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THE ZOOGEOGRAPHICAL DISTRIBUTION OF THE INDO-PACIFIC LITTORAL HOLOTHURIOIDEA

By Jose S. Domantay
Biological Research Laboratory
Bureau of Fisheries
Manila, Philippines

Introduction

Ekman in his Zoogeography of the Sea (1953) used "shelf fauna" for "littoral" in its widest sense. The terms "shore fauna" and "coastal fauna" according to Ekman are frequently used by both English and American authors, but are not fully adequate to convey the lower limits of the fauna in question. The littoral holothurioidea referred to in this paper do not cover the entire shelf holothurian fauna of a sea-floor to a depth of about 200 meters. The present study of the littoral forms of Holothurioidea is confined only to the species recorded from a depth not exceeding 50 fathoms, approximately half of the depth of Ekman's shelf fauna.

The Zoogeographical Division of the Indo-Pacific Ocean

Ekman divided the warm-water fauna of the shelf into two main regions: the *Indo-West-Pacific* and the *Atlanto East-Pacific-areas*. Each of the two main regions is subdivided into sub-regions. Although it is possible to distinguish several sub-regions, the present incomplete knowledge of faunistic facts does not allow as yet any precise delimitation of the various sub-regions. For this reason, we may subdivide the entire Indo-Pacific region into ten distinct provinces, namely; the North Pacific, South Pacific, East Pacific, West Pacific, Northwest Pacific, Southwest Pacific, Northeast Pacific, Southeast Pacific, Central Pacific and the Indian Ocean. The Indo-West-Pacific of Ekman comprises the Indian Ocean, West Pacific (warm waters), Northwest Pacific (warm and cold waters), Central Pacific (warm waters), and Southwest Pacific (warm and cold waters). The Atlanto-East-Pacific comprises the East Pacific (warm waters), Northeast Pacific (cold waters), Southeast Pacific (cold waters) and the Atlantic Ocean (warm and cold waters). The two other provinces, the North Pacific and South Pacific, may be regarded as part of the polar areas.

The Holothurian Fauna of the Different Provinces of the Indo-Pacific Ocean

Table I lists many of the known littoral holothurians reported from the different provinces of the Indo-Pacific Ocean. The Indo-West-Pacific area has related and almost identical species of Holothurioidea. The explanation of the close relationship and similarities of the aspidochirote holothurian fauna of this particular area is the proximity of the different provinces with their continental shelves almost connecting with one another. The Indo-Malayan region (Indian Ocean, West Pacific and Southwest Pacific provinces) has its faunistic centre in the Malay Archipelago. The Indo-Malay Archipelago is the world's greatest archipelago containing large water areas less than 200 meters in depth. There is no other region in the world richer in species than this particular area, and it is considered to be the "hotbed" of echinoderms including all other marine life. Farther eastward the number of known species of Holothurioidea lessens due apparently to the absence of more records of species from the place. Various investigators report that the marine life toward the east is poor compared with that of the westward side of the Pacific, although others believe the contrary with regard to fishes. One of the reasons advanced for this finding is the direction of the main currents, which are from east to west.

The Hawaiian echinoderm fauna, according to H. L. Clark and W. K. Fisher, is closely related and identical to those of the isolated oceanic islands the farther to the east they are situated. The affinity of Hawaii's fauna with the American shelf fauna, to which the fauna of the Galapagos Islands belongs, is the same as with that of the Polynesian fauna. The fauna of the Galapagos has been grouped with that of Hawaii and outer Polynesia as "Eastern Polynesian" fauna.

The tropical and partly subtropical faunistic region of Australia is contrasted with a temperate one. The number of species is not as large in the tropical shelf region of Australia as in the Indo-Malayan region but many species are nevertheless common to both. Many species of Holothurioidea are endemic in Australia, but they belong as a whole to genera which are also represented in the Indo-Malayan fauna.

The Atlanto-East-Pacific is the second great warm-water region of the warm-water fauna of the shelf. Table I also lists many species of holothurioidea common to both the tropical East Pacific and the West Atlantic Ocean. Ekman considered the two fauna as a faunistic unit, in spite of the presence of physical barrier, the isthmus of Panama. The affinity between the two marine regions is shown not only by the holothurian fauna but other marine life including the fishes. To explain the close faunistic resemblance between the two coastal regions which

are separated by land barrier, Ekman postulated a direct connection in the past between the two regions. This direct connection of the two oceans has been corroborated by paleontological and geological evidences. It has been shown that for long periods of the Palaeozoic and Mesozoic eras the Pacific had a direct connection with the Atlantic across the present Central America. This was changed in the Tertiary period. Again in the Eocene, Oligocene and Miocene the two oceans had a direct connection for considerable period which, according to Schuchert, has existed without interruption. This accounts for the many identical forms of holothurians and other marine life in the two oceans.

The holothurians common to both tropical waters of the two oceans are said to be circumtropical. Holothurians recorded from the West Pacific, Central Pacific, East Pacific, Indian Ocean and the Atlantic Ocean are circumtropical in distribution. The occurrence of identical species around the tropical warm waters may be understood if the geological history of the past is reviewed. It is said that across the greater part of our planet an immense sea once stretched, mainly in an easterly and westerly direction, dividing the continents into two main groups, a southern and a northern group. It connected the East Pacific, the Central Atlantic, the Mediterranean, the Indian Ocean and the West Pacific with one another. According to Suess this extensive sea in the remote past was known as "Tethys", the name of the wife of the God Okeanos. Other names given to this sea are Mediterranic, Mesozoic Mediterranean, Numulite Sea, Mesogee, etc. During the whole of the Mesozoic era and the early Tertiary Period, the Tethys Sea was of considerable size. The Indo-West Pacific, the Mediterranean, the tropical Atlantic and East Pacific faunas were, therefore, parts of one major unit, the Tethys fauna. To understand the present warm-water fauna therefore, it is of great importance to know the former Tethys fauna thru paleontological studies.

