

# 3D Photogrammetry

The poor mans multibeam?

- The problem
- 3D Photogrammetry
- The solution?



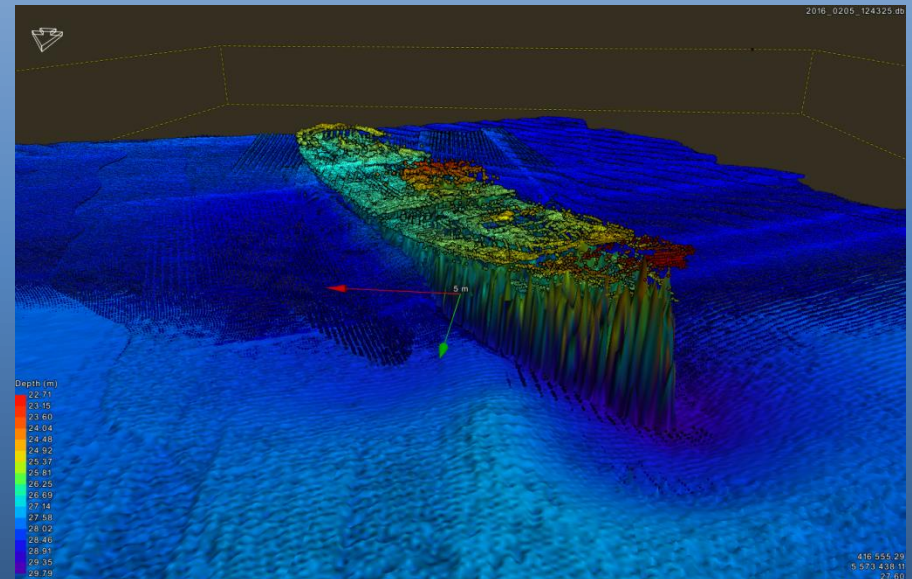
# The problem

Multibeam is industry standard, point cloud based bathymetric survey tool

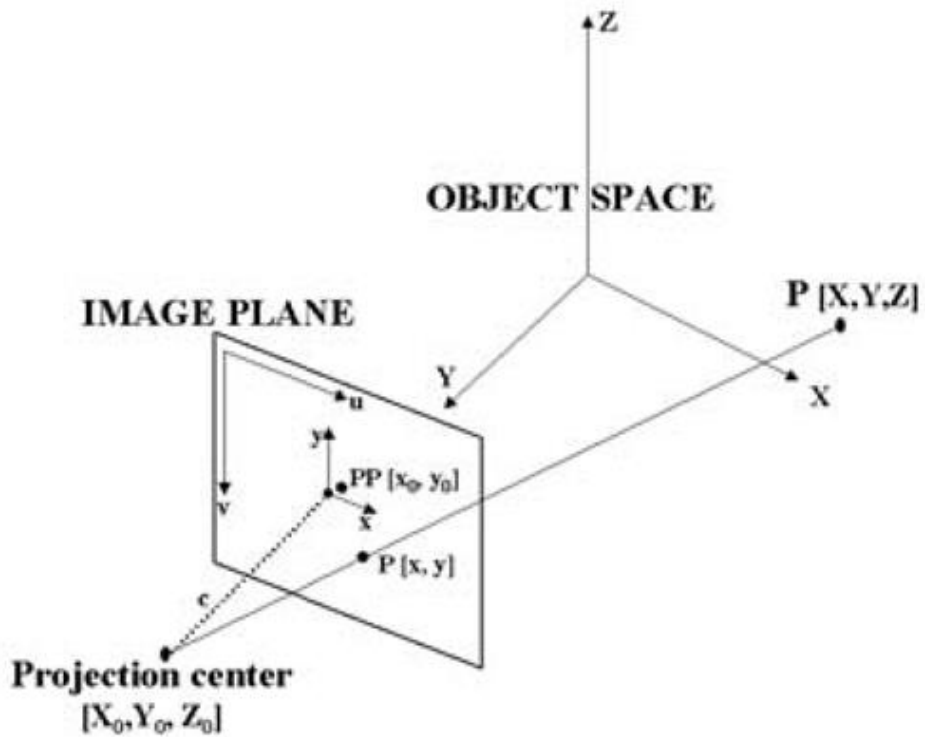
However,

- Expensive
- Often requires a dedicated vessel
- Decreased quality with increased depth
- Quality improves with operator experience

