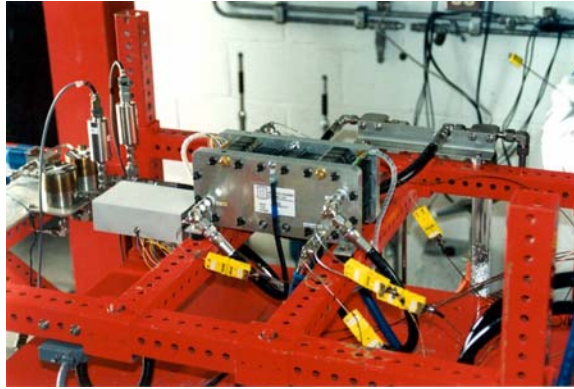


Fuel Cell Systems for Undersea Propulsion

ARL has investigated the use of fuel cells for undersea propulsion applications, particularly for Unmanned Undersea Vehicles (UUVs) and for hybrid torpedoes, which operate over a broad power range.

400 Watt PEM Cell on test cart, operated by ARL's Energy Science and Power Systems Division



ARL's large battery powered "Seahorse" UUV (below) may be converted to fuel cell operation to increase its efficiency and improve performance.



A proposed fuel cell powered UUV with onboard fuel processing is shown below . Oxygen for underwater use is supplied by chemically converting lithium perchlorate (LiClO_4) to oxygen using technology developed by ARL / Penn State.

