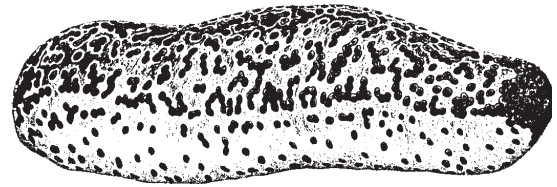


B E C H E - D E - M E R

Abstracts, Publications Workshops and Meetings



Echinoderms Publications

Compiled by Chantal Conand

Les holothuries, ressource halieutique des lagons [English title: *Holothurians, fishery resource from the lagoons*].

by Chantal Conand (1994). ORSTOM, Nouméa, Rapp. Sci. Tech. : Sci. Mer, 65. 86p.

This document is a synthesis of the present knowledge on the tropical Indo-Pacific Holothurians (*Echinodermata*), exploited for human consumption. The results on the biology and ecology of the

species are essentially based on the data collected in New Caledonia. After analysis of the recent trends of the world fisheries, the New Caledonian fishery is detailed and management proposals are given.



Growth estimates by the size distribution of sea cucumber, *Stichopus japonicus* Selenka, in the artificial pools in Toyasaki, Minamikayabe-chou, Southern Hokkaido.

by HOSHIKAWA H., K. TAKASHI, Y. KONNO & T. MIYAGAWA (1995). Hokkaido Inst. Mariculture, Shikabe, Hokkaido 041-14, Japan, Scientific Reports of Hakkaido Fisheries Experimental Station 0 (46): 7-14.

The size distribution of a sea cucumber, *Stichopus japonicus* Selenka, was investigated in the artificial intertidal pools and rocky subtidal area in Toyosaki, Minamikayabe-chou, Southern Hokkaido. The den-

sity of juveniles was higher in the intertidal pools (6.67/0.25 m⁻²) than in the rocky subtidal (0.33/0.25 m⁻²). The body weights of 1+ and 2+ in October were estimated as ca. 10 g and ca. 40 g respectively.



Potential for asexual propagation of several commercially-important species of tropical sea cucumber (*Echinodermata*)

by Norman Reichenbach & Steve Holloway [Oceanography Society of Maldives, P.O. Box 2075, Malé, Republic of Maldives]. In: Journal of the World Aquaculture Society. September 1995. 26 (3).

Six species of tropical sea cucumbers (*Echinodermata*) of high to moderate commercial value were evaluated as to their potential for being propagated asexually by induction of transverse fission. The species considered were *Thelenota ananas*, *Holothuria fuscogilva*, *Actinopyga mauritiana*, *A. miliaris*, *Stichopus chloronotus*, and *S. variegatus*. Rubber bands placed midbody on the sea cucumbers provided an effective yet simple technique to induce transverse fission. Although fission could be induced in all six species, only *T. ananas* and *S. chloronotus* had the ability to regenerate both anterior and posterior parts into whole animals.

Other species showed no or low potential for regeneration (*H. fuscogilva*, *A. mauritiana*) or regeneration of only the posterior part into whole animals (*S. variegatus*, *A. miliaris*). both *T. ananas* and *S. chloronotus* have survival of nearly 80% or greater. *S. chloronotus* regenerated anterior and posterior parts into whole animals within 3 months. In contrast, *T. ananas* regenerated the posterior part into a whole animal within 5 months while the anterior part was regenerated within 7 months. Consequently, weight recovery began earlier with *S. chloronotus* relative to *T. ananas*.

Annual reproductive cycles of three sympatric species of intertidal holothurians (Echinodermata) from the coast of Eastern Cape Province of South Africa.

by Greg G. Foster and Alan N. Hodgson [Department of Zoology and Entomology, Rhodes University, P.O. Box 94, Grahamstown 6140, South Africa]. In: *Invertebrate Reproduction and Development*. (1995). 27 (1): 49–59.

Seasonality of reproduction of *Roweia stephensoni*, *Pseudocnella sykion* and *Neostichopus grammatus* was compared using gonad indexes, gonadal tubule diameters, egg diameters and the abundance of spermatozoa in tubules from January 1992 until August 1993.