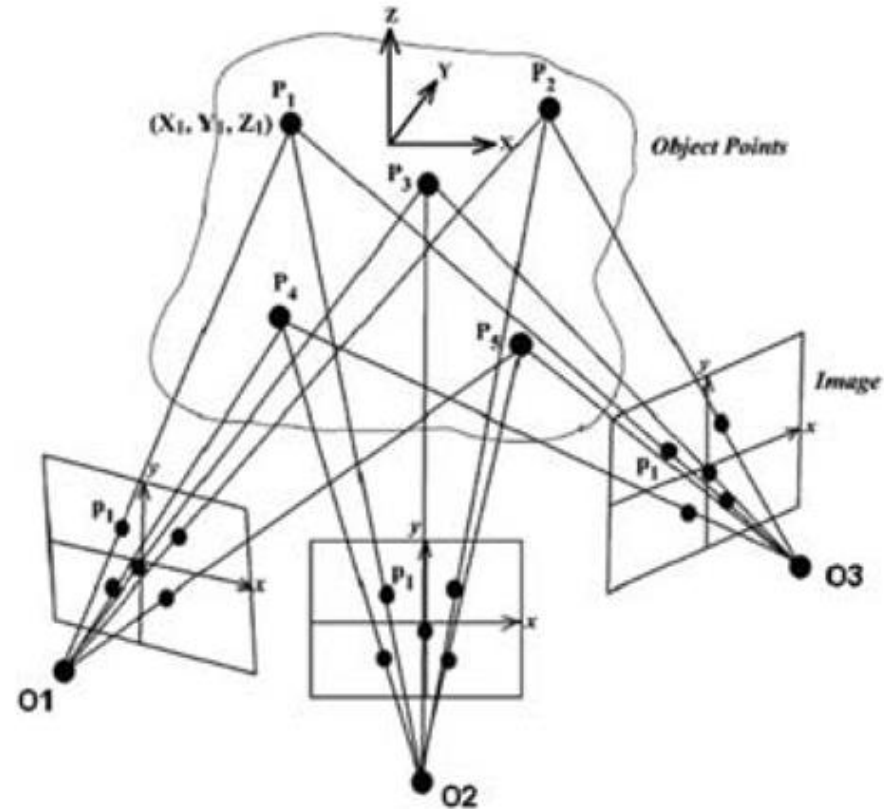
**Use in amateur  
marine  
archaeology is  
prohibitive**



# 3D Photogrammetry



(a) Collinearity principle



(b) Bundle principle

# 3D Photogrammetry - Process

- Take digital images of object in question
- Calibrate
- Photograph alignment
- Dense point cloud generation
- Mesh generation
- Texture mapping
- Scaling
- Final model



# 3D Photogrammetry - Applications

- Terrestrial and subsea
- Marine archaeology
  - Cost effective
  - Most divers have access to the equipment needed
  - Most of the work handled by software
  - Multiple sections can be merged together
  - Models can be scaled
    - Allows distance, area and volume calculations

# The solution?

Can 3D Photogrammetry compare to the accuracy of multibeam?

Process:

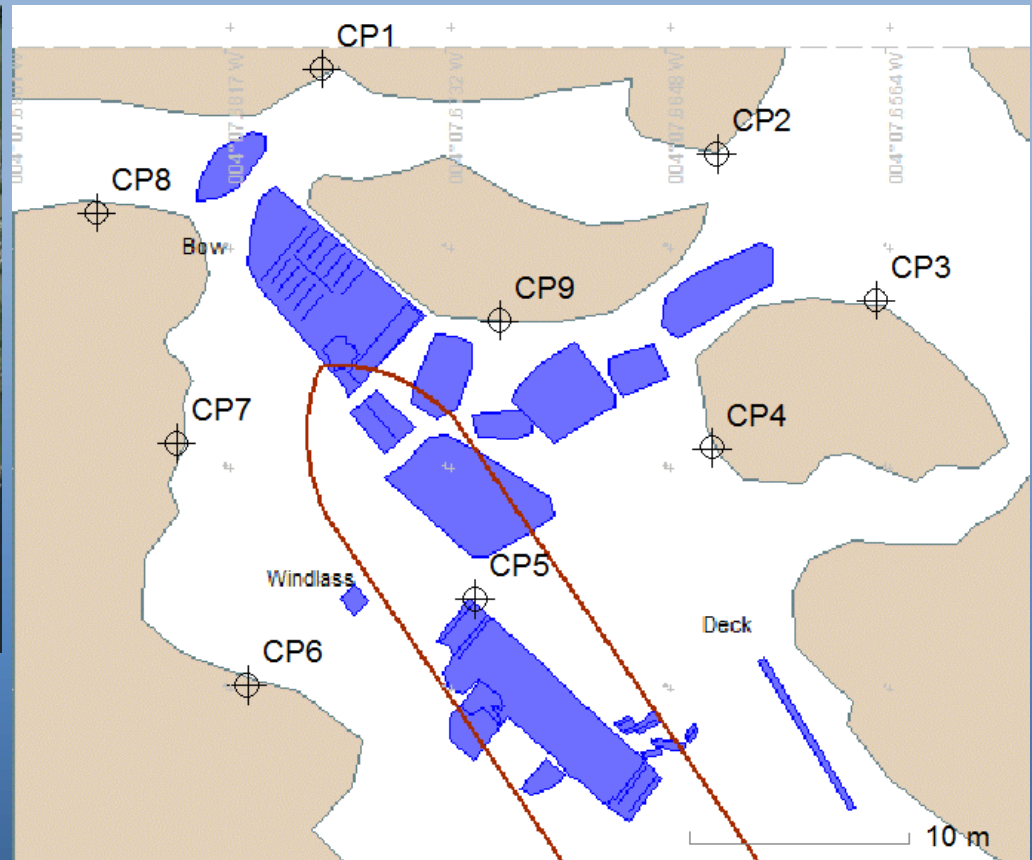
- Trilateration survey of dive site
- Photogrammetry survey
- Multibeam survey

Analysis:

- Comparison of points clouds or mesh?
- How will the data sets be registered
- Cost Vs Man hours for each technique

# Project site – Glen Strathallan

- UK's first artificial reef - 1970
- Lying in ~18m







# Any Questions?

