ANDAMAN SEA TYPE-SPECIES DEPOSITED IN THE REFERENCE COLLECTION OF PMBC AND OTHER COLLECTIONS, WITH NOTES ON HOW TO OBTAIN MATERIAL FOR TAXONOMIC STUDIES.

By Anuwat Nateewathana

Phuket Marine Biological Center, P.O.Box 60, Phuket 83000, Thailand

ABSTRACT

A total of 61 type-species of marine organisms collected from Thai waters, mainly in the Andaman Sea, have been deposited in the Reference Collection of Phuket Marine Biological Center, from 1971-1990. The type-species include 44 nominal species in 24 nominal genera encompassing Choanoflagellida, Chlorophyceae, Polychaeta, Crustacea, Mollusca, Echinodermata, and Pisces. Publication and collection data are given. Type-species collected from the Andaman Sea coast of Thailand and deposited in various museum/institutions are also listed.

INTRODUCTION

The Reference Collection building of Phuket Marine Biological Center was donated by DANIDA, Denmark, and inaugurated in September 1983 (Boonprakob and Hylleberg, 1983). However, the collections are much older, some of them started as early as 1966 during the 5th Thai-Danish Expedition. After the agreement between the Thai Government and the Danish Government was signed in 1968, establishment of the Center brought a new generation of marine biologists to investigate the local fauna and to document their studies through extensive collections. More than 30,000 specimens and about 3,000 species of marine organisms have been identified and deposited in the PMBC Reference Collection. A list of marine organisms in the Collection was provided by Nateewathana, et al. (1981). The present paper provides a list of type-specimens deposited in the PMBC Reference Collection. Publication and collection data of the types are also included. The list includes 44 nominal species in 24 nominal genera, and presents information in the following format:

- Group, family or division, genus, species, author, year of publication. Category of type: PMBC catalogue number, number of specimens, dimensions, locality, depth, collector (expedition or person), date collected. (Remarks)

The following abbreviations are used in the list:

AM Australian Museum, Sydney, Australia
BMNH British Museum (Natural History), London, England
NSMT National Science Museum, Tokyo, Japan
PMBC Phuket Marine Biological Center, Thailand
TOYA Toyama Science Museum, Japan
USNM National Museum of Natural History, Smithsonian, Washington D.C., U.S.A.
ZMC Zoological Museum, University of Copenhagen, Denmark
ZMH Zoological Institute and Zoological Museum, Universität Hamburg, W. Germany

TYPE MATERIAL IN THE PMBC REFERENCE COLLECTION

CHOANOFLAGELLIDA

Twelve species of Choanoflagellates from the Andaman Sea, Thailand. With this kind of
organism the electron microscope pictures constitute the types. The publications have been deposited in the PMBC Reference Collection.

Acanthocidae

*Stephanacantha dichotoma* Thomsen, 1983
In: Thomsen & Boonruang, 1983a: 198-202, Figs. 2-10.
HOLOTYPE: Shown in Fig. 6, found in a water sample collected 14 Sept. 1981 at st. 1 near Phuket Island, SW Thailand.

*Stephanacantha parvula* Thomsen, 1983
HOLOTYPE: Shown in Fig. 17, found in a water sample collected 8 Sept. 1981 at st. 6 near Phuket Island, SW Thailand.

*Stephanacantha formosa* Thomsen, 1983
In: Thomsen & Boonruang, 1983a: 204, Figs. 34-46.
HOLOTYPE: Shown in Fig. 22, found in a water sample collected 10 Sept. 1981 at st. 4 (2 m) near Phuket Island, SW Thailand.

*Platyleura cercophora* Thomsen, 1983
In: Thomsen & Boonruang, 1983a: 208-209, Figs. 34-36.
HOLOTYPE: Shown in Fig. 37, found in a water sample collected 14 Sept. 1981 at st. 1 near Phuket Island, SW Thailand.

*Platyleura acuta* Thomsen, 1983
HOLOTYPE: Shown in Fig. 47, found in a water sample collected 8 Sept. 1981 at st. 6 near Phuket Island, SW Thailand.

*Platyleura perforata* Thomsen, 1983
In: Thomsen & Boonruang, 1983a: 210, Figs. 56-55.
HOLOTYPE: Shown in Fig. 57, found in a water sample collected 8 Sept. 1981 at st. 6 (2 m) near Phuket Island, SW Thailand.

*Apheloeicon quadrispinum* Thomsen, 1983
In: Thomsen & Boonruang, 1983b: 740-743, Figs. 2-10.
HOLOTYPE: Shown in Fig. 2, found in a surface water sample collected 14 Sept. 1981 at st. 1 in the vicinity of Phuket Island, SW Thailand (c. 28°C, c. 35‰S).