All three species were *dioecious* and the population studies did not deviate from a 1:1 sex ratio. Body sizes at first sexual maturity were 2.5–2.9 cm³ for *R. stephensoni* and *P. sykion* and 3.0–3.9 cm³ for *N. grammatus*. The gonads of *R. stephensoni* and *P. sykion* consisted of a group of unbranched tubules of equal diameter, with males having more tubules of smaller diameter than females.

By contrast, the gonad of *N. grammatus* consisted of two tufts of multiple-branched tubules. All three species have annual reproductive cycles, and in *R. stephensoni* and *P. sykion*, gametogenesis occurred from March 1992 until August/September 1992, and gonad maturity was maintained until spawning in January 1993.

By contrast, in *N. grammatus* gametogenesis occurred from July 1992 until September 1992, and gonad maturity was maintained until spawning in December 1992/January 1993. In *R. stephensoni* and *P. sykion*, gonads never completely regressed whereas in *N. grammatus* gonads regressed after spawning.



Annual reproductive cycle of the Japanese holothurian *Eupentacta chrochjelmi*.

by Catalan, M. A. B., and M. Yamamoto (1994). In: *Can. J. Zool.* 72: 387–396.

The reproductive cycle of the small dendrochirote holothurian *Eupentacta chrochjelmi* was studied in the intertidal zone of Aoshima Island, in the Seta Inland Sea of Japan, from July 1989 to January 1991. Reproductive status was assessed by the gonadal index method and histological analysis of the largest (tertiary) gonadal tubules.

The primary and secondary tubules are cryptic and difficult to find, so no reference to the animal's annual cycle in terms of gametogenesis is made. The gonad wall was thickest in September for female and October for males, when the gonadal index was at its peak. The rapid final stages of vitellogenesis in females (and completion of spermatogenesis in males) depleted reserves in the gonad wall, producing gametes that were spawned in October to December.

When gametes were spawned in December, the gonadal index and gonad wall thickness decreased. We suggest that the gonadal index reflects gonadal growth by oocyte production and an increase in gonadal wall thickness decreased.

In the laboratory, spawning occurred from midnight to 04h00, at ambient seawater temperature (12°C). Individuals elevated their anterior, oral end, waved their tentacles, and released gametes for about an hour.

Based on its large egg size (300 ± 5µm (mean ± SE) diameter) and low fecundity (1500 ± 10 ripe oocytes per individual), we infer lecithotropic development with an abbreviated larval stage.



Seasonal changes in biochemical composition of *Holothuria leucospilota* (Echinodermata)

by V. Jaya Sree, A. H. Parulekar, S. Whidulla & S. Y. Kamat, [National Institute of Oceanography, Dona Paula, Goa-403 004, India]. In: Indian Journal of Marine Sciences, June 1994, 23: 117–119.

Biochemical composition of body wall and gonads of *H. leucospilota* was analysed for protein, carbohydrate, lipid, ash, dry weight and colorific values and was discussed in relation to its spawning activities. Lipids constituted the major storage part (2.5 to 30.55%) followed by proteins (1.08 to 3.74%) and carbohydrates (0.00006 to 0.00041%) in the body wall, but in gonads, the lipids, proteins and carbohydrates were 1.8 to 6.1%, 1.06 to 2.6% and 0.00001 to 0.00009% respectively.



Reproductive biology of the sea cucumber *Holothuria atra* Jaeger 1833 (Echinodermata: Holothuroidea) in Laucala Bay, Fiji, with notes on its population structure and symbiotic associations

by Johnson Seeto. Thesis submitted in partial fulfilment of the requirements for the degree of, M.Sc. (Marine Science), the University of Otago, Dunedin, New Zealand, December 1994.

The reproductive periodicity of the sea cucumber *Holothuria atra* Jaeger 1833 in Laucala Bay, Fiji was determined at two sites—Makeluva and Sandbank Reefs—through measurement of gonad index, sperm activity, oocyte diameter, and gonad tubule diameter over a 14-month period.

Population structure and distribution patterns were compared between the two sites. Associates of *H. atra* were enumerated and factors affecting their abundance discussed.

