9/93 NSA Quarterly Newsletter

Ward et al 1992

AT THE MOVIES.....

Suspension-Feeding Mechanisms in Bivalves: Novel Observations Using an Endoscope

(Research and scientific content by J. Evan Ward, R.J. Thompson and Bruce A. MacDonald; produced by Division of Educational Technology, School of General and Continuing Studies, in cooperation with Ocean Sciences Centre, Memorial University of Newfoundland. Running time: 20 minutes; Cost: CAN$95 + 7% GST, US$75 plus $5 shipping & handling, see ordering information elsewhere in this Newsletter).

Filter-feeding and the associated mechanisms of particle selection and rejection have fascinated biologists for decades. We've read about the processes associated with filter-feeding, the slow current of water maintained by ciliary action flowing into the mantle cavity at the inhalant aperture, passing through ostia in the ctenidia into the suprabranchial chamber and passing through the exhalant siphon back to the surrounding seawater. How many of us have actually visualized this process?

Early studies were hampered by lack of sophisticated equipment and thus many hypotheses were merely speculative. The role(s) of various mechanisms, e.g. nervous innervation, muscular control of the gill filaments, particle size structure, chemosensory capabilities, gut residence time, and digestive enzyme suites are still being studied and debated. Perhaps the greatest controversy exists regarding the role of mucus in the process of particle capture. Evan Ward and his co-workers, Bruce MacDonald, Ray Thompson and Peter Beninger, have published several papers (see below) describing the role of mucus in the process of suspension feeding. It was not, however, until the production of this video tape that these processes could be viewed firsthand.

Through the use of endoscopy, Ward and collaborators have been able to observe the ctenidia of undisturbed bivalves *in vivo*, thus eliminating the certain trauma associated with invasive and surgical techniques used previously. They have been able to demonstrate clearly that both mucociliary and hydrodynamic mechanisms function concurrently at different sites on the gills and they have been able to show the importance of mucus in the normal feeding process of bivalve molluscs. Their claims are clearly substantiated in the video.

For those of you who have not had the opportunity to view these tapes at recent meetings of the NSA, ASLO or the International Pectinid Workshops, I urge you to make an effort to do so. Novel insights and major breakthroughs are rare commodities in the world of shellfish biology; however, I believe we have seen both in the work of Evan Ward and co-workers. Seeing is believing, and this is a 'must-see'-video for invertebrate biologists, shellfish biologists, and students. It will be an invaluable teaching tool (the video comes complete with teachers notes and a 10-question quiz) and may even provide some entertainment value for those who have ever tried to picture that myriad of particles wending their way through the filtration hardware of a bivalve mollusc.

Related references:

Beninger, P.G., J.E. Ward, B.A. MacDonald and R.J. Thompson (1992) Gill function and particle transport in *Placopecten magellanicus* (Gmelin) as revealed using video endoscopy. Mar. Biol. 114: 281-288.

Ward, J.E., P.G. Beninger, B.A. MacDonald and R.J. Thompson (1991) Direct observations of feeding structures and mechanisms in bivalve molluscs using endoscopic examination and video image analysis. Mar. Biol. 11: 287-291.

Ward, J.E., B.A. MacDonald and R.J. Thompson (1993) Mechanisms of suspension feeding in bivalves: Resolution of current controversies by means of endoscopy. Limnol. Oceanogr. 38: 265-272.

Reviewed by Sandy Shumway

Pacific Coast Section Newsletter

The NSA Pacific Coast Section has commenced publication of *Shellfisheries News* for NSA-PCS members. The newsletter will be published twice per year (June and November or December) and will contain information of specific interest to the PCS membership. Those interested in joining PCS (a mere $5.00 per year over and above your NSA dues) should contact Carolyn Friedman at the address on the back cover of this newsletter.

New officers for PCS were elected at the recent NSA Annual Meeting in Portland, Oregon. They are: Chair: Christine Hodgson; Vice Chair: Susan Bower; Secretary/Treasurer: Sylvia Yamada; Members-at-Large: Jon Agosti, Dorothy Leonard, Bob Sizemore and Jill Spangenberg. Officers will assume their posts effective October 1993.

NSA Endowment Fund Merchandise

Don't forget to support the NSA Student Endowment fund with your purchase of NSA cookbooks, baseball caps and lapel pins. Please refer to your Summer/Post-meeting 1993 issue of the NSA *Quarterly Newsletter* for more information. Please note: baseball caps come in the following colors and are embroidered with the NSA logo: navy, royal blue, red, white, black, fluorescent pink and orange. Since Sandy Shumway has her hands on the goods, please send your orders, along with your check or money order made payable to NSA, directly to her (address on back cover). We have a wide selection of pins - just call Sandy to see if we have the one(s) you want.

New NSA Quarterly Newsletter Address!!

Karolyn Hansen has moved to the Chesapeake Biological Lab as of October 4, 1993. Please send all information for the NSA *Quarterly Newsletter* to the new address listed on the back cover of this issue. If you goof and use the previous address (University of Delaware), don't worry - all mail will be passed on to Karolyn. Next deadline: December 1, 1993.