*Apheloeicon pentacanthum* Thomsen, 1983
In: Thomsen & Boonruang, 1983b: 743-745, Figs. 11-17.
HOLOTYPE: Shown in Fig. 14, found in a water sample collected 10 Sept. 1981 at st. 4 (20 m) in the vicinity of Phuket Island, SW Thailand (c. 28°C, c. 35‰S).

*Apheloeicon articulatum* Thomsen, 1983
HOLOTYPE: Shown in Fig. 18, found in a water sample collected 16 Sept. 1981 at st. 1 in the vicinity of Phuket Island, SW Thailand (c. 28°C, c. 35‰S).

*Cosmoeca phuketensis* Thomsen, 1984
In: Thomsen & Boonruang, 1984: 175-176, Figs. 33-34.
HOLOTYPE: Shown in Fig. 40. Kamala Bay, Phuket Island, 2 m depth, c. 28°C, c. 35‰S, 8 Sept. 1981.

*Cosmoeca subulata* Thomsen, 1984
In: Thomsen & Boonruang, 1984: 177-178, Figs. 41-49.
HOLOTYPE: Shown in Fig. 41. Phuket Island, Thailand, 15 m depth, c. 28°C, c. 35‰S, 8 Sept. 1981.

*Cosmoeca ceratophora* Thomsen, 1984
In: Thomsen & Boonruang, 1984: 178, Figs. 50-59.
HOLOTYPE: Shown in Fig. 50. Phuket Island, Thailand, 0.5 m depth, c. 28°C, c. 35‰S, 14 Sept. 1981.
Andaman Sea type species deposited in the PMBC

ALGAE

Chlorophyceae

Pseudostruvia siamensis Egerod, 1975.
PARATYPE: PMBC 094, 15 km South of Takuspa (mainland) in a mat of Cladophoropsis sundaensis, upper tide level, on rocky outcropping, L. Egerod, 9.4.1971.
REMARKS: Deposition of holotype not known (Botanical Museum, Copenhagen, Denmark?).

POLYCHAETA

Nephtyidae

Aglaophamus phuketensis Nateewathana & Hylleberg, 1986.
Paratypes deposited in other institutions by the authors:

AM Complete specimen, 84 setigers, length 22.1 mm. Kamala Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 10.4.1980.
USNM 376250-102847: Complete specimen 85 setigers, length 18.2 mm. Bang Tao Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 29.6.1981.

Aglaophamus urupani Nateewathana & Hylleberg, 1986.
HOLOTYPE: PMBC 3102, Complete specimen, 64 setigers, length 15.5 mm. Patong Bay, Phuket Island, very fine sand, 30 m depth, A.N. & J.H., 18.6.1982.
Paratypes deposited by the authors in other institutions:

ZMC Complete specimen, 59 setigers, length 13.3 mm. Patong Bay, Phuket Island, very fine sand, 30 m depth, A.N. & J.H., 27.2.1982.

Inermonephys patongi Nateewathana & Hylleberg, 1986.
PARATYPE: PMBC 3171, Complete specimen, 131 setigers, length 25 mm. Patong Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 7.4.1981.
Paratypes deposited by the authors in other institutions:

AM Anterior fragment, 93 setigers, length 23.7 mm. Patong Bay, Phuket Island, very fine sand, 10 m depth,


USNM 376250-102849: Anterior fragment, 82 setigers, length 19.8 mm. Patong Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 7.4.1981.

ZMC Anterior fragment, 89 setigers, length 15 mm. Patong Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 26.4.1982.

*Nephtys danida* Nateewathana & Hyleberg, 1986.

**HOLOTYPE:** PMBC 3163, Complete specimen 47 setigers, length 9.5 mm. Bang Tao Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 27.2.1982.

**PARATYPE:** PMBC 3164, Anterior fragment 35 setigers, length 5.1 mm. Kamala Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 7.4.1981.

Paratypes deposited by the authors in other institutions:

**AM** Complete specimen, 40 setigers, length 7.5 mm. Patong Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 26.4.1982.


ZMC Complete specimen, 42 setigers, length 5.7 mm. Bang Tao Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 18.6.1982.

*Nephtys phasuki* Nateewathana & Hyleberg, 1986.

**HOLOTYPE:** PMBC 3172, Anterior fragment, 30 setigers, length 8.5 mm. Patong Bay, Phuket Island, medium sand, 20 m depth, A.N. & J.H., 18.6.1982.

**PARATYPE:** PMBC 3173, Anterior fragment, 31 setigers, length 10.6 mm. Patong Bay, Phuket Island, coarse sand, 10 m depth, A.N. & J.H., 10.4.1980.

At the time this paper was prepared, we were informed by the editor of Proceedings of the 2nd Internat. Polychaete Conf. that descriptions of the following new species of mageloniids were in press.

**Magelonidae**

*Magelona kamala* Nateewathana & Hyleberg, 1990.

