SCINI
A Small Diameter Under Ice ROV

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The Need

- Antarctic oceanography and marine science depend on accessing the liquid sea.
- Nearshore areas around most of the continent, including the primary US research base at McMurdo Station, are ice-covered for most of the year.
- Existing technology is cumbersome and limiting.
Experimental research relies on comparisons with "pristine" control sites.

Existing control sites have been utilized for decades and are often no longer "pristine."

Current method of identifying new control sites requires a heavy commitment of logistic resources.
The Rationale

- Experimental research relies on comparisons with "pristine" or control sites.
- Existing control sites have been utilized for decades and are no longer "pristine."
- Identifying new control sites requires a heavy commitment of logistic resources.

Data from Rob Hale, VIMS
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SCINI Goals

- To locate new research sites and assess their suitability with minimal logistic costs.
- To reach depths below SCUBA diving limits.
- To create initial maps of seafloor areas.
The Lost Experiments

- Begun in the late 1950s by Dr. Paul Dayton from Scripps.
- Experiments located at depths up to 60 m.
- Experiments were not completed because diving safety limits of 40 m were later established.
Deep Communities

- Dominated by sponges (e.g. *Anoxycalyx joubini*).
- Slow growing, slow to recover from disturbances such as trawling for fish.
- Possibly not so slow growing as juveniles.
How will SCINJ achieve these goals?

- “Backpackable”
- Modular reparability
- Small tether
- By being skinny
Imaging

- Pilot camera- 3Mp video 30 frames
- Science cam- Side looking 8Mp tilting 200 degrees to look up at the bottom of the ice or down to mosaic the sea floor
- 900khz multibeam sonar for bathometric mapping and target search
Proof of Concept ROScam

- Deployment and recovery testing
- Flight characteristics
- $300 total cost
VideoRay PC Pilot

- Open Source
- 3D controller compatible
- Outreach over the Internet
Thank you, any Questions?

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