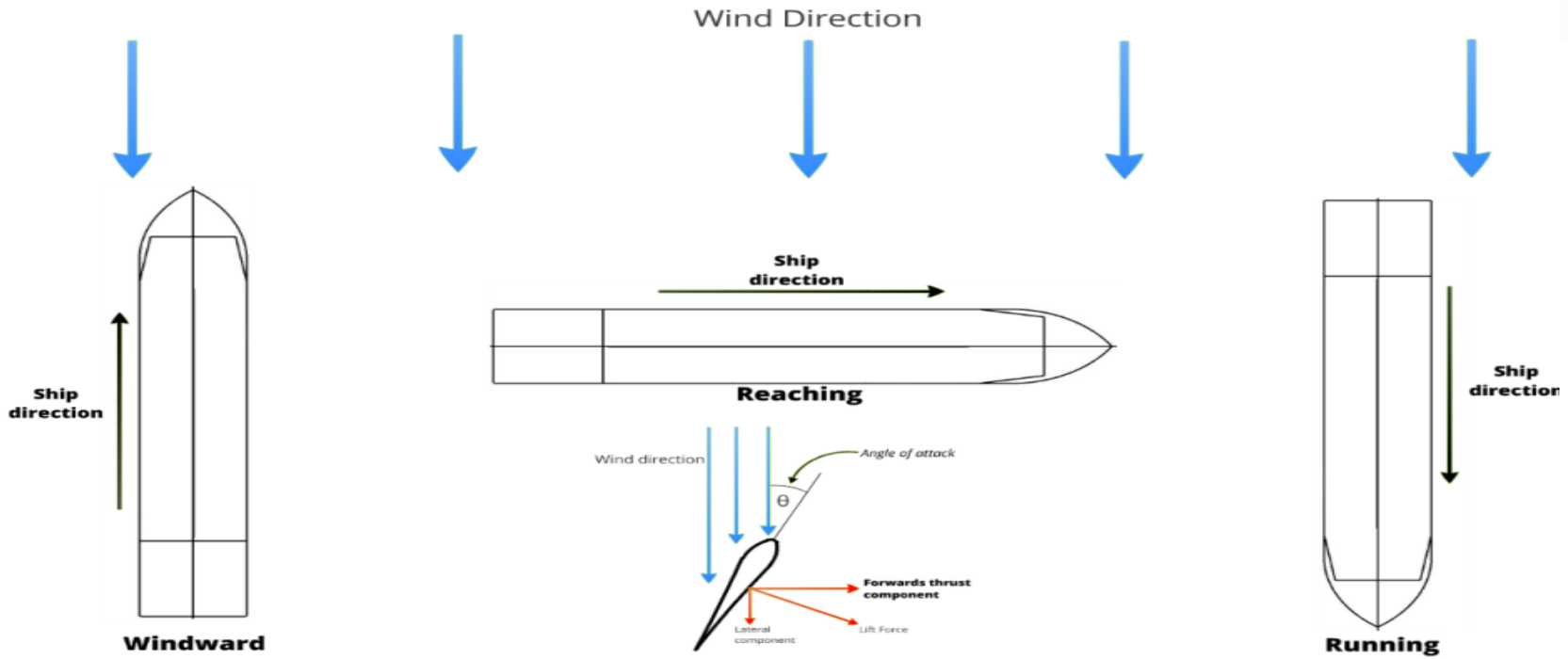
Bulk Shipping – Pre-Feasibility Study

- 22 years of NASA Satellite/Buoy/Ship cross-calibrated ocean wind data at 10m above sea level.
- Route broken into 800+ sections of less than 14 nm.
- The vessel is assumed to be travelling at 7 m/s = 13.6 knots
- Leaving on the 1st of July 1987, the energy saving of an entire voyage is calculated…
- Leaving on the 2nd of July 1987, the energy saving of an entire voyage is calculated…
- This process is repeated for 8500 consecutive days, which is 22.5 years until December 2010
- This provides an accurate historical mean of the **energy and cost savings** from SolarSails on the modelled route

ENERGY SAVED by ‘motor sailing’

At every section, the force generated by the sail is calculated incorporating the direction and magnitude of the wind from NASA
and the direction and speed of the ship - ie ‘motor sailing’.
(Upwind and downwind was excluded from study).





