Abundance of Giant Clam in Coral Reef Ecosystem at Pari Island: a Population Comparison of 2003's to 1984's Data

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A survey on abundance of Giant Clam in coral reef ecosystem at Pari Island has not been done long after the first survey on 1984. The survey itself is very important because Indonesian government has been release SK Menteri Kehutanan No. 12/Kpts-II/1987 and PP No. 7. th.1999 that states the giant clam is protected species. Indonesia has seven species of giant clam out of nine species presence in the world, i.e. *Tridacna gigas*, *T.crocea*, *T. maxima*, *T. derasa*, *T. squamosa*, *Hippopus hippopus*, and *H. porcellanus* (Rohmimohtarto dkk, 1987, Knop, 1996)

This second survey has been done on 24-26 October 2003, nineteen years after the first survey. The survey area is along coral reef ecosystem surrounding Pari Island (Pari Atol) from intertidal area to subtidal area. SCUBA apparatus was used to observe the subtidal area. The method use was belt transect that were positioned as much as possible similar with that of the first survey (14 transects) with some additional transects (total number of transects was 18). The belt width (transect strip) is about 2,5 m to the right and left of the transect lines (English *et.al*., 1994).

The number of species found was the same with that of the previous survey i.e. *T. crocea*, *T. maxima*, *T. maxima*, *T. squamosa*, and *H. hippopus*, but there are some variation in number of individual. Species which dominated the population was *T. crocea* with 78 individual (1984: 53 individual), followed in the second rank by *H. hippopus* with only four individual (1984: 25 individual), and *T. maxima* and *T. squamosa* with only one individual presence (1984: three individual subsequently). The reducing number was very abrubt for the species of *H. hippopus* which was 25 individual to four individual only. GPS position of each transect position and the species abundance can be seen in table 1.

The attendance frequency of species recorded were *T. crocea* 77.78%, *H. hippopus* 22.22%, *T. maxima* 5.55% and *T. squamosa* 5.55%. With total transect was 6,338 m and total area of survey about 31,692 m^2 (compare to 1984: 13.036m^2) , we can only found one giant clam every 76 m or within an area of 381 m^2. In other word, we can say that density of giant clams was 0.26/100m^2 (compare to 1984: 0.64/100m^2). Comparison to the recent status of these species in the world according to CITES-listed species database (UNEP-WCMC, 2003) are: lower risk - least concern (LR/lc) for *T. crocea* (Red list 1996), lower risk - conservation dependent (LR/cd) for *H. hippopus* (Red List 2000), and LR/cd for *T. maxima* and *T. squamosa* (Red List 2000). From the survey data above, it seems that the population density was very low. Although an island data couldn't be compared right away to the world data, we can see that the trend is the same i.e. reducing number.

Naturally, member of Molluscs always became a favorite prey of others species, furthermore this sessile species is very easy to be harvested by traditional fisheries. With that condition and the long lifespan of the species of giant clam, reducing number is the rule. World data on Molluscs suggest the same trend. Among 70,000 described species presence in the World, only 2098 species of Molluscs has been evaluated by IUCN in 2003. Among evaluated species there are 967 species (46%) have been categorized as threatened species (IUCN, 2003). It means that 1,38% Molluscs species in the world is threatened.

References

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Tabel 1. *Abundance of Giant Clam in Pari Island in 2003*

Transect code	Transect Direction	Length (m)	Transect Area (m^2)	Initial Coordinate	Final Coordinate	Species	Individual Number	Remarck
T1	NS	410	2050	5º51'17.2" LS 106º37'30.3" BT	5º51'03.3 LS 106º37'22.8 BT			None
T2	EW	600	3000	5º51'17.0 LS 106º37'52.5" BT	5º51'15.17" LS 106º39'07.7 BT	*Tridacna Crocea*	1	
T3	NS	560	2800	5º52'06.1" LS 106º36'47.9" BT	5º52'06.0" LS 106º36'47.2" BT	*T.crocea*	1	
T4	NS	200	1000	5º57'49.9" LS 106º34'55.3" BT	5º51'50.8" 106º34'51.0" BT	*T.crocea*	3	
T5	EW	620	3100	5º51'58.9" LS 106º35'37.8" BT	5º51'54.8" LS 106º35'46.7" BT	*T.crocea*	19	
T6	EW	572,4	2862	5º51'29.6" LS 106º34'31.2" BT	5º51'29.7" LS 106º34'30.7" BT	*H.hippopus* *T.crocea*	1 3	
T7	EW	260	1300		5º51'08.4" LS 106º35'7.5 BT	*T.crocea*	3	
T8	EW	500	2500	5º51'25.3" LS 106º35'24.5" BT	5º51'21.1" LS 106º35'24.5" BT			None
T9	NS	300	1500	5º51'51.8" LS 106º35'33.4" BT	5º51'59.8" LS 106º35'34.3" BT	*H.hippopus* *T.crocea*	1 3	
T10	NS	220	1100	5º52'15.3" LS 106º36'2.6" BT	5º51'15.3" LS 106º35'56.7" BT	*H.hippopus* *T.squamosa*	2 1	
T11	NS	700	3500	5º51'11.5" LS 106º36'16.6" BT		*T.crocea* *T.maxima*	7 1	
T12	NS	200	1000	5º51'20.6" LS 106º36'34.2" BT	5º51'8.4 LS 106º36'40.3 BT	*H.hippopus*	1	
T13	NS	250	1250	5º51'18.0" LS 106º36'24.0" BT		*T.crocea*	2	Lagune
T14	NS	236	1180	5º50'59.1" LS 106º35'13.3" BT	5º50'59.1" LS 106º35'13.2" BT			Additional Transect NS Pulau Tikus
T15	NS	300	1500	5º31'33.3" LS 106º35'21.8" BT	5º51'33.3" LS 106º35'21.7" BT	*T.crocea*	4	Additional Transect NS Soa Besar Reef
T16	NS	110	550		5º51'55.2" LS 106º35'34.5" BT	*T.crocea*	6	Additional Transect near T9 to reef face
T17	NS	160	800		5º51'57.7" LS 106º35'33.6 BT	*T.crocea*	22	
T18	NS	140	700		5º51'39.8" LS 106º35'34.3" BT	*T.crocea*	2	