**HOLOTYPE:** PMBC 4283, Anterior fragment, 57 setigers, length 13 mm. Kamala Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 23.12.1981.

**PARATYPE:** PMBC 4284, Anterior fragment, 38 setigers, length 13 mm. Patong Bay, Phuket Island, very fine sand, 20 m depth, A.N. & J.H., 7.4.1981.

*Magelona methae* Nateewathana & Hyleberg, 1990.

**HOLOTYPE:** PMBC 4344, Anterior fragment, 25 setigers, length 9.2 mm. Kamala Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 20.2.1981.

**PARATYPE:** PMBC 4345, Anterior fragment, broken, 24 setigers, length 8.2 mm. Bang Tao Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 20.2.1981.

*Magelona mickimimi* Nateewathana & Hyleberg, 1990.

**HOLOTYPE:** PMBC 3174, Anterior fragment, 23 setigers, length 6.5 mm. Patong Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 28.12.1982.
PARATYPE: PMBC 3175, Anterior fragment, 15 setigers, length 3.6 mm. Bang Tao Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 22.2.1983.

Magelona noppit  Nateewathana & Hylleberg, 1990.
HOLOTYPE: PMBC 4280, Anterior fragment, 35 setigers, length 8.5 mm. Nopparat-tara Beach, Krabi, muddy-sand, intertidal, S. Bussarahit and S. Chantarapornsyl, 1.5.1981.

Magelona pectinata Nateewathana & Hylleberg, 1990.

Magelona petersenae Nateewathana & Hylleberg, 1990.
HOLOTYPE: PMBC 4351, Anterior fragment, 14 setigers, length 4.2 mm. Bang Tao Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 15.10.1980.
PARATYPE: PMBC 4352, Anterior fragment, 45 setigers, length 17 mm. Bang Tao Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 22.2.1983.

Magelona pygmaea Nateewathana & Hylleberg, 1990.
HOLOTYPE: PMBC 4219, Complete specimen, 52 setigers, length 10 mm. Kamala Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 8.6.1982.
PARATYPE: PMBC 4220, Complete specimen, 52 setigers, length 6 mm. Kamala Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 8.6.1982.

Magelona tinae Nateewathana & Hylleberg, 1990.
HOLOTYPE: PMBC 3179, Complete specimen, 75 setigers, length 27.5 mm. Bang Tao Bay, Phuket Island, very fine sand, 10 m depth, A.N. & J.H., 17.9.1980.
PARATYPE: PMBC 3180, Complete specimen, 65 setigers, length 17.5 mm. Kamala Bay, Phuket Island, fine sand, 10 m depth, A.N. & J.H., 17.9.1980.

Onuphidae

HOLOTYPE: PMBC 4696, Complete specimen, 450 setigers, length 262 mm. Kata Beach, Phuket Island, intertidal sand, A.N., 8.11.1984.
PARATYPES deposited by the author in other institutions:

BMNH Anterior fragment, 139 setigers, length 58 mm. Kata Beach, Phuket Island intertidal sand, A.N., 27.10.1985.
ZMH Anterior fragment, 152 setigers, length 76 mm. Kata Beach, Phuket Island, intertidal sand, A.N., 27.10.1985.
Nereididae


CRUSTACEA

Portunidae

Thalamita muusi Serène & Soh, 1976.
HOLOTYPE: PMBC 2321, male, st. 1010-9, 8° 45'N, 98° 01'E, 29 m depth, the 5th Thai-Danish Expedition, 9.1.1966.

Goneplacidae

HOLOTYPE: PMBC 2063, male of 3 x 4.8, st. 1047-6, 5° 43'N, 100° 13'E, 15 m depth, the 5th Thai-Danish Expedition, 26.1.1966.

Copepoda

Scambicornus pectinis Ho & Kim, 1990.

Synapticola tripocula Ho & Kim, 1990.

Isopoda

Pistorius sasayamai Nunomura, 1990
HOLOTYPE: PMBC 6020. Male, 5.0 mm, from dead coral on Ko Mai Thon at Phuket Island, Y. Sasayama, 6.11.1986.
Allotype and paratype deposited by the author in other institutions:
NSMT Cr 9392: Female, 4.7 mm, same collection data as for holotype.
TOYA Cr 7603: Male, 4.6 mm, same collection data as for holotype.

MOLLUSCA

Mytilidae

Xenostrobus balani Ockelmann, 1983.

Gastrochaenidae

Gastrochaena carteri Nielsen, 1986.
HOLOTYPE: PMBC 3989, A 6 mm long specimen boring in dead Porites lutea, inner reef flat in front of Phuket Marine Biological Center at Laem Pan Wa, Phuket, Claus Nielsen, 20.2.1985.
REMARKS: Paratypes collected from the type locality Jan.-Mar. 1982 and Jan.-Mar. 1985 are deposited at ZMC and BMNH:
Opisthobranchia

*Cylindrobulla phuketii* Jensen, 1989.