RESULTS – specific routes

CAPESIZE

Route	Newcastle-Shanghai	Hay Point-Shanghai	Port Hedland-Shanghai	Los Angeles-Shanghai
Fuel Saved	334- 535 t	232 - 371 t	211 - 337 t	657 - 1051 t
Cost Saved in AUD	$241- $385 ,000	$167 - $267,000	$152 - $243,000	$473 - $757,000

Assumptions: • Typical ship engine fuel consumption of 170 g/kWh • Solar and stern wind not accounted • 4800 sqm of sail • Cl between 2.5 and 4 • Voyages are return trips • Fuel oil price of 720 USD/t • No carbon price @ t x 3.5 x $25 included

RESULTS – specific routes

PANAMAX

Rounded return trip estimates for total sail area of 3000 sqm

Route	Newcastle-Shanghai	Hay Point-Shanghai	Port Headland-Shanghai	Los Angeles-Shanghai
Fuel Saved	**209- 334 t**	**145 - 232 t**	**132 - 211 t**	**410 - 657 t**
Cost Saved	**$150 - $241 ,000**	**$104 - $167,000**	**$95 - $152,000**	**$296 - $473,000**

Assumptions:
- CI between 2.5 and 4
- Voyages are return trips
- Fuel oil price of 720 USD/t
- Typical ship engine fuel consumption of 170 g/kWh
- No carbon price @ t x 3.5 x $25 included

RESULTS

CIUS OCEAN TECHNOLOGY

Savings / per Ship of 20 – 40%

- **OCIUS modeling – vessel travelling at 13.6 knots -** estimate of 20 - 40% fuel savings from wind by 'motor sailing'

- **Skysails estimate of 35% fuel savings** at 14 knots on Cargill Ship.
  in ideal conditions = directly downwind using proposed skysail of 320sqm on a 170m vessel.

- **In comparison to Skysails**
  Ocius Lotus sails for a capesize vessel have a sail area more than 15 x this
  (4800sqm = 4 x 600 sqm sails opening to 1200sqm)
  AND sail at more "points" to the wind ie higher into wind
  AND more controllable
  AND No crew required for deployment and retrieving
  AND No replacement of sail after a few years

ROI / per Ship = 1 year

CIUS OCEAN TECHNOLOGY

Assume a Capesize ship doing consecutive voyages Japan/Cape Lambert/Japan
(similar for Australia / China)

Number of days per voyage	27 - assume 4.5 days total in ports
Number of voyages a year	13 - based on above
Fuel & Diesel used per Voyage	1,120 tonnes
Annual fuel consumed	14,560 tonnes
Bunker expenses/Voyage	$820,000 (based on current prices Japan IFO$720 MDO$950)
Annual Bunker bill	**$10.66 million/year/ship**

Assume saving 20 - 40% from wind. Using 30% = AUD$ 3.3M/year/ship
Est COST of first 1200 sqm Lotus sail for a capesize trial for 12 months = AUD$2M
Est COST of 10th Capesize (1200sqm) sail under mass production = AUD$400,000
Est PRICE for such sails under mass production at yard = AUD$800,000/sail.
Assume 4 such sails for capeszie ship = **AUD$3.2M**

= 1 year payback

+ Plus – anticipated fuel price rises
+ Plus - cost down with time and economies of scale etc

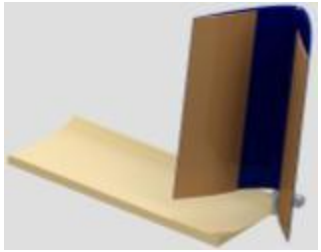
Commercial Shipping – Opening Rigid Wing

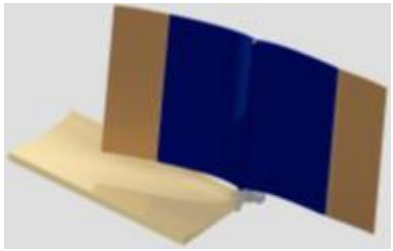
Applications

- Bulkers - retrofit and new builds
- Tankers - retrofit and new builds
- Cargo - new builds