One of the most interesting facts is that the early Tertiary Atlantic fauna had a distinct Indo-West-Pacific character similar particularly to that of the Mediterranean fauna. Many groups of marine animals now found confined to the Indo-West-Pacific have also been found to have existed in the East Atlantic Ocean. Although there was no holothurian reported among the echinoderms because they do not usually fossilize, the present holothurian fauna shows several of them to be circumtropical. We may cite a couple of them to illustrate the existence of identical species around the tropical waters of both oceans to give light to the existence of the Tethys Sea in the remote past. *Holothuria imitans* Ludwig and *H. difficilis* Semper are among the several circumtropical species listed. Their occurrence, particularly on both sides of

the Atlantic around the entrance to the Mediterranean and the Red Sea through the Indian Ocean, the West Pacific, Southwest Pacific and the Central Pacific, is a good evidence that these particular species were already existing in their present habitats long before the formation of the land barrier between the two American continents and that of Europe and Africa. With the land barriers now existing, it is hard to explain their circumtropical distribution through their pelagic auricularian larvae by way of the northern and southern tips of the different continents. It is more logical to believe the former existence of the Tethys Sea which connected the Indo-Pacific and the Atlantic oceans up to the Miocene of the Tertiary Period.

The intermigration of similar or identical species of holothurians within the Indo-Pacific area through their auricularian larvae is a possible explanation of the wide distribution of many of the species listed. Mortensen (1925) reported that in his observation on *Stichopus californicus* (Stimpson), the auricularian larvae after the third week still remained for some time without much differentiation. It is safe to speculate, therefore, that an auricularian larva may remain pelagic for some time before they settle down to start their sedentary life, hence it is possible for them to be carried by the current to distant places usually in an east to west direction. This also explains why there are more species of holothurian listed in the West Pacific, Southwest Pacific, and the Indian Ocean, which fact confirmed the findings of others that the Indo-Malayan region is the richest in marine life species.

Comparing the holothurian fauna known from the Atlanto-East-Pacific region with those of the Indo-West-Pacific, two distinct differences may be noted, namely, the entirely different species of the fauna and the predominance of the dendrochirote holothurians over the aspidochirotes. Although there are few species that are almost bipolar in distribution, yet the few known species from the western coast of South America are endemic to the place. The distinct differences of the holothurian fauna of the Southeast Pacific from that of the oceanic islands of the Central Pacific may be explained by the deep ocean barrier between them and the upwelling of cold bottom water along the southwestern coast of South America.

Among the few dendrochirotes from the southern tip of South America, *Psolus squamatus* (Koren) var. *segregatus* Perrier is also found in the Bering Sea of North America. The absence of this species in the East Pacific makes it a bipolar form and its bipolar distribution may be explained by the Relict Theory of Theel, Pfeiffer and Murray. This species apparently was formerly a cosmopolitan warm-water form and became extinct in the tropical regions for unknown reasons, or it

changed to a new form, thus leaving behind the northern and southern parts of this species as a relict.

The Ambonesian region, named after one of the Mollucca Islands of Amboina, has become renowned as the locality of pioneer investigations on the Malayan animal world. Although the Philippines is among the islands included in this region with the island of Luzon forming a triangle with Borneo and New Guinea within which groups of marine animals may serve as a zoogeographical indicator, the holothurian fauna has not been fully worked out. Carl Semper apparently is the pioneer in the study of Philippine Holothurioidea. Semper's list is not available although that of Seale with 66 different species were taken from Semper's Holothurioidea of the Philippine Archipelago. Not all the holothurioidea listed by Seale from the Philippines were encountered by the writer in his survey of the Echinoderm Fauna of Puerto Galera Bay and adjacent waters, the Basilan Channel around Zamboanga, the Sitankai Reefs of Sulu, the Taganak Barrier Reefs of the Turtle Islands, Coron Bay of Palawan, and the Hundred Islands and vicinity of Lingayen Gulf. Semper's materials were taken mostly from Bohol and vicinity. From the 66 species listed by Seale from Semper's record from the Philippines, 17 species were actually encountered by the writer, leaving 49 species not met yet. So far recorded by the writer from the different localities in the Islands are 48 different species excluding a couple of new species, 13 of which were listed in Seale's check list, leaving at least 35 species not included therein. Adding to the 48 species recorded by the writer the 49 species listed in Seale's list, which were not so far encountered, plus two new species, there will be, all in all, 99 species of littoral holothurians from Philippine waters. Based from the collection of the Allan Hancock Foundation which the writer had the opportunity of going over and identifying, not much is known about the holothurian fauna of the other places of the West Pacific except those of Guam and the Mariana Islands. The holothurian fauna of these islands, as identified by the writer, together with those from the Hawaiian islands of the Central Pacific, are identical in most cases with those of the Philippines. This is also what is to be expected from the other places of the West Pacific area.

The Indian Ocean (warm waters) comprises the area between eastern Africa and Western Australia and the East Indies, including the Arabian sea and the Bay of Bengal. Fortunately the holothurian fauna of the area has been worked out by several scientists. There are around 28 species of holothurians reported from South Africa represented in 10 genera, all but one of which are more or less cosmopolitan or at least tropi-cosmopolitan. Of the 28 species, 12 occur on the Australian coast,

but all are more or less common. The East African holothurian fauna is represented by 32 species of 14 genera. Of the 14 genera, all but one (*Patinapta*) occur in Australia. Of the 32 species, 24 occur in Australia. The same genera and most of the species also occur throughout the East Indian region. The natural explanation of the similarity between the East African and Australian holothurian faunas, according to H. L. Clark, is that each is a southern or southwestern extension of the East Indian fauna. All the Australian species concerned are found on the eastern coast, evidently migrants from the East Indies. The holothurians of the western coast do not resemble those of East Africa as much as those of the northern and northeastern coasts. The holothurians of the northwestern corner of the Indian Ocean comprising the Arabian area, including the Red Sea, the Gulf of Aden, and the Persian Gulf, according to H. L. Clark, have 38 species in a dozen genera, all of which except 1 or 2 of doubtful validity occur in Australia and throughout the East Indies. Around 16 species are endemic to the region which confirms the belief that the Arabian region has been more or less isolated for a long period.

Ceylon, which is somewhat nearer to northwestern Australia than is Mauritius, has around 51 species in contrast to only 28 from Mauritius. As far as species are concerned, only 10 of the species listed from Ceylon are reported as yet from Mauritius, but comparison with Australia shows 26 species in common. Of the Mauritian holothurians only 12 are Australian. In other words, 43 per cent of the Mauritian holothurians and practically 50 per cent of those in Ceylon also occur in Australia.

