CEPHALOPOD CAMOUFLAGE STUDY (CCS)

Background Information and Project Justification

Adaptive coloration is the hallmark of cephalopod mollusks – they can show any of 30 different body patterns in a flash of a second. This is made possible by their extraordinary skin, which is controlled directly from the central nervous system.

We have developed a robust bioassay in which we put cuttlefish in a small chamber and provide different visual substrates on the bottom, then record their responses.

Sepia officinalis
Note the dramatic change from a uniform body pattern(top), to a disruptive pattern(bottom).

Primary Objective:

The question we pose is: how does the cuttlefish decide which body pattern to put on? We will conduct live cuttlefish experiments and provide artificial patterns to them in our quest to discover what visual cues in the background they use to choose their own body pattern. Video will be used to record the body patterns and grade them.

Resources Available for this Project:

•24 hour access to the superb MBL library with many marine science journals.
•Access to an MBL computer terminal for literature/web searches.
•The Marine Resources Center has state-of-the-art aquatic facilities.
•We have digital video cameras, digital video playback equipment, software for image analysis.

Skills Required:

• Interns should be computer savvy with respect to common software(mostly Apple computers)
• Experience with handling digital files would be helpful (e.g. iMovie, Adobe Photoshop, etc.).
• Interns must have an interest in learning and using video; must be careful and respectful when using expensive video/computer equipment.
• It takes patience to care for and study delicate marine invertebrates like cuttlefish.

Estimated Time Commitment: Full time intern for a semester. Starting June 2004 or September 2004.

Project Supervisor: **Dr. Roger Hanlon plus a postdoc on the project**