Potential Market

- 6,100 ships over 10,000 DWT for retrofit





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- Can change sail area and camber for different angles to wind and conditions
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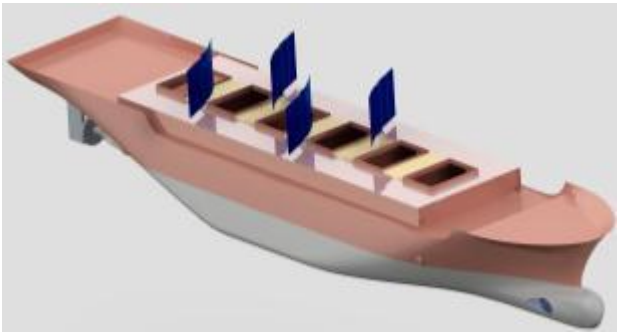
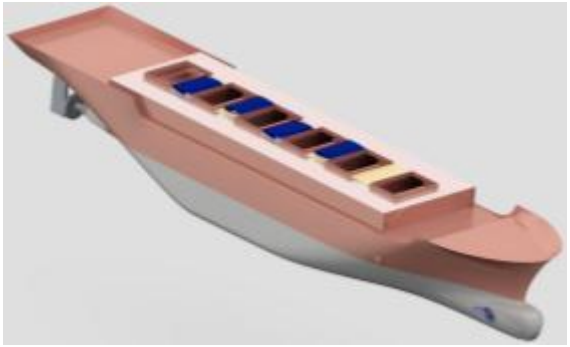
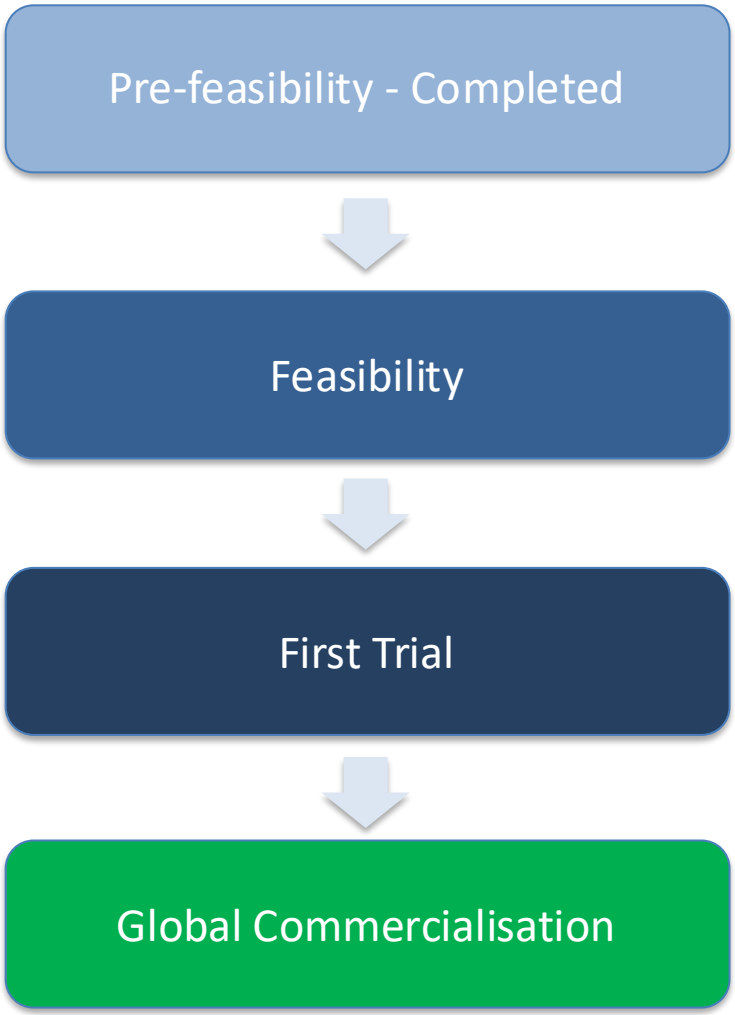




Commercial Shipping



- 800+ sections of less than 14 nautical miles.
- NASA Satellite data confirmed by Buoy/Ship cross-calibrated ocean wind data for each section, at 10m above sea level.
- Each vessel is assumed to be travelling at average13.6 knots
- First voyage departing 1st of July 1987 and the process has been repeated for 8,500 consecutive days, which is 22.5 years until December 2010
- This provides an accurate historical mean of the fuel savings from SolarSails on the modeled route of 25% - 40% per voyage.

Business Plan Opportunity

CIUS OCEAN TECHNOLOGY

Pre-feasibility - Completed

- Modeling study using NASA Satellite wind data, at 10m above sea level, 800+ sections of less than 14 nautical miles. Vessel travelling at average13.6 knots. First voyage departing 1st of July 1987 and repeated for 8,500 consecutive days giving historical mean until December 2010
- Fuel savings on any route using opening sails can be predicted – average of 25% - 40% per return voyage.
- Patents on opening rigid sail – done

Seeking partner to trial one Lotus opening rigid sail on one ship for one year

- Two classification societies - Lloyds and DNV keen to be involved in first trial and on going
- Preliminary costing for engineering, naval architecture, approval, construction, installation, commissioning, first trial for 12 months AUD$2M
- Trial completed 2015 at time of new IMO regulations 2015, which increase in 2020 and 2025

Global Commercialisation

- **Immediate Commercialisation for both**
  1) retro- fitting to fuel inefficient 5 year old vessels not attractive for charter and
  2) new-builds