The East Indian area (Indo-Malay Archipelago) includes the entire West and Southwest Pacific with the eastern part of Indian Ocean, and is considered the "hotbed" of echinoderms, if not of all marine life. There are over 200 species of holothurians represented in some 40 or more genera. The genera of the East Indian and Australian holothurians are otherwise almost identical, according to the findings of H.L. Clark. The two small apodous genera *Anapta* and *Labidoplax* have not yet been found in Australia, whereas all Australian genera occur in the East Indies except the small apodous genus *Trochodota*. According to H. L. Clark, an examination of the list of species found in the two areas reveals that 83 species of the holothurians found in Australia are endemic. Of the remaining 76 species, 67 are East Indian, the remaining 9 being New Zealand or Pacific species. The Australian holothurians may then be said wtih certainty to be of East Indian origin.

From the findings of H. L. Clark and others, it has been pointed out that the East Indies is the place of origin of all the tropical Aspi-

dochirote holothurians that have spread all over the Indian Ocean and the Pacific areas. The over 200 species of holothurians reported from the East Indies with some 40 or more genera proved the above assertion. An area or province where there is the most number of species of animals is usually considered the place of origin of the said animals. Basing it from this hypothesis, we may also conclude that the East Pacific area, particularly the Gulf of California, is the place of origin of the Dendrochirote holothurians.

The North Pacific and South Pacific provinces, which are not included under the two main regions but which may be regarded closer to the polar regions, have the least number of holothurian fauna. The writer listed about a dozen species from the North Pacific and almost none from the South Pacific. (See chart). All the species recorded from the North Pacific are dendrochirotes and one single species of an apodous holothurian, whereas the two species from the South Pacific are aspidochirotes. None of these cold-water forms is endemic to the place. The unequal distribution of the North and South Pacific holothurian fauna is due to the unequal land masses and the differences in the expanses of the ocean. The North Pacific has great continental masses with almost continuous connections between the various temperate and arctic shelf regions, although it runs through climatically different regions. The South Pacific is the opposite of the North, with wide expanses of ocean separating the great shelf regions, and with large tracts of abyssal deep sea.

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TABLE I

THE ZOOGEOGRAPHICAL DISTRIBUTION OF THE LITTORAL INDO-PACIFIC HOLOTHURIOIDEA
ASPIDOCHIROTE HOLOTHURIOIDEA

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria albiventer Semper					x		x				x	x
H. aculeata Semper					x		x					
H. altimensis H. L. Clark							x					
H. anulifera Fisher										x		
H. arenicola Semper	*Holothuria maculata* Brandt *H. rathbuni; Sporadipus (Acolpos) maculatus* Brandt; *Holothuria humilis* Selenka; *H. densipedes* H. L. Clark			x	x		x			x	x	x
H. arenicola var. *boutani* Herouard				x								x
H. argus (Jaeger)	*Bohadschia argus* Jaeger				x		x			x	x	
H. atra Jaeger	*Holothuria sanguinolenta* Bell; *H. radackensis* Ch. & Eys.; *H. amboinensis* Semper; *H. atra* var. *amboinensis* Theel; *Halodeima atra* (Jaeger)			x	x	x	x			x	x	x
H. axiologa H. L. Clark							x					
H. bivittata Mitsukuri	*Holothuria (Bohadschia) bivittata* Panning				x	x						
H. bowensis Ludwig							x					
H. chilensis Semper				x					x			

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria cinerascens (Brandt)	*Stichopus* (*Gymnochirota*) *cinerascens* Brandt; *Holothuria pulchella* Selenka				x		x			x	x	x
H. coluber Semper	*Holothuria pyxis* Selenka; *Halodeima coluber* (Semper)				x		x				x	
H. conica H. L. Clark							x					
H. cubana Ludwig				x								x
H. cumulus H. L. Clark					x		x					
H. curiosa Ludwig	*Holothuria fusco-cinerea* Jaeger				x		x				x	
H. curiosa var. *fuscorubra* Theel				x								
H. curiosa var. *philippinensis* Domantay	*H. fusco-cinerea* var. *philippinensis* Domantay				x							
H. curiosa var. *pervicax*	*H. fusco-cinerea* Jaeger; *H. fusco-cinerea* var. *pervicax*; *H. pervicax* (Selenka)				x						x	
H. dicorona Heding	*Halodeima dicorona* Heding				x							
H. dietrichii Ludwig					x							
H. difficilis Semper	*Actinopyga parvula* H. L. Clark; *Argiodia parvula* Pearson; *Mulleria parvula* Haacke; *Actinopyga difficilis* Deichmann; *Holothuria* (*Microthele*) *difficilis* Panning; *H. frequentiamensis* H. L. Clark				x		x			x	x	x
H. edulis Lesson	*Trepang edulis* Lesson; *Holothuria signata* Ludwig				x	x	x			x	x	

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria erinaceus Semper					x		x				x	
H. flavo-maculata Semper	*Holothuria fusco-coerula* Theel						x			x		
H. fisheri Domantay				x								
H. fossor Deichmann				x			x				x	x
H. fusco-olivacea Fisher							x			x		
H. fusco-punctata Jaeger							x					
H. fusco-rubra Theel				x						x		
H. gelatinosa Heding										x		
H. glaberrima Selenka	*Holothuria lubrica* var. *glaberrima* Selenka; *H. erinaceus* Semper; *H. erinaceus* var. *pygmae* Semper			x	x		x				x	x
H. gracilis Semper					x		x					
H. graeffei Semper	*Holothuria* (*Bohadschia*) *graeffei* Semper				x		x				x	
H. gyrifer Selenka	*Stichopus gyrifer* Selenka; *Holothuria monacaria* Lesson; *H. patagonia; Stichopus* (*Holothuria*) *patagonicus* Perrier			x	x	x	x			x	x	x
H. hamata Pearson											x	
H. hawaiianensis Fisher										x		
H. hartmeyeri Erwe							x				x	
H. hjalmari Deichmann												
H. hypamma H. L. Clark							x					
H. humilis Selenka							x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria homoea H. L. Clark							x					
H. imitans Ludwig	*Holothuria surinamensis* H. L. Clark; *H. floridana* H. L. Clark			x			x			x	x	x
H. immobilis Semper					x		x			x	x	
H. impatiens (Forskal)	*Fistularia impatiens* Forskal; *Holothuria botellus* Selenka *H. aphanes* Lampert; *H. fulva* Q. & G.			x	x		x			x	x	x
H. impatiens var. *concolor* H. L. Clark				x								
H. impatiens var. *ludingae* Domantay				x								
H. inhabilis Selenka	*Holothuria hypamma* H. L. Clark			x			x					
H. inornata Semper				x								
H. insignis Ludwig	*Halodeima insignis* (Ludwig)				x							
H. integra Koehler & Vaney											x	
H. isuga Mitsukuri						x						
H. kurti Ludwig	*Holothuria lamperti* Sluiter				x		x				x	
H. kefersteinii (Selenka)	*Stichopus kefersteinii* Selenka			x								
H. languens Selenka	*Holothuria imitans* Theel			x								x
H. lentiginosa Marenzeller				x								
H. lentiginosa var. *clarionensis* Domantay				x								
H. leucospilota (Brandt)	*Stichopus* (*Gymnochirota*) *leucospilota* Brandt; *Holothuria vagabunda* Selenka			x	x	x	x			x	x	x

