

REFERENCES

- Amirthalingham, C. 1928. On lunar periodicity of *Pecten opercularis* near Plymouth in 1927-28. *J. mar. biol. Ass. U.K.* 15(2): 605-641.
- Baird, R.H. 1966. Notes on a scallop (*Pecten maximus*) population in Holyhead harbour. *J. mar. biol. Ass. U.K.* 46(1): 33-47.
- Carlander, K. 1969. *Handbook of freshwater fishery biology*. Vol. 1. Iowa State University Press, quoted in Pauly, D. Studying single-species dynamics in a tropical multispecies context. In D. Pauly and G.I. Murphy (eds.), *Theory and management of tropical fisheries*. ICLARM Conference Proceedings No. 9, pp. 33-70. Manila: ICLARM, 1982.
- Castagna, M., and Duggan, W. 1971. Rearing the bay scallop, *Aequipecten irradians*. *Proc. Natl. Shellfish Assoc.* 61: 80-85.
- Christensen, A.M., and McDermott, J.J. 1958. Life history and biology of the oyster crab, *Pinnotheres ostreum* Say. *Biol. Bull. Mar. Biol. Lab. Woods Hole* 114: 146-179.
- Chungyampin, S. 1983. Some biological data and background of common scallop (*Amusium pleuronectes*) in Thailand. Paper presented at the Country Workshop on Shellfish Culture, January 19-21, 1983, Bangkok. 11 pp.

- Conan, G., and Shafee, M.S. 1978. Growth and biannual recruitment of the black scallop, *Chlamys varia* (L.) in Lanveoc area, Bay of Brest. *J. Exp. Mar. Biol. Ecol.* 35: 59-71.
- Del Norte, A.G.C. 1986. Some aspects of the growth, recruitment, mortality and reproduction of the Asian moon scallop, *Amusium pleuronectes* (Linne) in the Lingayen Gulf, Philippines. Master's Thesis, University of the Philippines, Diliman, Quezon City. 117 pp.
- Department of Fisheries, Thailand. 1988. **Fisheries Record of Thailand 1986.** Report No. 2/1988, Fisheries Statistics Sub-Division, Fishery Policy and Planning Division. Bangkok: Department of Fisheries.
- Dickie, L.M. 1955. Fluctuations in abundance of the giant scallop *Placopecten magellanicus* (Gmelin) in the Digby area of the Bay of Fundy. *J. Fish. Res. Bd. Can.* 12(6): 797-857.
- Dredge, M.C.L. 1981. Reproductive biology of the saucer scallop, *Amusium japonicum balloti* (Bernardi) in Central Queensland Waters. *Aust. J. Mar. Freshw. Res.* 32(5): 775-787.
- FAO. 1987. **Yearbook of fisheries statistics, 1985.** Rome: FAO.
- Fretter, V., and Graham, A. 1964. Reproduction. In K.M. Wilbur and C.M. Yonge (eds.), *Physiology of mollusca*, pp. 127-164. New York: Academic Press.

- Gayanilo, F.C., Jr., Soriano, M., and Pauly, D. 1988. A draft guide to the Compleat ELEFAN. ICLARM Software 2. Manila: ICLARM. 65 pp.
- George, K., and Banerji, S.K. 1964. Age and growth studies on the Indian mackerel *Rastrelliger kanagurta* (Cuvier) with special reference to length frequency data collected at Cochin. *Ind. J. Fish.* 11(2): 621-638, quoted in Pauly, D. Studying single-species dynamics in a tropical multispecies context. In D. Pauly and G.I. Murphy (eds.), *Theory and management of tropical fisheries*. ICLARM conference Proceedings No. 9, pp. 33-70. Manila: ICLARM, 1982.
- Giese, A.C. 1959. Comparative physiology: Annual reproductive cycles of marine invertebrates. *Ann. Rev. Physiol.* 21: 547-576, quoted in Dredge, M.C.L. Reproductive biology of the saucer scallop, *Amusium japonicum balloti* (Bernardi) in Central Queensland Waters. *Aust. J. Mar. Freshw. Res.* 32: 775-787, 1981.
- Gutsell, J.S. 1931. Natural history of the bay scallop (*Pecten irradians*). *Bull. U.S. Bur. Fish.* 46: 569-632.
- Habe, T. 1964. Notes on the species of the genus *Amusium* (Mollusca). *Bull. Nat. Sci. Mus. Tokyo* 7(1): 1-7.
- Heald, D.L. 1978. A successful marking method for the saucer *Amusium balloti* (Bernardi). *Aust. J. Mar. Freshw. Res.* 29: 845-851.

