

## CASE STUDY – Armada Autonomous Fleet Sensor Gondola

### PRIMARY TASKS

#### Engineering:

- Development of a robust design to mount both ballast & sensors
- First principal calculations & global model for Finite Element Analysis (FEA)
- Modal & harmonic response analysis to mitigate natural frequency induced vibrations

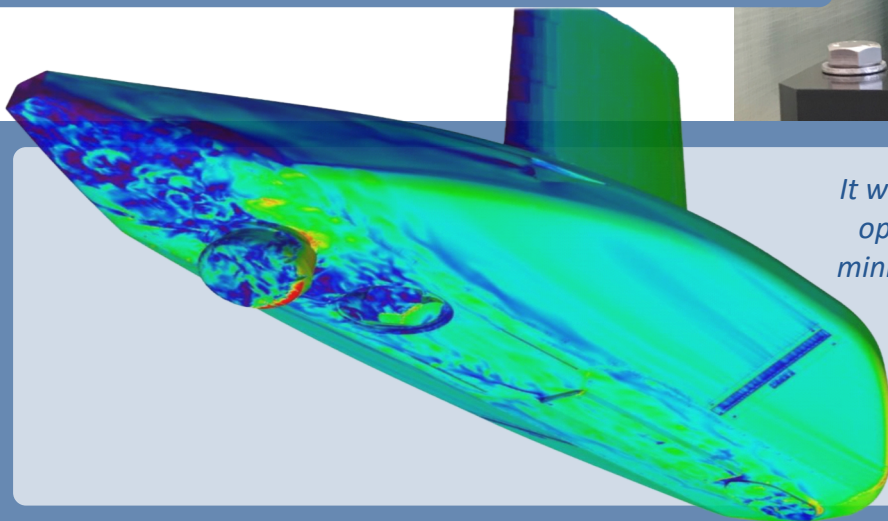
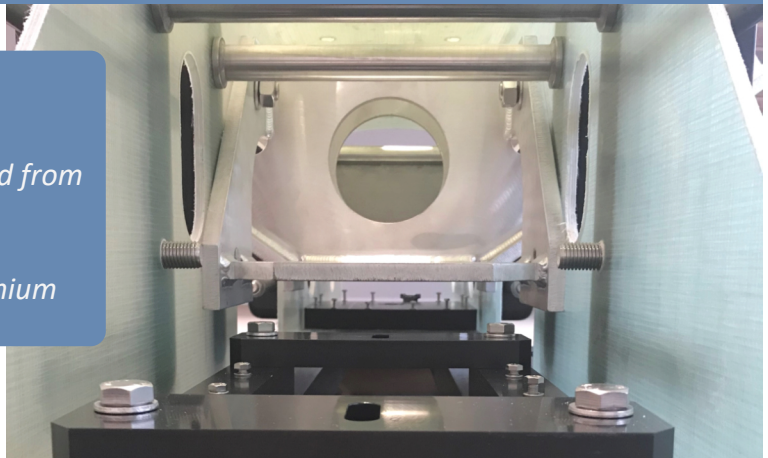
#### Manufacture:

- Parametric 3D model of structure, sensor packages & cabling
- Clash & interference checking
- Full engineering drawings & assembly manual
- Unit assembly by both Argo & Ocean Infinity Staff

Argo Engineering Solutions was approached by Ocean Infinity to design and supply their 21m and 36m Unmanned Surface Vessels with a keel gondola that could house sensitive seabed scanning sensors. This gondola was attached to the vessel via a drop keel, and delivery was to fit the timeline of the larger Armada project.

*This project aligned with Argo's ethos of being material agnostic. Due to the diverse weight and hydrodynamic requirements, the Gondola's structure was manufactured from a combination of:*

*Composite | POM-C | Stainless steel | Lead | Aluminium*



*It was necessary for Argo to hydrodynamically optimise the shape of the gondola surface to minimise turbulence and vortex shedding. This was successfully completed through a collaborative effort of Argo's understanding of hydrodynamic behaviour and the application of the Wolfson Unit's CFD capabilities.*

*It was possible for Argo to deliver a complete working solution using our network of existing engineering partnerships and local manufacturers. Specifically the support of DesignCraft, the Wolfson Unit and Nick Belson Design.*