

3,500 PSI SUBSEA MANIFOLD CHALLENGE

Deep Blue Resources: The Avalon Project

THE MISSION

Design a compact, fly-by-wire hydraulic manifold system to power a next-generation **Quad-Trac Subsea Harvester**. The system must maintain precision control under extreme environmental loads.

System Requirements:

- **Operating Depth:** Must survive 30 Atmospheres (~300 meters).
- **Pressure Rating:** 3,000 to 3,500 PSI continuous.
- **Drive Architecture:** Pure **Fly-By-Wire** for a Quad-Trac system (electronic-over-hydraulic synchronization).
- **Functionality:** 14 independent circuits (including 2 expansion slots).
- **Power:** Compatible with 2x 100HP or 1x 150HP subsea electric motors.
- **Options:** Single Manifold (14 circuits) or Dual Manifold (7/7 split).

1st Place

6 oz of Gold

+ Full-Scale Build for Avalon

2nd Place

1/4 oz of Gold

+ Prototype Build

THE 4-STAGE PROTOCOL

Stage 1: The Concept Call

Submit manifold architecture and motor configuration choice. Justify your Fly-By-Wire Quad-Trac sync logic and 30 ATM seal strategy.

Stage 2: Technical Rough Drawings

Top 5 submit schematics, material lists, and porting dimensions.

Stage 3: Prototype Face-Off

DBR builds bench-scale prototypes of Top 2 designs to test high-pressure cycling.

Stage 4: Full-Scale Build

Winning design built for the Avalon platform. *Testing build only; does not guarantee use.*

Disclaimers: Void where prohibited. Must be 18+ (or parent-led team). DBR is not responsible for shipping, insurance, or technical delays. DBR does not pay for shipping. Rewards subject to the 750 oz flat limit.

Submit Stage 1 concepts via email as per official video instructions.