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria lubrica Selenka	*Mulleria lubrica* Sluiter; *Holothuria kapiolaniae* Bell; *H. (Microthele) lubrica* Panning			x	x		x			x	x	x
H. lubrica var. *moebii* Ludwig					x	x					x	
H. marenzelleri Ludwig	*Holothuria marenzelleri* var. *theeli* Deichmann			x	x		x				x	
H. marmorata (Jaeger)	*Bohadschia marmorata* Jaeger; *Sporadipus (Colpochirota) ualensis* Brandt; *Holothuria ualensis* Brandt				x		x			x	x	
H. martensii Semper	*Holothuria subverta* H. L. Clark				x		x				x	
H. macroperona H. L. Clark							x					
H. michaelseni Ludwig							x					
H. modesta Ludwig							x				x	
H. moebii Ludwig	*Holothuria lubrica* var. *moebii* Ludwig				x	x	x				x	
H. monacaria (Lesson)	*Holothuria (Psolus) monacaria* Lesson; *H. macleari* Bell; *H. decorata* var. *Marenzeller*; *H. flammea* Q. & G.; *H. fuscopuntata* Q. & G.; *H. fasciola* Q. & G.; *Stichopus gyrifer* Selenka			x	x	x	x			x	x	
H. mortenseni Domantay				x								
H. neozelanica Mortensen			x									

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria notabilis Ludwig	*Holothuria klunzingeri* Lampert						x					
H. olivacea Ludwig							x				x	
H. ocellata (Jaeger)	*Bohadschia ocellata* Jaeger						x				x	
H. oxurropa Sluiter							x				x	
H. papillata Bell				x							x	
H. papillata var. *galapagosensis* Domantay				x								
H. paradoxa (Selenka)					x		x			x	x	
H. paraprinceps Deichmann				x								
H. pardalis Selenka	*Holothuria insignis* Ludwig; *H. lineata* Ludwig; *H. peregrina* Ludwig; *H. subditiva* Selenka; *H. inhabilis* Selenka; *Halodeima pardalis* (Selenka)			x	x		x			x	x	
H. pardalis var. *cebuensis* Domantay					x							
H. peruviana Lesson									x	x		
H. parva Lampert	*Holothuria lubrica* var. *parva* Mitsukuri; *Halodeima parva* (Lampert)										x	
H. pertinax Ludwig	*Halodeima pertinax* (Ludwig)									x		
H. pervicax Selenka					x		x			x	x	
H. platei Ludwig									x			
H. princeps Selenka				x								x
H. prompta Koehler & Vaney											x	
H. pseudofossor Deichmann				x								

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria pulchella Selenka					x		x			x	x	x
H. pulla Selenka	*Microthele aethiops* Brandt; *Holothuria atra* Domantay 1933; *H. pulla* Panning				x		x			x	x	
H. remollescens Lampert							x					
H. rigida (Selenka)	*Stichopus rigidus* Selenka; *Cystipus pleuripus* Haacke;						x					
H. rugosa Ludwig	*Holothuria triremis* Sluiter				x		x			x	x	
H. saecularis Bell					x		x				x	
H. saecularis var. *forskali* Domantay					x							
H. samoana Ludwig										x		
H. sanctori delle Chiaje	*Holothuria farcimen* Selenka				x		x					
H. scabra Jaeger	*H. tigris* Selenka; *H. cadelli* Bell; *H. gallensis* Pearson; *Halodeima scabra* Jaeger				x	x	x			x	x	
H. sluiteri Ludwig										x		
H. spinifera Theel	*H. ocellata* H. L. Clark '38				x		x				x	
H. squamifera Semper					x		x			x		
H. subverta H. L. Clark							x					
H. surinamensis Ludwig				x								x
H. tenuissima Semper					x		x					
H. theeli Deichmann				x								
H. truncata Lampert							x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Holothuria vagabunda Selenka	*Stichopus* (*Gymnochirota*) *leucospilota* Brandt; *Halodeima vagabunda* (Selenka)			x	x	x	x			x	x	x
H. verrucosa Selenka	*Holothuria immobilis* Semper						x				x	
H. vitiensis Semper	*Bohadschia vitiensis* Pearson; *Holothuria tenuissima* Semper; *H.* clemens Ludwig; *H. similis* Semper				x		x			x	x	
H. whitmaei Bell	*Microthele whitmaei* (Bell)									x		
H. zacae Deichmann				x								
Labidodemas americanum Deichmann				x								
L. semperianum Selenka					x		x					
Thelenota ananas (Jaeger)	*Trepang ananas* Jaeger; *Holothuria* (*Thelenota*) *ananas* Brandt; *Stichopus ananas* Semper				x		x			x	x	
T. anax H. L. Clark							x					
Actinopyga echinites (Jaeger)	*Mulleria echinites* Jaeger; *Holothuria* (*Actinopyga*) *echinites* Panning				x		x			x	x	
A. echinites var. *bertini* Domantay				x								
A. formosa (Selenka)	*Mulleria formosa* Selenka				x		x					
A. lecanora (Jaeger)	*Mulleria lecanora* Jaeger			x			x			x	x	
A. lubrica (Sluiter)	*M. lubrica* Sluiter; *Holothuria lubrica* Selenka; *H. lubrica* var. *lubrica* Mitsukuri; *H. kapiolaniae* Bell			x			x	x		x	x	x