Ocius Track Record

OCIUS Lotus Wing Solar Sails under construction at Afai Shipyard Guangzhou, China

DNV approved ✓

NSW Maritime approved ✓

HK Marine Dept Approved ✓

Stamped by CCS ✓

OCIUS ferry under construction at Zhu Hai Shipyard, China

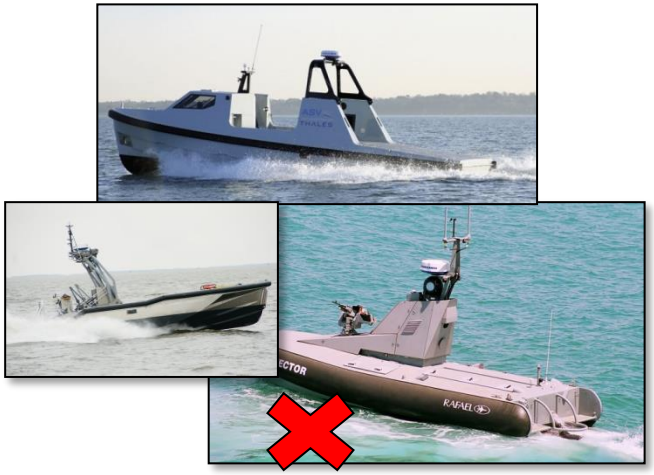
USVs

Why USVs?	▪ Revolutionary yet proven technology ▪ Versatile, less risky, less costly than manned patrol vessels, moored buoys and airborne surveillance craft ▪ A better option for "dull, dirty or dangerous missions" ▪ Pressure on government, scientific and commercial interest to increase current capability but at lower cost ▪ "Prevent, Protect, Predict" Exclusive Economic Zones
Applications	1. Oil & Gas - Geophysical Research 2. Defence – Anti submarine warfare/mine counter measures/communications link 3. Border protection, illegal fishing, piracy 4. Oceanography - Research and Science 5. Fisheries Management 6. Environmental Monitoring
Potential Market	▪ Oceanography - **US$1B** ▪ Global Defence market alone is **US$3.8B** for 2013-2020 ▪ Predicted surge in procurement 2017 -2020

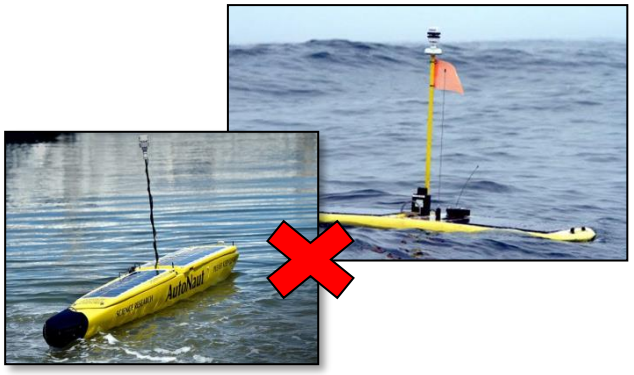
USV - Persistent Unmanned ASW Surveillance

CIUS OCEAN TECHNOLOGY

- Current USV technologies deployed as ASW platforms, equipped with a towed array or dipping sonars
  - Are generally heavy, large remote controlled vessels of around 12m length, with maximum “on water” operations counted in hours or perhaps days.



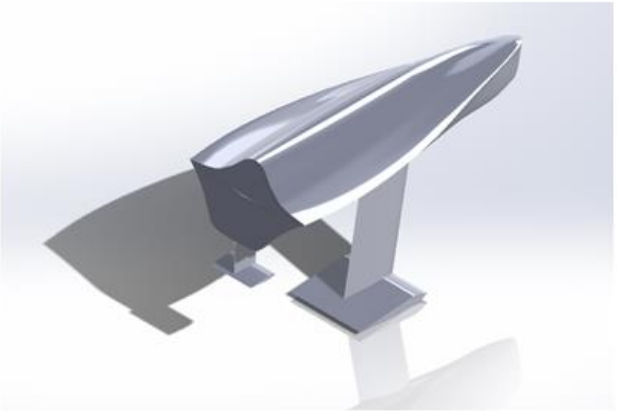
- The present alternative, essentially self-sustaining USVs powered by solar or wave energy
  - Very low speed and manoeuvrability, low power and low space available for sonar payloads, rendering them largely ineffective as ASW platforms.