- Heald, D.L., and Caputi, N. 1981. Some aspects of growth, recruitment and reproduction in the southern saucer scallop, *Amusium balloti* (Bernardi, 1861) in Shark Bay, Western Australia. *Fish. Res. Bull. West. Aust.* 25: 1-33.
- Humason, G.L. 1979. *Animal Tissue Techniques*. 2nd ed. San Francisco: W.H. Freeman and Company. 569 pp.
- Jones, R. 1981. The use of length-composition data in fish stock assessment (with notes on VPA and cohort analysis). *FAO Fish. Circ.* 734: 55 pp.
- Leighton, D.L., and Phleger, C.F. 1981. The suitability of the purple-hinge rock scallop to marine aquaculture. *Calif. Sea Grant College Prog. Sea Grant Publ. Tech. T-CSGCP-001*: 85 pp.
- Llana, M.E.G. 1979. Notes on the occurrence of the pea crab (*Pinnotheres* sp.) in the Asian moon scallop (*Amusium pleuronectes*, Linne). *Fish. Res. J. Philipp.* 4(2): 41-43.
- _____. 1988. Growth, mortality and recruitment of the Asian moon scallop (*Amusium pleuronectes*) in the Visayan Sea, Philippines. In S.C. Venema, J.M. Christensen, and D. Pauly (eds.), *Contributions to tropical fisheries biology: Papers by the participants of FAO/DANIDA follow-up training courses*. *FAO Fish. Report* 389, pp. 16-24. Rome: FAO.
- Llana, M.G.A., and Aprieto, V.L. 1980. Reproductive biology of the Asian moon scallop *Amusium pleuronectes*. *Fish. Res. J. Philipp.* 5(2): 1-10.

- Lopez, M.D.G. 1982. Pea crab infestation in the brown mussel, *Modilus metcalfei* Hanley. *Kalikasan, Philipp. J. Biol.* 11(1): 98-110.
- Lovatelli, A. 1987. Status of scallop farming: A review of techniques. NACA-SF/WP/87/1, Network of Aquaculture Centres in Asia, Bangkok. 22 pp.
- MacDuff, M. 1975. A study of some aspects of the population ecology and reproductive biology of *Amusim pleuronectes* L. in coastal waters off Townsville. B.Sc. Hons. Thesis, James Cook University of North Queensland, quoted in Dredge, M.C.L. Reproductive biology of the saucer scallop, *Amusium japonicum balloti* (Bernardi) in Central Queensland Waters. *Aust. J. Mar. Freshw. Res.* 32(5): 775-787, 1981.
- Mason, J. 1957. The age and growth of the scallop, *Pecten maximus* (L.) in Manx waters. *J. mar. biol. Ass. U.K.* 36: 473-492.
- McKoy, J.L. 1980. Biology exploitation and management of giant clams (Tridacnidae) in the Kingdom of Tonga. *Fish. Bull.* 1: 5-61.
- Merril, A.S., Posgay, J.A., and Nichy, F.E. 1966. Annual marks on shell and ligament of sea scallop (*Placopecten magellanicus*). *Fishery Bull. Fish. Wildl. Serv. U.S.* 65: 299-311, quoted in Heald, D.I., and Caputi, N. Some aspects of growth, recruitment and reproduction in the southern saucer scallop, *Amusium balloti* (Bernardi, 1861) in Shark Bay, Western Australia. *Fish. Res. Bull. West. Aust.* 25: 1-33, 1981.

- Mottet, M.G. 1979. A review of the fishery biology and culture of scallops. *Washington Dept. Fish. Tech. Rep. No. 39*: 292 pp.
- Munro, J.L. 1983. Epilogue: Progress in coral reef fisheries research, 1973-1982. In J.L. Munro (ed.), *Caribbean coral reef fishery resources*. ICLARM Studies and reviews No. 7, pp. 249-265. Manila: ICLARM.
- Munro, J.L., and Heslinga, G.A. 1982. Prospect for the commercial cultivation of giant clams (*Bivalvia: Tridacnidae*). *ICLARM Contribution No. 119*: 11 pp.
- Naidu, K.S. 1970. Reproduction and breeding cycle of the giant scallop *Placopecten magellanicus* (Gmelin) in Port au Bay, Newfoundland, Canada. *J. Zool.* 48: 1003-1012.
- Nascimento, I.A., and Pereira, S.A. 1980. Effect of *Pinnotheres ostreum* on *Crassostrea rhizophorae*. *Bol. Inst. Oceanogr. Sao Paulo* 29(2): 261-265. (In Portuguese with English abstract)
- Pauly, D. 1978. A preliminary compilation of fish length growth parameters. *Ber. Inst. f. Meereskunde (Kiel University)* No. 55: 200 pp.
- Pauly, D. 1980a. On the interrelationships between natural mortality, growth parameters, and mean environmental temperature in 175 fish stocks. *J. Cons. Int. Explor. Mer.* 39(2): 175-192.
- _____. 1980b. A selection of simple methods for the assessment of tropical fish stocks. *FAO Fish. Circ. No. 729*: 54 pp.