Holothuria atra is dioecious. It is an asynchronous spawner in Fiji with a main breeding period in summer (September to December). Gonad indices and mean maximum gonad tubule diameter trends showed that the breeding season of *H. atra* is confined to a few months in summer. Sperm activity, gonad staging and oocyte-size frequency trends, however, showed that the breeding season was prolonged, with ripened oocytes present all year around.

The increase in gonad mass was periodic, but the ripeness of gonads was prolonged. Reproductive seasonality is probably influenced by temperature. Reproductive effort was greater in female *H. atra* from Makeluva Reef than females from Sandbank Reef.

However, there was no significant difference in reproductive effort between males at both sites. Size at first sexual maturity was about 80g gutted weight or 19 cm total length. *H. atra* is fissiparous at the sites studied but fission rates were very low.

Holothuria atra is the most abundant holothurian on Laucala Bay reefs with a unimodal size structure. There was a noticeable absence of females early in the study and no juveniles (< 6 cm) were found. The

Makeluva population of *H. atra* had a larger mean body size than the Sandbank population. *H. atra* occupying different zones of the same reef had different mean body sizes. The size distribution of the monthly samples was significantly different from each other at both sites.

The distribution of *H. atra* across Sandbank Reef was not random and density was related to exposure and substratum type. Females dominated the larger class sizes at both sites, but the sex ratios were approximately 1:1. The unreliability of measuring holothurians was not fully resolved, and it was suggested that gutted weight be used as the base parameter as it is the least variable. However, the minimum legal length should be designated by a legal wet length.

Symbiotic associations between *Holothuria atra* and invertebrate symbionts in Laucala Bay included the Polynoid scale-worm, *Gastrolepidia clavigera*, the sabelliphilid copepod, *Scambicornus modestus*, the harlequin crab, *Lissocarcinus orbicularis*, and the eulimid gastropods, *Peasistilifer gracilis*, *Peasistilifer nitidula*, and *Melanella aciculata*. Symbionts were more abundant at the Sandbank Reef site. In some months, host animals with larger body sizes had greater numbers of some symbiotic species.

Size limits for all processed holothurian species in Fiji are presently based on a minimum legal dry length of 7.62 cm which is an impractical measure of size. Size at first sexual maturity from this study is used to set minimum size limits based on length. Findings of parts of this study will help formulate new management practices and set the basis for reproductive studies of other commercially important holothurian species in Fiji.

Echinoderm Conferences

Compiled by Chantal Conand

The 9th International Echinoderm Conference will be held in San Francisco, from 5 to 9 August 1996. For information contact Dr R. Mooi, Department of Invertebrate Zoology, California Academy of Sciences, Golden Gate Park, CA 94118-4599, San Francisco, or e-mail: rmooi@cas.calacademy.org.

During the Conference, a symposium on Echinoderm fisheries and mariculture is scheduled, as it seems that now is the right time to address some of the issues of exploitations, regulations, stock enhancement and culture.

If you are interested in presenting a talk or a poster, could you please send a tentative title to C. Conand (e-mail: conand@univ.reunion.fr) and contact Rich Mooi to receive the first circular and registration material. More information on this Conference [provided by Dr Rich Mooi, Conference organiser] is presented below.

9TH INTERNATIONAL ECHINODERM CONFERENCE, 5-9 AUGUST 1996, SAN FRANCISCO, CALIFORNIA, USA

- Robert Van Syoc, California Academy of Sciences;

The Scientific Committee and the host institution, the California Academy of Sciences are pleased to invite your participation in the 9th International Echinoderm Conference (9th IEC).

The 9th IEC will be held at the Seven Hills Conference Center on the campus of San Francisco State University [The University is in the southwestern part of the city of San Francisco].

All correspondence regarding registration, accommodation, cancellation, payment, etc., pertaining to the 9th IEC should be addressed to:

The Scientific Committee would be happy to provide official letters of invitation to participate in the 9th IEC. These letters are intended to be of assistance to potential participants in obtaining funding, and should in no way be considered a commitment on the part of the Scientific Committee to provide financial support.