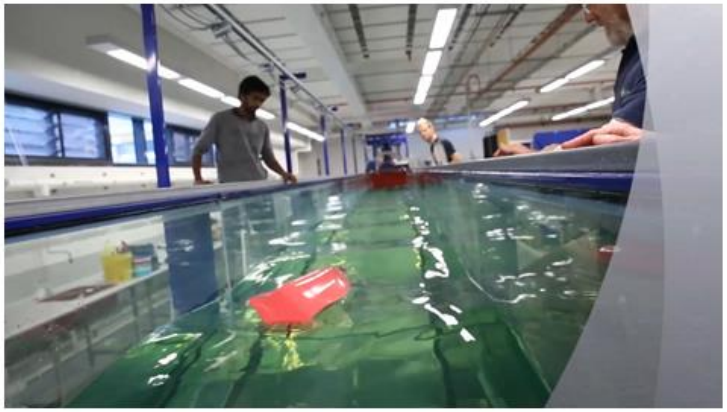
USV

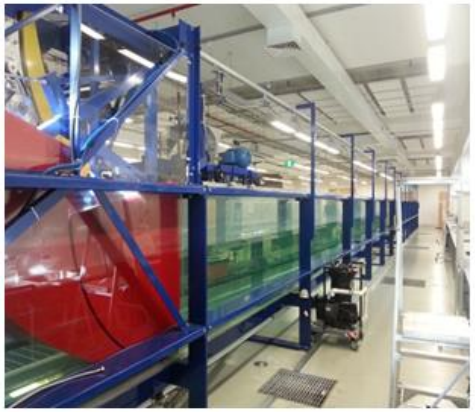
Ocius SSS "*BlueBottle*" USVs	▪ Self-propelled and self deploying/retrieving using solar/wind/wave/ballast; ▪ Autonomy with anti-avoidance/sensory informatics; ▪ Constant communications with most cost-effective data transmission plus ability to carry payloads; ▪ Able to stay at sea for many months and to withstand harshest weather conditions; ▪ IP protected three ways and 10 years of design with prototypes, technical drawings, manufacturing partners and project Gantt chart completed.
Why "*BlueBottle*"	▪ Proven endurance with switchable payload is "disruptive" - low cost, persistent ocean monitoring and surveillance; ▪ Engineering Development models and prototypes already built.; ▪ Strong and immediate pipeline of sales prospects including oceanographic, scientific plus minimum 18 defined Defence tender opportunities; ▪ "*One person can control 200 BlueBottles*"

