

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

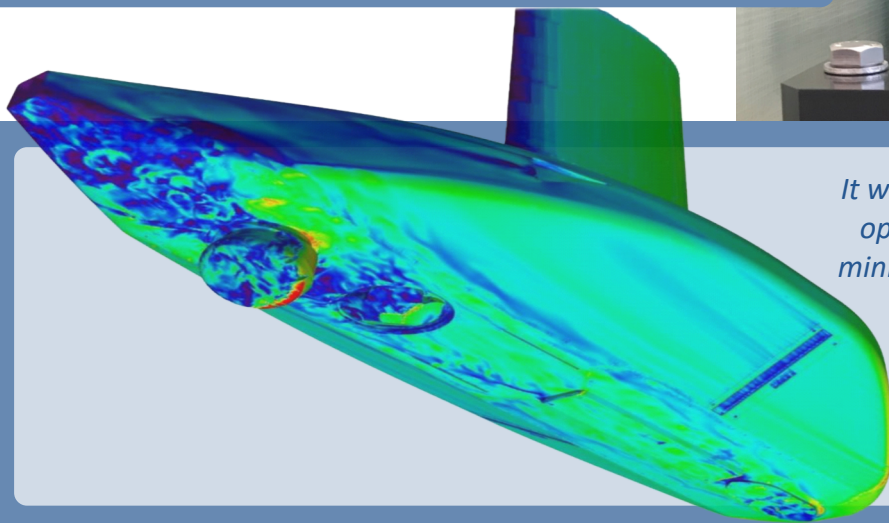
Manufacture:

- 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 Sonardyne, DesignCraft, the Wolfson Unit and Nick Belson Design.