- _____. 1982. Studying single-species dynamics in a tropical multispecies context. In D. Pauly and G.I. Murphy (eds.), **Theory and management of tropical fisheries**. ICLARM Conference Proceedings No. 9, pp. 33-70. Manila: ICLARM.
- _____. 1984. **Fish population dynamics in tropical waters: A manual for use with programmable calculators**. ICLARM Studies and Reviews No. 8, 325 pp. Manila: ICLARM.
- _____. 1986. On improving operation and used of ELEFAN programs. Part III: Correcting length-frequency data for effects of gear selection and/or incomplete recruitment. **Fishbyte** 4(9): 11-13.
- _____. 1987. A review of the ELEFAN system for analysis of length-frequency data in fish and aquatic invertebrates. In D. Pauly and G.R. Morgan (eds.), **Length-based methods in fisheries research**. ICLARM Conference Proceedings No. 13, pp. 7-34. Manila: ICLARM.
- Pauly, D., and David, N. 1981. A BASIC program for the objective extraction of growth parameters from length-frequency data. **Meeresforsch** 28: 205-211.
- Pauly, D., David, N., and Ingles, J. 1980. **ELEFAN I: user's instructions and program listings**. (Mimeographed)
- Pauly, D., and Gaschutz, G. 1979. A simple method for fitting for fitting oscillating length growth data, with a program for pocket calculators. **I.C.E.S. C.M. 1979/G: 24: 26 pp.**

- Pauly, D., and Munro, J.L. 1984. Once more on the comparison of growth in fish and invertebrates. *Fishbyte* 2(1): 21.
- Pope, J.A., and Mason, J. 1980. The fitting of growth curves for *Pecten maximus* (L.). I.C.E.F. C.M. 1980/K: 28: 5 pp., quoted in del Norte, A.G.C. Some aspects of the growth, recruitment, mortality and reproduction of the Asian moon scallop, *Amusium pleuronectes* (Linne) in the Lingayen Gulf, Philippines. Master's Thesis, University of the Philippines, Diliman, Quezon City. 117 pp.
- Pregenzer, C.L. 1981. The effect of *Pinnotheres hickmani* on the meat yield (condition) of *Mytilus edulis* measured several ways. *Veliger* 23: 250-253.
- Roe, R.B., Cummins, R. Jr., and Bullis, H.R. 1971. Calico scallop distribution, abundance and yield off eastern Florida, 1967-1968. *Fishery Bull. Fish. Wildl. Serv. U.S.* 69: 399-409.
- Sastry, A.N. 1963. Reproduction of the bay scallop, *Aequipecten irradians* Lamarck: Influence of temperature on maturation and spawning. *Biol. Bull.* 125: 146-153.
- _____. 1966. Temperature effects in the reproduction of the bay scallop, *Aequipecten irradians* Lamarck. *Biol. Bull.* 130: 118-134.
- _____. 1970. Reproductive physiological variation in latitudinally separated populations of the bay scallop, *Aequipecten irradians* Lamarck. *Biol. Bull.* 138: 56-65.