3D Models of Mk 3 USV Prototype

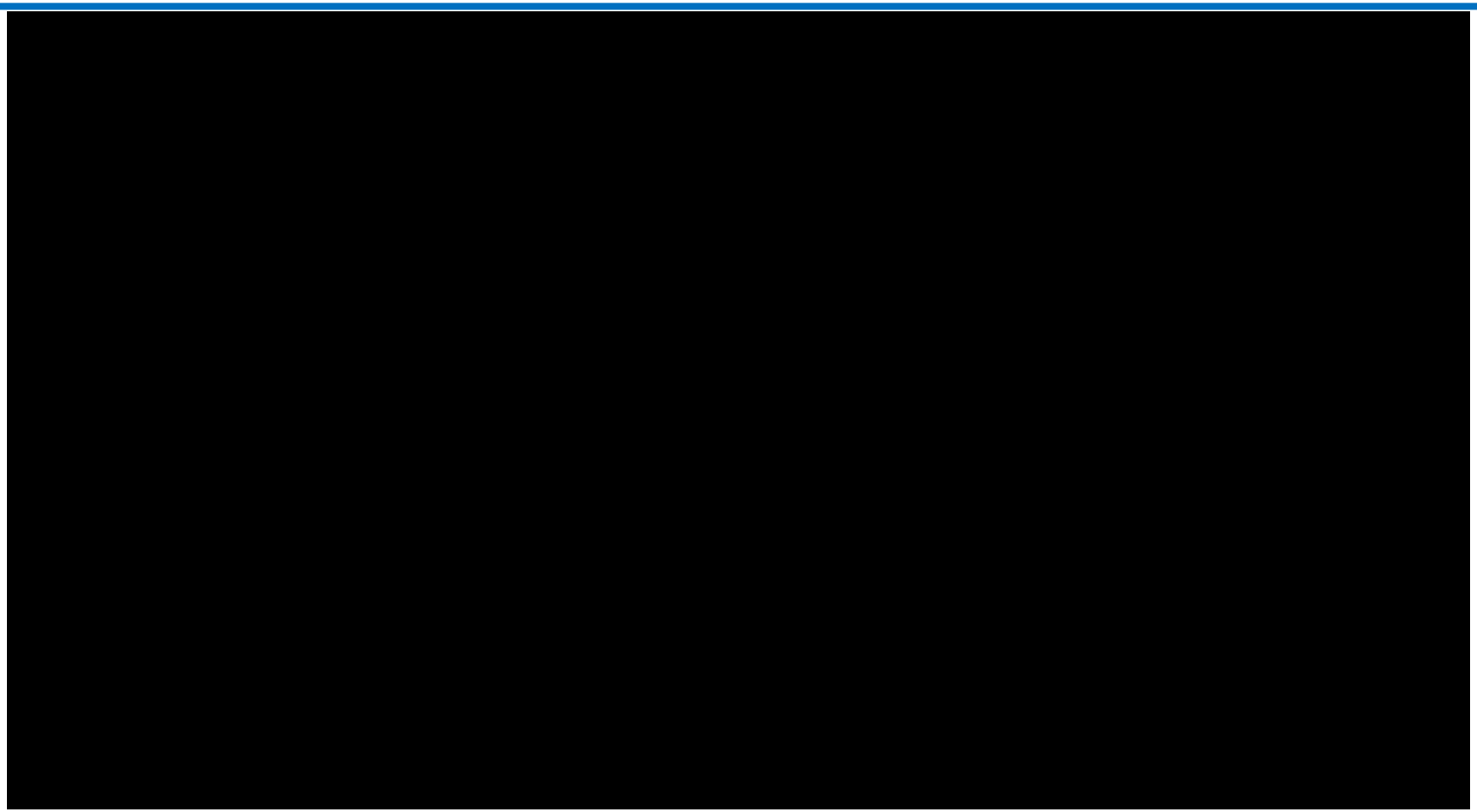


Wave Tank Testing - Animation





Wave Tank Testing

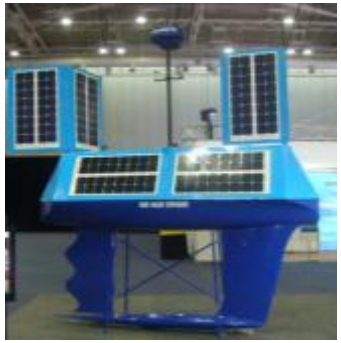


Footage provided by AUVSI Foundation

USV – comparison to known competitor

	Ocius "Blue Nemo"	Ocius "Blue Buoy"	Ocius "Blue Stinger"	Wave Glider Series
Speed	1-2 knots	2-4 knots	4-6 knots	Speed 0.4-1 knot
Power	2x	5x	25x	Low power & Low energy
Energy & payload	2x	5x	25x	Small
Solar not shaded	2x more	5x	25x	Small
Collision Avoidance	Yes	Yes	Yes	No
Roll Dampened	Yes	Yes	Yes	No
Others	• Can take photos and do hydrography • Inmarsat	• Roll dampened mast with radar high above water	• Can tow an array	No

1.9m oceanographic
'Blue Nemo'



3.5m Defence and security
'Blue Buoy'

5.9m Defence and security *'Blue Stinger'*

Wave Glider (USA)

- Our Major Competitor
- Est. 2007.
- **Raised US$85M equity incl US$45M in 2013**
- Validates Oceanography market

USV – Commercialization

	Selected Current Opportunities	Description
1	DSTO (Defence, Science & Technology Organisation - Australia)	Quote recently submitted – awaiting approval for funding commencing June 2014. Negotiations being fast-tracked - IMMEDIATE FOCUS
2	Global Defence Prime Contractor – (identity confidential - revenues €11B pa)	• Under NDA; • Negotiations for their technology to be combined with Bluebottle for potential breakthrough capability for Anti–Submarine Warfare (ASW) – IMMEDIATE FOCUS
3	CSIRO/AIMS (Australian Institute Marine Science) in Australia plus 100's of organisations worldwide	▪ Ocius to "build, own and operate" USVs; and ▪ Sell data and services to third parties - IMMEDIATE FOCUS (with CSIRO)
4	Organic Mine Counter Measures - USA	▪ US$50M - US$70M ▪ SEA 1178 Deployable MCM
5	Australian Department of Defence	▪ Contract size yet to determined ▪ JP1770 Maritime Rapid Environmental Assessment
6	Australian Department of Defence	▪ Contract size yet to determined ▪ SEA1180 Patrol Boat, Mine Hunter Coastal & Hydrographic Ship Replacement