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Actinopyga mauritiana (Q. & G.)	*Holothuria mauritiana* Q. & G. *Mulleria mauritiana* Ludwig; *M. varians* Selenka				x		x			x	x	
A. miliaris (Q. & G.)	*Holothuria millaris* Q. & G. *Mulleria miliaris* Brandt; *Holothuria lineolata* Q. & G.				x		x			x	x	
A. nobilis (Selenka)	*Argiodia maculata* (Brandt); *Mulleria nobilis* Selenka; *Holothuria maculata* Brandt			x	x		x			x	x	
A. nobilis var. *tigris* Domantay	*Argiodia maculata* var. *tigris* Domantay				x		x					
A. obesa (Selenka)	*Mulleria obesa* Selenka; *Holothuria* (*Actinopyga*) *obesa* (Selenka)				x		x			x	x	
A. parvula (Selenka)	*M. parvula* Selenka; *Holothuria parvula* (Selenka); *H. captiva* Ludwig; *H. abbreviata* Heilprin.			x	x		x			x	x	x
A. serratidens Pearson	*Holothuria* (*Actinopyga*) *serratidens* Pearson				x						x	
Microthele excellens (Ludwig)	*Mulleria excellens* Ludwig; *Argiodia excellens* Pearson									x		
Stichopus badionatus Selenka	*Stichopus haytiensis* Semper; *S. mobii* Semper; *S. errans* Ludwig; *S. maculatus* Greef; *S. assimilis* Bell; *S. diaboli* Heilprin; *S. badionatus* forma *diaboli*			x	x	x	x					x

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Stichopus californicus (Stimpson)	*Holothuria californicus* Stimpson; *Parastichopus californicus* (Stimpson)			x				x				
S. chloronotus Brandt	*Stichopus cylindricus* Haacke; *S. (Perideris) chloronotus* Brandt			x	x	x	x	x		x	x	
S. ellipes H. L. Clark							x					
S. fuscus Ludwig				x								
S. horrens Selenka	*S. godeffroyi* Semper; *S. godeffroyi* var. *pigmaeus* Semper; *S. tropicalis* Fisher				x		x			x	x	
S. japonicus Selenka	*Holothuria armata* Selenka; *Stichopus japonicus* var. *typicus* Theel; *S. armatus* Augustin; *S. roseus* Augustin				x	x		x		x	x	
S. ludwigii Erwe							x					
S. mollis (Hutton)	*H. mollis* Hutton; *Stichopus simulans* Dendy & Hindle; *Stichopus simultans* Erwe		x				x					
S. naso Semper					x		x				x	
S. paradoxus Lampert							x					
S. parvimensis H. L. Clark	*Parastichopus parvimensis* (H. L. Clark)			x				x				
S. sitchaensis Ludwig		x				x						
S. variegatus Semper				x	x	x	x			x	x	
S. variegatus var. *hermanni* Semper					x		x					

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Parastichopus johnsoni Theel				x				x				
P. nigripunctatus (Augustin)	*Stichopus depressus* Augustin					x						
DENDROCHIROTE HOLOTHURIOIDEA												
Acolochirus challengeri (Theel)							x					
Actinocucumis difficilis Bell							x					
A. longipedes H. L. Clark							x					
A. quinquangularis (Sluiter)	*Pseudocucumis quinquangularis* Sluiter						x					
A. typicus Ludwig							x					
A. peruviana (Lesson)	*Holothuria peruviana* Lesson; *Trepang peruviana* Jaeger; *Anaperus peruanus* Troschel; *Thyone peruana* Selenka			x					x			
Apentamera lepra Deichmann				x								
Apentacta spinosa Q. & G.							x					
Athyonidium chilensis (Semper)	*Thyone* (*Stolus*) *chilensis* Semper; *Eucyclus duplicatus* Lampert			x					x			
A. deichmannae Domantay				x								
Athyone glasselli (Deichmann)	*Thyone glasselli* Deichmann; *Thyone briareus* (Lesueur)			x								
Cucumaria adela H. L. Clark							x					
C. analis var. *sonorae* Domantay				x								
C. bicolor Bell							x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Cucumaria calcigera (Stimpson)	*Pentacta calcigera* Stimpson					x						x
C. calcigera var. *catalinensis* Domantay				x								
C. californica Semper				x		x		x				
C. canescens Semper					x							
C. citrea Semper					x							
C. chilensis Ludwig				x				x	x			
C. chronhjelmi Theel		x				x						
C. conjungens Semper					x							
C. crax Deichmann				x								
C. crax var. *dotae* Domantay				x								
C. crocea var. *croceoides* (Vaney)				x								
C. curata Cowles				x								
C. dubiosa Semper	*Cucumaria leonina* Ludwig			x					x			
C. elongata Duben & Koren				x								x
C. elongata var. *californica* Domantay				x								
C. godeffroyi Semper									x			
C. japonica Semper						x						
C. lamperti Ohshima						x						
C. lissoplaca H. L. Clark		x		x				x				
C. longipeda Semper					x							
C. lubrica H. L. Clark		x										
C. maculata Semper					x							

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Cen-
Cucumaria mirabilis Theel					x		x					
C. miniata (Brandt)	*Cladodactyla* (*Polyclados*) *miniata* Brandt; *Cucumaria albida* Selenka; *C. japonica* Lampert	x		x		x		x				
C. mosaica Kohler & Vaney						x						
C. piperata (Stimpson)	*Pentacta piperata* Stimpson	x		x				x				
C. populifera (Stimpson)	*Pentacta populifera* Stimpson	x		x				x				
C. pseudocurata Deichmann				x								
C. saxecola Brady & Robertson				x								
C. semperi Bell							x					
C. squamatoides H. L. Clark	*Cucumaria squamata* Joshua & Creed						x					
C. steineni Ludwig				x								
C. striata Joshua & Creed							x					
C. sykion (Lampert)	*Samperia sykion* Lampert; *Cucumaria sykion* Theel; *C. insolens* Theel; *C. leonina* var. *africana* Britten			x			x				x	x
C. trachyplaca H. L. Clark		x						x				
C. tricolor Sluiter					x							
C. vegae Theel		x						x				
C. versicolor Semper					x							
Discucumaria africana (Semper)	*Cucumaria africana* Semper; *Pseudocucumis theeli* Ludwig; *Ps. africana* Ludwig						x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Euthyonidium ovulum (Selenka)	*Stolus ovulum* Selenka; *Thyone ovulum* Deichmann			x					x			
E. veleronis Deichmann				x								
Eupentacta pseudoquinquesemita Deichmann				x				x				
E. pseudoquinquesemita var. *rosae* Domantay				x								
E. quinquesemita (Selenka)				x								
E. quinquesemita var. *cari* Domantay				x								
Echinocucumis adversaria Semper					x							
Thorsonia fusiformis Heding											x	
Neothyone gibber (Selenka)	*Stolus gibber* Selenka; *Thyone gibber* Semper; *Th. similis* Ludwig			x					x			
N. gibbosa Deichmann				x					x			
N. panamensis (Ludwig)				x					x			
N. villadolidi Domantay				x								
N. sacellus (Selenka)				x								
Neopentamera anexigua Deichmann				x								
Leptopentacta grisea H. L. Clark							x					
L. maccullochae Domantay				x								
L. nina Deichmann				x								
L. nova Deichmann				x								