ECHINODERMATA

Ophiocomidae

*Ophiocoma similansensis* Bussawhit & Rowe, 1985.
PARATYPE: PMBC 3862, Ko Similan, Similan Islands, on *Montipora* dead coral at 5 m depth, A.N. & J.H., 15.2.1981.

PISCES

Gobiidae

*Cryptocentrus croceratus* Wongratana, 1975.
HOLOTYPE: PMBC 4620, 85 mm SL, Bangkok Fish Market (the specimen was said to come from east coast of the Gulf of Thailand), T. Wongratana, 15.1.1974.

The below 5 species of fish have received PMBC catalogue numbers, following requests by the authors, and the types deposited in the Reference Collection. However, the authors have not informed the Center about place or date of publication, and I have not been able to trace any literature records. I regret the incomplete information but include the records because 2 of the species were designated holotypes by the authors.

Nemipteridae

*Nemipterus aurorus* Russell

*Nemipterus flavolineatus* Russell

Pomacentridae

*Pomacentrus polypterus* Allen
HOLOTYPE: PMBC 4683, 63 mm SL, Ko Hi, west coast of Thailand, 4-8 m depth, spear, G. Allen, 7.2.1979.

*Pomacentrus simillii* Allen

*Pomacentrus azureaculatus* Allen
HOLOTYPE: PMBC 4684, 1:74 mm SL, Phuket Island off Ko Hi, about 5 km S.E. of Phuket (7°45'N, 98°22'E), 5-15 m depth, spear, G. Allen, 16.2.1979.

TYPE MATERIAL DEPOSITED IN OTHER COLLECTIONS

Many new species have been described from this area and deposited in various museums institutions. We regret that specimens of these species are unavailable for studies at the Center. Some of the new species are known to the Center and listed below, but only with scientific name and authorship.

*Alpheus cythereus* Banner & Banner, 1966
*Alpheus sudara* Banner & Banner, 1966
*Coxalana inaequalis* Bourdon, 1977
*Rhisozelena phuketensis* Sundstrom, 1980
*Pomacentrus alleni* Randall, 1981
*Leptojuilis chrysotaenia* Randall & Ferraris, 1981
*Rhomboidella malaccana* Ockelmann, 1983
*Eptatretus indrambaryai* Wongratana, 1983
*Bopyrissa liberorum* Markham, 1985
*Metabopyrus irregularis* Markham, 1985
Procepon horridulum Markham, 1985  
Upogebione phuketensis Markham, 1985  
Kepon orientalis Markham, 1985  
Trapezicepon thalmitae Markham, 1985  
Siamosquilla hyllebergi Naiyanetr, 1989  
Synonema gerlachi Jensen, 1989  
Synonema phuketense Jensen, 1989

HOW TO OBTAIN MATERIAL FOR TAXONOMIC STUDIES

An important function of Phuket Marine Biological Center is to carry out studies of the flora and fauna of the coastal waters along the Andaman Sea Coast of Thailand. The collected specimens are curated in the permanent museum building of the Reference Collection (Nateeewatana, 1983, Nateewatana et al., 1981). All marine biologists are encouraged to participate in this work in accordance with pertaining rules of the Thai Government. Among others, the rules state that research by alien scientists must be in the interest of both parties and not solely of the foreign party. Excellent examples on how this works in practice are provided by Nielsen (1986), K.R. Jensen (1989), Nonumura (1990) and Ho & Kim (this issue, p. 3-32). Samples studied or collected in the course of the research shall become the property of the Reference Collection of PMBC. Therefore, visiting scientists who may want to work with biological specimens from PMBC are requested to follow the regulations of the Center as follows:

A. Biological specimens:

1) After completion of the identification, which may take place at PMBC or at the home institution of the scientist, a complete set of properly labelled, identified specimens must be deposited in the Reference Collection of PMBC.

2) In case of many specimens of the same species PMBC may permit duplicates to be the property of the researcher or the institution.

3) Should there be only one specimen of a species it must be deposited in the PMBC Reference Collection.

4) In case of type material it is compulsory to return the holotype to PMBC. The Reference Collection will issue a catalogue number to be included in the Publication, and please remember to send 2 copies of the publication (one the library and one to the Reference Collection).

5) If paratypes have been selected, these specimens can be distributed to other museum collections as agreed upon with the curator of the PMBC collection. Also in this case, the Reference Collection should receive information concerning the institution, catalogue number etc.

B. Experiments and other research projects:

Representative samples of labelled and identified specimens should be included in the Reference Collection of PMBC as agreed upon with the curator. Catalogue numbers will be provided to be included in the Publication.

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