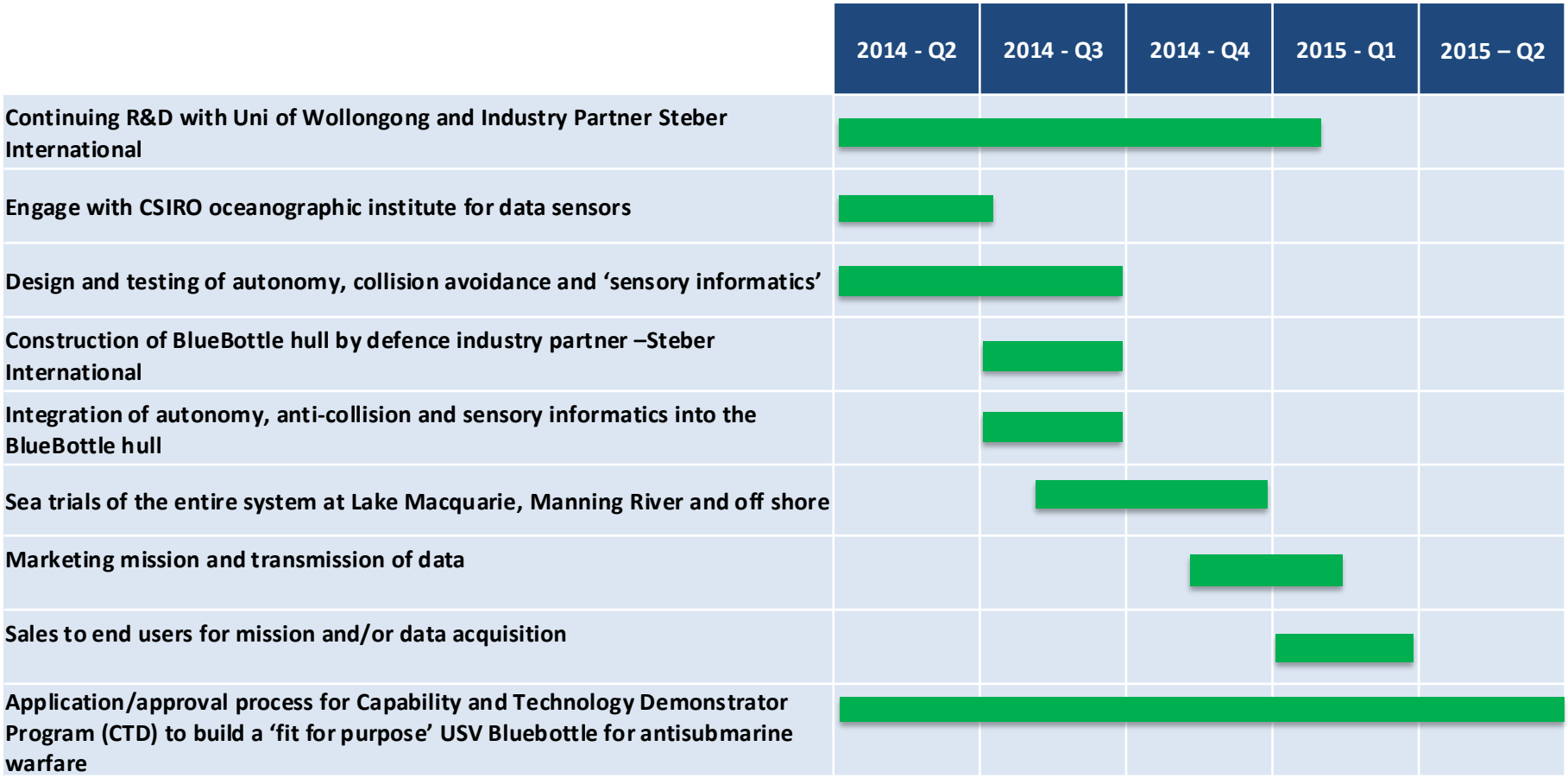
USV – Commercialization

Next Steps

- Deploy in Q 2015 a fully autonomous USV off the coast of Australia for:
  - *Demonstrating a Global Defence Prime Contractor's Anti-Submarine Warfare technology towed by our Bluebottle USV; and/or*
  - *Selling data to oceanographic research organizations; and/or*
  - *Demonstrating another mission as determined by DSTO/strategic investor.*
- Enter into long term commercial contracts with suppliers, manufacturers and end users.
- "Build, Own and Operate" USVs and sell oceanographic data and services.
- Sell Bluebottle USV platforms to variety of end users including Defence, police, fisheries etc.