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Leptopentacta nova var. *colombiana* Domantay				x								
L. panamica Deichmann				x								
Ocnus pygmaeus Semper				x								
O. imbricatus Semper				x								
Lipotrapeza dearmatus (Dendy & Hindle)	*Phyllophorus dearmatus* Dendy & Hindle;						x					
L. ventripes (Joshua & Creed)	*P. ventripes* Joshua & Creed						x					
L. vestiens (Joshua)	*P. vestiens* Joshua						x					
Mensamaria bicolumnata (Dendy & Hindle)	*Pseudocucumis bicolumnatus* Dendy & Hindle						x					
M. intercedens (Lampert)	*P. intercedens* Lampert; *P. eurystichus* H. L. Clark						x					
M. thomsoni (Hutton)	*Cucumaria thomsoni* Hutton; *C. mutans* Joshua; *Pseudocucumis thomsoni* Mortensen						x					
Pachythyone lugubris (Deichmann)	*Thyone lugubris* Deichmann			x								
P. pseudolugubris Deichmann				x								
P. rubra (H. L. Clark)	*Thyone rubra* H. L. Clark			x				x				
Pattalus mollis Selenka	*Pattalus mollis* Selenka; *Thyonidium peruanum* Semper; *T. molle* Semper; *Anaperus peruana* Verrill; *Pattalus peruana* Verrill; *Phyllophorus peruvianus* H. L. Clark								x			

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Pentacta australis (Ludwig)	*Colochirus australis* Ludwig; *C. doliolum* Erwe						x					
P. bobustoides Ekman							x					
P. challengeri (Theel)	*Colochirus challengeri* Theel						x					
P. crassa Ekman	*Colochirus crassa* Ekman						x					
P. cucumis Semper	*C. cucumis* Semper						x					
P. dispar Lampert	*C. dispar* Lampert						x					
P. doliolum (Pallas)	*Actinia doliolum* Pallas; *Colochirus doliolum* v. Marenzeller; *Cucumaria discolor* Theel						x				x	x
P. jagorii (Semper)	*Colochirus jagorii* Semper						x					
P. minuta (Ludwig)	*C. minutus* Ludwig						x					
P. peruana (Semper)	*C. peruanus* Semper			x					x			
P. quadrangularis (Troschel)	*C. quadrangularis* Troschel; *C. coerulcus* Semper; *Holothuria quadrangularis* Lesson; *Pentacta coerulea* H. L. Clark						x					
P. tuberculosa Q. & G.	*Holothuria tuberculosa* Q. & G.; *Colochirus tuberculosus* Semper; *C. anceps* Semper; *Pentacta tuberculosus* H. L. Clark						x					
P. trimorpha H. L. Clark							x					
P. robusta Ostergren	*Colochirus robustus* Ostergren; *C. squamatus* Sluiter						x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Pentathyone mirabilis (Ludwig)	*Thyone mirabilis* Ludwig; *Cucumaria areolata* Ekman						x					
Orbithyone megapodia H. L. Clark							x					
Pentamera beebei Deichmann				x								
P. charlottae Deichmann		x		x				x				
P. chierchia (Ludwig)				x					x			
P. chiloensis (Ludwig)	*Cucumaria chiloensis* Ludwig; *C. tabulifera* R. Perrier			x				x	x			
P. panamensis (Verrill)	*Ocnus panamensis* Verrill			x								
P. pseudocalcigera Deichmann				x				x				
P. pseudopopulifera Deichmann				x				x				
P. zacae Deichmann				x								
Pseudocolochirus axiologus H. L. Clark	*Colochirus axiologus* H. L. Clark						x					
Pseudocucumis aciculus (Semper)	*Cucumaria acicula* Semper; *Pseudocucumis acicula* Ludwig				x		x					
P. africanus (Semper)	*Cucumaria africana* Semper; *Pseudocucumis theeli* Ludwig					x	x				x	
P. eurystichus H. L. Clark							x					
P. roxasi Domantay					x							
Psolicucumis apneumona Heding	*Cucumaria nocturna* Sluiter										x	
Phyllophorus aculeatus Ludwig				x								
P. brocki Ludwig							x					

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Phyllophorus cebuensis (Semper)	*Thyonidium cebuense* Semper				x		x					
P. cornus Heding					x							
P. holothurioides Ludwig							x					
P. magnus Ludwig					x							
P. panningi Domantay				x								
P. parvipedes H. L. Clark							x					
P. perspicillum Selenka					x							
P. proteus Bell							x					
P. schmeltzii (Ludwig)	*Thyonidium schmeltzii* Ludwig						x					
P. thyonoides H. L. Clark							x					
P. trapezus H. L. Clark							x					
P. zacae Deichmann				x								
Psolus antarticus Philippi				x	x							x
Ps. boholensis Semper					x							
Ps. boholensis pandanensis Semper					x							
Ps. buchannani Domantay				x								
Ps. chitonoides H. L. Clark		x		x				x				
Ps. complanatus Semper					x							
Ps. diomedae Ludwig				x								
Ps. japonicus Ostergren						x						
Ps. minutus H. L. Clark							x					
Ps. patagonicus Ekman									x			

