

**LONG-DURATION ISOLATION AND CONFINEMENT:  
HUMAN FACTORS ISSUES AND  
RESEARCH REQUIREMENTS**

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<b>Rank</b>	<b>Analogue</b>	<b>Score</b>
1	Skylab 4	86.81
2	Sealab II	70.95
3	Tektite I	69.40
4	Tektite II	66.89
5	Submarines	63.46
6	South Pole Station	59.35
7	Saturation Divers	57.12
8	Long Distance Yacht Racing	56.66
9	Commercial Fishing Vessels	54.10
10	Coastal Research Vessels	53.45
11	Ra Expedition	52.99
12	Supertankers	49.21
13	Offshore Oil Platforms	41.52

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## **HABITABILITY ISSUES WITH DESIGN IMPLICATIONS**

**Sleep**

**Clothing**

**Exercise**

**Medical Support**

**Food Preparation**

**Habitat Aesthetics**

**Group Interaction**

**Outside Communications**

**Recreational Opportunities**

**Privacy and Personal Space**

**Scheduling and Workload Assessment**

**Onboard Training and Task Preparation**

**HABITAT PROJECTS THAT HAVE INCORPORATED  
DESIGN RECOMMENDATIONS  
BASED ON ANACAPA ANALOGUE STUDIES AND  
HUMAN FACTORS EVALUATIONS**

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**Space Station Freedom**

**Monobaric Underwater Habitats for North Sea Oil Production**

**Command and Control Centers for National Security Personnel**

**US Navy Long-Endurance Airships**

**US Air Force Rail Garrison Alert Trains**

**European Space Station**

**European Interplanetary Spacecraft**

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## **A FEW RESEARCH REQUIREMENTS THAT COULD BE SATISFIED BY BEHAVIORAL STUDIES CONDUCTED AT ANTARCTIC RESEARCH STATIONS**

*Research is required to...*

- Develop techniques for routinely (and unobtrusively) monitoring mental health, & providing psychological support.**
- Evaluate the applicability of the results of small group dynamics research to the crews of spacecraft.**
- Develop personnel selection procedures based on interpersonal skills, in addition to technical competence.**
- Define leadership responsibilities and identify required personal qualities and capabilities.**
- Define the most appropriate organizational structure.**
- Establish a cross-training plan to permit the effective use of personnel, and for contingency purposes.**
- Identify the appropriate equipment and motivational framework(s) to encourage regular physical exercise.**
- Develop procedures and equipment for handling critical incidents, like fatalities among crew personnel.**
- Establish policies regarding outside communications, including "negative personal news."**
- Identify appropriate recreation and relaxation equipment/materials/programs and policies.**
- Develop meaningful tasks to occupy crew during interplanetary transits.**
- Explore the advantages and disadvantages of various forms of meal preparation.**
- Support the development of training programs to sensitize crew personnel to problems of isolated & confined living.**