Rich Mooi, Chair, 9th IEC
Department of Invertebrate Zoology & Geology
California Academy of Sciences
Golden Gate Park
San Francisco, California 94118-4599 USA
Fax: 415-750-7090; Phone: 415-750-7086
E-mail: rmooi@cas.calacademy.org

Each conferee planning to attend any of the sessions is required to register individually for the conference by filling out the Registration Form provided (ASK DR MOOI FOR A COPY), and to pay registration fees in full [Name tags signifying registered conferees will be issued.] Additional copies of registration materials are available upon request. Feel free to photocopy these materials.

The Scientific Committee:

- Dan Blake, University of Illinois at Champaign-Urbana;
- Olaf Ellers, University of California at Davis Gordon Hendler, Natural History Museum of Los Angeles County;
- James Kelley, San Francisco State University;
- Tom Niesen, San Francisco State University
- John Pearse, University of California at Santa Cruz;
- Vicki Pearse, University of California at Santa Cruz;
- Malcolm Telford, University of Toronto;

Doctoral and pre-doctoral students can qualify for the lower fee if their registration is accompanied by the signature of their thesis adviser in the appropriate space on the Registration Form. Unregistered guests must register under the name of a conferee. The Registration Form must be completed and returned by 1 May 96.

Registration fees are:

	Before 1/5/96	After 1/5/96
Conferee	US\$175	US\$215
Student Conferee	US\$150	US\$190
Unregistered Guest	US\$40	US\$80

The official language of abstracts, the proceedings, posters, and communications for the 9th IEC is English.

Schedule of events:

- 4/8/96: Afternoon: check-in and registration;
- 5/8/96: Morning: Welcome address & Symposium
Afternoon: Contributed papers;
- 6/8/96: Morning: Symposium
Afternoon: Contributed papers
- 7/8/96: Morning: Poster session
Afternoon: Free time
- 8/8/96: Morning: Contributed papers, poster session continued
Afternoon: Contributed papers, poster session continued
- 9/8/96: Morning: Contributed papers
Afternoon: Symposium and closing address

Call for abstracts:

All presentations (oral communication, symposium talk, or poster) **MUST** be accompanied by an abstract, in **ENGLISH**. Please note that the abstract is limited to 350 words in length. Submission of abstracts by Electronic mail is encouraged [send the abstract as an ordinary message, and not as an attached file].

Oral contributed papers:

Oral communications that are part of contributed paper sessions will be 20 minutes long (15 minutes for the presentation, 5 minutes for questions). Overhead projectors, slide projectors, and trays for standard 35 mm slides will be available. The lecture hall in which symposia will be held has VHS video facilities. VHS equipment for other lecture halls can be acquired if a strong demand for them is demonstrated by conferee responses on the Registration Form.

Posters:

Posters will go up on the morning of Wednesday 7 August and be on display until the afternoon of Thursday 8 August, at which time they must be taken down. A session dedicated to the posters **ONLY** (not in parallel with other sessions) will occur on the morning of 7 August.

Symposia:

In addition to the contributed paper sessions, three special symposia are planned. Each of them will comprise a series of talks of approximately 25 minutes from each of 6 to 10 invited speakers. These symposia include:

- Major Events in the Evolution of the Echinoderms [G. Wray, organiser];
- Mutable Collagenous Tissues [O. Ellers & M. Telford, organisers];
- Echinoderm Fisheries and Mariculture [C. Conand, organiser]

Publication of proceedings:

All conferees, whether presenting an oral contributed paper, symposium talk, or poster are invited to submit papers for publication in the proceedings volume for the 9th IEC. In keeping with previous IECs, A.A. Balkema has agreed to publish this volume, which will be edited by Dr Rich Mooi and Malcolm Telford.

Conferees wishing to publish their contribution in this volume should prepare 2 copies of a manuscript for submission to the Scientific Committee at the time of the conference.

Extra copies of the proceedings will be available from A.A. Balkema, P.O. Box 1675, NL-3000 BR Rotterdam, Netherlands (ph: 31 10 4145822; fax: 3110-413-59-47).