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Psolus pourtalesi Theel				x								
Ps. spinuliferus H. L. Clark							x					
Ps. squamatus var. *segregatus* Perrier	*Psolus squamatus* H. L. Clark; *Ps. pauper* Ludwig	x						x	x			
Ps. valvatus Ostergren				x								
Psolidium convergens R. Perrier	*Cucumaria convergens* Joshua						x					
Ps. dorsipes Ludwig				x					x			
Ps. dorsipes var. *gadieli* Domantay				x								
Ps. ekmani Deichmann				x								
Ps. cubullatum Deichmann				x								
Ps. granuliferum H. L. Clark				x			x					
Ps. nigrescens H. L. Clark							x					
Ps. planum Deichmann				x					x			
Thyone alba H. L. Clark	*Thyone dura* Koehler & Vaney						x					
Th. axiologa H. L. Clark							x					
Th. belli Ludwig				x								
Th. benti Deichmann				x				x				
Th. benti var. *zacae* Deichmann				x								
Th. bidentata Deichmann				x								
Th. buccalis Stimpson	*Stolus sacellus* Selenka; *Thyone rigida* Semper; *Stereoderma murrayi* Bell; *Thyone sacellus* Erwe						x					
Th. ceciliae Domantay				x								
Th. colnettensis Domantay				x								

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Thyone festina Kehler & Vaney											x	
Th. gibber (Selenka)	*Stolus gibber* Selenka; *Thyone similis* Ludwig			x								
Th. gazellae (Lampert)	*Colochirus gazellae* Lampert						x					
Th. glasseli Deichmann				x								
Th. grisea H. L. Clark							x					
Th. inermis var. *coronensis* Domantay				x								
Th. lechleri Lampert				x								
Th. lugubris Deichmann				x								
Th. micra H. L. Clark							x					
Th. minuta H. L. Clark							x					
Th. mirabilis Ludwig							x					
Th. neofusus Deichmann				x								
Th. nigra Joshua & Creed							x					
Th. okeni Bell							x					
Th. parafusus Deichmann				x								
Th. papuensis (Theel)	*Thyone fusus* var. *papuensis* Theel; *Thyone castanea* Lampert						x					
Th. perforata H. L. Clark							x					
Th. perissa H. L. Clark							x					
Th. sacellus (Selenka)	*Stolus sacellus* Selenka						x				x	
Th. sluiteri Lampert							x					
Th. nigida Semper					x							

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Thyone strangeri Deichmann				x								
Th. turricata var. *lourdesae* Domantay				x								
Th. unisemita (Stimpson)				x								
Th. villosa Semper					x							
Thyonacta mexicana Deichmann				x								
Thyonepsolus beebei Deichmann				x								
Th. hancocki Deichmann				x								
Th. nutriens H. L. Clark	*Psolidium nutriens* Ludwig			x				x				
Th. veleronis Deichmann				x								
Thyonidium alexandri Fisher										x		
Th. cebuense Semper					x							
Th. hawaiianse Fisher										x		
Staurothyone distincta H. L. Clark							x					
S. inconspicua (Bell)	*Cucumaria inconspicua* Bell						x					
S. vercoi (Joshua & Creed)	*Thyone vercoi* Joshua & Creed						x					
Stolinus cataphractus Selenka	*Psolus (Hyposolus) ambulator* Bell; *Theelia ambulatrix* Erwe						x					
Urodemas hamatum Sluiter	*Phyllophorus hamatus* Sluiter						x					
U. perspicillum Selenka							x					
U. schmeltzii (Ludwig)	*Thyonidium schmeltzii* Ludwig						x					
Colochirus anceps Selenka					x							

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Colochirus coeruleus Semper					x							
C. crassus var. *dyscritus* Heding					x							
C. cucumis Semper					x							
C. cylindricus Semper					x							
C. loppenthini Heding											x	
C. quadrangularis Lesson					x							
C. tuberculosus Q. & G.					x							
C. viridis Semper					x							
Haplodactyla molpadioides Semper					x							
H. molpadioides pellucida Selenka					x							
APODOUS HOLOTHURIOIDEA												
Aphelodactyla irania Heding											x	
Molpadia altimensis H. L. Clark						x	x					
M. antartica (Theel)	*Trochostoma antarticum* Theel		x			x						
M. arenicola (Stimpson)				x								
M. dissimilis H. L. Clark							x					
M. intermedia (Ludwig)				x								
M. muscullus Risso				x								
M. productamensis H. L. Clark								x				

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Acaudina delicata H. L. Clark	*Aphelodactyla delicata* H. L. Clark						x					
A. leucoprocta H. L. Clark	*Aphelodactyla leucoprocta* H. L. Clark						x					
Paracaudina australis Semper	*Molpadia australis* Semper; *Pseudocaudina australis* Heding						x					
P. chilensis (J. Muller)	*Molpadia chilensis* Muller; *Caudina chilensis* (J. Muller)		x	x	x	x	x	x	x			
P. chilensis var. *ransonnetii*	*Caudina ransonnetii* v. Marenzeller; *C. chilensis* J. Muller; *Pseudocaudina ransonnetii* Heding *Paracaudina ransonnetti* Heding			x		x	x	x	x			
P. clarki Domantay				x								
P. tetrapora H. L. Clark	*Caudina tetrapora* H. L. Clark						x					
Ceraplectana buchannani Domantay				x								
Gephyrothuria alcocki Koehler & Vaney				x								
G. velerosa Domantay				x								

SYNAPTIDAE

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Euapta godeffroyi (Semper)	*Synapta godeffroyi* Semper			x	x		x			x	x	x
Opheodesoma australiensis Heding	*Opheodesoma ramispicula* Heding				x		x					
O. africana Heding											x	
O. glabra (Semper)	*Synapta glabra* Semper				x		x			x		
O. grisea (Semper)	*Synapta grisea* Semper				x		x			x	x	
O. spectabilis Fisher				x	x					x	x	
O. spectabilis var. *puertogalerae* Domantay					x							
Chondrocloea indivisa (Semper)	*Synapta indivisa* Semper				x		x					
C. macra H. L. Clark							x					
C. nigra (Semper)	*Synapta nigra* Semper; *Synaptula nigra* H. L. Clark				x		x					
C. recta (Semper)	*Synapta recta* Semper				x		x					
Anapta amurensis Britten						x						
A. gracilis (Semper)	*Synapta gracilis* Semper				x					x		
A. fallax Lampert										x		
A. inermis Fisher										x		
A. ludwigi Britten						x						
A. subtilis Sluiter				x								
Leptosynapta dolabrifera (Stimpson)	*Synapta dolabrifera* Stimpson; *Leptosynapta variopatina* Heding; *L. jaksonia* Heding						x			x		