Development Plan

CIUS OCEAN TECHNOLOGY



USV – Partners and Prospects

CIUS OCEAN TECHNOLOGY

Partner	Description
Manufacturing Industry Partner	▪ Industry partner (identity confidential) for initial testing, building and marketing of USVs.
Global Defence Prime Contractor (identity confidential - revenue €$11B)	▪ Have a 'breakthrough' towed array technology for Anti-Submarine Warfare (**ASW**) in terms of size and weight and power. ▪ Have investigated how it could be towed by a drone/USV instead of a manned ship and selected BlueBottle as preferred USV.
University of Wollongong (UOW)	▪ Enterprise Connect Agreement with UOW Department of Oceanographic Research. ▪ Access to UOW test facilities and towing tank ▪ UOW's Research Fellow, Ninan Mathew, now Ocius Chief Technical Officer.
DSTO (Defence, Science & Technology Organisation	▪ Following Pac 2013 held October 2013, DSTO requested quote for BlueBottles. ▪ Discussions re funding first BlueBottle for unspecified mission subject to funding.

UNIVERSITY OF WOLLONGONG

Australian Government
Department of Defence
Defence Science and Technology Organisation

Awards

CIUS OCEAN TECHNOLOGY

AUSTRALIAN DESIGN AWARD

Winner - Australian Design Award of the Year

2013 Energy Globe Award

2012 - Robert Dane winner of World Wildlife Fund (WWF) Earth Hour Future Makers Award

Winner Environmental Technology - Sustainable Shipping Awards 2010

Seatrade CHINA AWARDS 2010

Winner Technical Innovation Dalian 13th October 2010

- Italian Design Well-Tech Award (Apr 2009)
- Winner of the Conde Nast Traveller's Innovation & Design Awards 2010 (Jan 2010)
- Intel Environment Award Laureate (2008)
- Winning design for San Francisco, Alcatraz Ferry service (2006)
- Dr Robert Dane, SEDA Green Ambassador NSW (2002)
- Winner - International Cargo Handling Co-ordination Association Award (2000)
- Winner - Boating Industry Association of Australia Marine Award (2000)

Board of Directors

Mark Bethwaite AM, Chairman

Now a professional director, Mark Bethwaite has a degree in Civil Engineering and an MBA. He has been Managing Director of two of Australia's largest mining companies and one of Australia's leading industry associations for five years before retiring in 2006. Mark represented Australia in sailing in the 1972 and 1976 Olympic Games and has won World Championships in a number of classes. Mark was made a Member of the Order of Australia (AM) in early 2011 for services to industry and to sailing.

Robert Dane, Managing Director (full time)

Robert Dane is the founder and CEO of Solar Sailor Holdings Limited. Robert invented and patented "Solar Sails" in 1996. Robert is a passionate sailor and an Intel Environment Laureate. In 2013 Robert was honoured to be awarded the WWF future maker's award.

Louella Grattan-Smith, Executive Director

Louella joined the Board in June 2013. Louella has been involved in Solar Sailor and a major shareholder since its inception. Louella contributes substantially towards SolarSailor's corporate governance, shareholder representation, ethical focus and growth strategies.

Hon Robert Hawke AC, Chairman Advisory Board

Bob Hawke was Prime Minister of Australia from 1983–1991. He has high-level industry and government relations in Australia, China, the USA, and Europe. Solar Sailor Holdings Limited is the only commercial corporation of which he is a Director.

Management

Company Secretary and Accountant – Scott Ellice-Flint B.Ec., C.A.

Scott has over 30 years' experience as a Chartered Accountant. He started with KPMG in 1976, and is currently senior partner with Ellice-Flint & Co which he established in 1985.Scott specialises in corporate and individual taxation engagements, as well as providing corporate governance and financial accounting advice for small to medium enterprises and unlisted public companies.

Lawyer – David Somervaille

David Somervaille commenced with global legal firm Ashurst in 1971 and has been a partner since 1977. He is a former chairman of the firm in Australia and now acts as the firm's General Counsel in Australia.David's practice is in corporate law. His wide experience includes corporate reconstruction, corporate governance, structuring of projects and new ventures, privatisations and private investment in infrastructure projects.

Ninan Mathew – Chief Technical Officer

Ninan has a Masters degree in Mechanical Engineering with Distinction from the University of Wollongong. He is currently pursuing his Doctorate in structural optimization and a Master's by research in the development of sustainable platforms for ocean-fairing vessels.
He has been working as a research engineer for several ARC projects during his studies at UOW and has a number of publications to his name. Ninan brings his expertise in Computational Fluid Dynamics (CFD), Finite Element Analysis (FEA), 3D modeling, project management, machine design and several other niche areas for which he has been teaching at the university for the past four years.

Summary

- ☑ World recognised developer of marine technology
- ☑ Proven track record in design, construction, approval and delivery of commercial marine vessels
- ☑ World wide IP
- ☑ Experienced Board and Management.
- ☑ Creating "*waves*" worldwide in one of the largest expanding sector in the marine industry.
- ☑ Targeted and focused business plan to achieve short term goals.
- ☑ Clear path to creation of stakeholder value.