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Leptosynapta circopatina H. L. Clark				x								x
L. dyscrita H. L. Clark							x					
L. ictinodes H. L. Clark							x			x		
L. inhaerens (O. F. Muller)	*Holothuria inhaerens* O. F. Muller	x		x		x		x				x
L. latipatina H. L. Clark				x			x					
L. ooplax (v. Marenzeller)	*Synapta ooplax* v. Marenzeller					x	x			x		x
Leptosynapta parvipatina H. L. Clark							x					
Labidoplax dubia (Semper)	*Synapta dubia* Semper					x				x		
Protankyra aculeata (Theel)	*Synapta aculeata* Theel					x						
P. autopista (v. Marenzeller)	*Synapta autopista* v. Marenzeller					x						
P. albatrosi Fisher						x						
P. bidentata (Woodward & Barrett)	*Synapta bidentata* Woodward & Barrett					x						
P. bisperforata H. L. Clark							x					
P. insolens (Theel)	*Synapta insolens* Theel						x					
P. kagoshimensis Ohshima						x						
P. magnihamulae Heding											x	
P. similis (Semper)	*Synapta similis* Semper				x		x			x		
P. verrilli (Theel)	*Synapta verrilli* Theel						x					
Polyplectana kefersteinii (Selenka)	*Synapta kefersteinii* Selenka			x	x		x			x		x
P. samoae Heding										x		
P. unispicula Heding										x		

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Synapta beselii (Theel)					x							
S. dubia Semper					x							
S. innominata Ludwig					x							
S. maculata (Ch. & Eys.)	*Holothuria maculata* Ch. & Eys.			x	x	x	x			x	x	
S. maculata var. *andreae* Heding											x	
S. modesta Semper					x							
S. oceanica (Lesson)	*Holothuria oceanica* Lesson; *Synapta oceanica* Jaeger; *S. maculata* Clark 1908									x	x	
S. pseudo-digitata Semper	*Protankyra pseudo-digitata* (Semper)				x						x	
S. reticulata Semper					x							
Synaptula nigra (Semper)	*Synapta nigra* Semper				x		x			x		
S. mortenseni Heding										x	x	
S. recta (Semper)	*Synapta recta* Semper				x		x			x		
S. tualensis Heding					x							
S. psara Sluiter							x			x		
Patinapta crosslandii Heding										x	x	
CHIRIDOTIDAE												
Chiridota albatrossii Edwards						x						
Ch. dubia Semper					x							
Ch. discolor Eschscholts	*Liosoma sitchaense* Brandt					x						
Ch. gigas Dendy & Hindle							x					

Scientific Name	Synonym	North Pacific	South Pacific	East Pacific	West Pacific	N.W. Pacific	S.W. Pacific	N.E. Pacific	S.E. Pacific	Central Pacific	Indian Ocean	Atlantic Ocean
Chiridota hawaiiansis Fisher										x		
Ch. incongrua Semper					x							
Ch. ingens Joshua							x					
Ch. magna H. L. Clark							x					
Ch. regalis H. L. Clark						x						
Ch. rigida Semper				x	x		x			x	x	
Ch. panaensis Semper					x							
Ch. uniserialis Fisher						x						
Ch. uniserialis var. *clementensis* Domantay				x								
Ch. variabilis Semper					x							
Ch. violacea John Muller				x								
Polycheira rufescens (Brandt)	*Chiridota rufescens* Brandt				x	x	x			x	x	
Taeniogyrus australianus (Stimpson)	*Chiridota australiana* Stimpson				x		x					
T. cidaridis Ohshima						x	x					
T. heterosigmus Heding							x					
Trochodota allani Joshua	*Taeniogyrus allani* Joshua						x					
T. maculata H. L. Clark							x					
T. roebucki Joshua							x					
T. rosea Ohshima						x						
Scoliodota japonica (v. Marenzeller)	*Chiridota japonica* v. Marenzeller					x						
Scoliorhapis theeli Heding	*Scoliodota theeli* Heding						x					
Tozodora pacifica Ohshima				x		x						

Fig. 1-Aspidochirote Holothurioidea

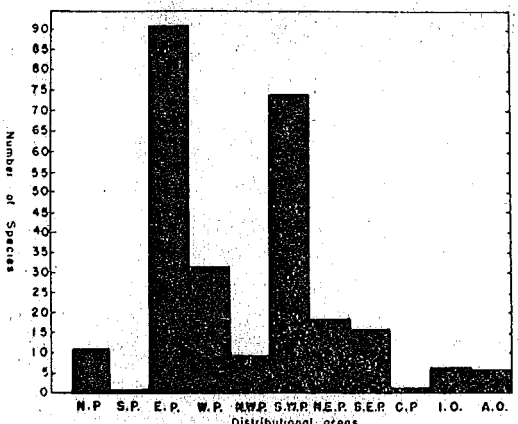

Fig. 2-Dendrochirote Holothurioidea

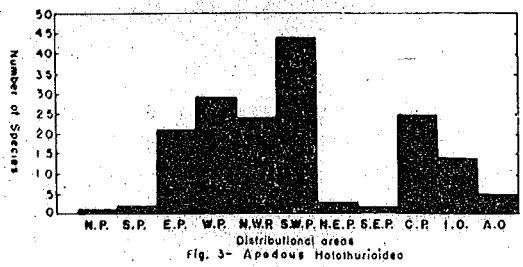

Fig. 3- Apodous Holothurioidea

Zoogeographical Distribution of the Indo-Pacific Littoral Holothurioidea

Legend

N.P. = North Pacific
S.P. = South Pacific
E.P. = East Pacific
W.P. = West Pacific
N.W.P.=Northwest Pacific
S.W.P.=Southwest Pacific
N.E.P.=Northeast Pacific
S.E.P=Southeast Pacific
C.P. = Central Pacific
I.O. = Indian Ocean
A.O.= Atlantic Ocean●

● Species recorded from both Atlantic and Indo-Pacific Oceans