- _____. 1979. Pelecypoda (excluding Ostreidae). In Giese, C. and Pearse, J.S. (eds.), *Reproduction of marine invertebrates*. Vol. V. Molluscs: Pelecypods and lesser classes, pp. 113-292. New York: Academic Press.
- Sastry, A.N., and Blake, N.J. 1971. Regulation of gonad development in the bay scallop, *Aequipecten irradians* Lamarck. *Biol. Bull.* 140: 274-283.
- Seed, R. 1969. The incidence of the pea crab, *Pinnotheres pisum* in two types of *Mytilus* (Mollusca, Bivalvia) from Padstow, S.W. England. *J. Zool. (Lond.)* 158: 413-420.
- Songchitsawat, A. 1989. Identification, distribution and abundance of fish larvae from the Chang Islands, Trat Province. Master's Thesis, Chulalongkorn University. 216 pp.
- Taylor, A.C., and Venn, T.J. 1978. Growth of the queen scallop *Chlamys opercularis*, from the Clyde Sea area. *J. mar. biol. Ass. U.K.* 58: 687-700.
- Thubthimsang, W. 1984. Feasibility study of scallop culture in Thailand. Paper presented in the Seminar on Marine Fisheries, September 4-7, 1984, Bangkok. 31 pp.
- Tuaycharoen, S., Vakily, J.M., Saelow, A., and McCoy, E.W. 1988. Growth and maturation of the green mussel (*Perna viridis*) in Thailand. In E.W. McCoy and T. Chongpeepien (eds.), *Bivalve mollusc culture research in Thailand*. ICLARM Technical Reports 19, pp. 88-101. Manila: ICLARM.

- Vakily, J.M., Tuaycharoen, S., and Nugranad, J. 1988. Analysis of length and weight characteristics of green mussel, *Perna viridis*, from Thailand. *Asian Fisheries Sciences* 1: 165-174.
- Wetherall, J.A. 1986. A new method for estimating growth and mortality parameters from length-frequency data. *Fishbyte* 4(1): 12-14.
- Williams, M.J., and Dredge, M.C.L. 1981. Growth of the saucer scallop, *Amusium japonicum balloti* Habe, in Central Eastern Queensland. *Aust. J. Mar. Freshw. Res.* 32(4): 657-666.
- Yap, W.G. 1977. Population biology of the Japanese little-neck clam *Tapes philippinarum* in Kaneohe Bay, Oahu, Hawaiian Islands. *Pac. Sci.* 31(3): 223-244.

APPENDICES

APPENDIX A

SHELL HEIGHT-FREQUENCY DISTRIBUTION AND CATCH DATA
OF *AMUSIUM PLEURONECTES* FROM CHANG ISLANDS.

Appendix A-1 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : January 1987

STATION DATE HEIGHT (cm)	1 12	2 13	3 13	4 13	5 13	6 16	7 14	8 14	9 14	10 14	11 -	12 17	13 16	14 16	15 15	16 15	17 -	18 15	19 -	20 15	TOTAL	
1.00 - 1.49																					0	
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99		1																				1
3.00 - 3.49																						0
3.50 - 3.99																						0
4.00 - 4.49		2	3																			5
4.50 - 4.99		26					1				1											27
5.00 - 5.49		43			1						5											49
5.50 - 5.99		43									3											46
6.00 - 6.49		5																				5
6.50 - 6.99																		1				1
7.00 - 7.49					1													5				8
7.50 - 7.99		1	3																			4
8.00 - 8.49		3			1																	4
8.50 - 8.99		7																				8
9.00 - 9.49		2																1				5
9.50 - 9.99																		3				2
10.00 - 10.49																		2				2
TOTAL MEASURED	0	133	8	0	3	0	9	0	0	0	0	0	0	0	0	0	0	14	0	0	167	
WEIGHT (g)	0	2200	180	0	40	0	60	0	0	0	-	0	0	0	0	0	-	725	-	0	3205	
UNPUNCHED (g)	1970	0	0	0	0	0	10	0	3	3	-	0	0	0	0	0	-	0	-	30	2016	
TOTAL CATCH (g)	1970	2200	180	0	40	0	70	0	3	3	0	0	0	0	0	0	0	725	0	30	5221	

Appendix A-2 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : February 1987

STATION DATE HEIGHT (cm)	1 13	2 13	3 12	4 13	5 12	6 9	7 12	8 12	9 -	10 11	11 11	12 9	13 -	14 10	15 11	16 11	17 -	18 10	19 -	20 10	TOTAL NO.
1.00 - 1.49																					0
1.50 - 1.99		1																			1
2.00 - 2.49		3																			3
2.50 - 2.99		11	2	1																	14
3.00 - 3.49		8	2	4			1														15
3.50 - 3.99		2					1														3
4.00 - 4.49		2	1	1																	4
4.50 - 4.99	2	5		1		1															9
5.00 - 5.49			1			1															2
5.50 - 5.99		2																			2
6.00 - 6.49		8	1				4														13
6.50 - 6.99	3	27					4														34
7.00 - 7.49	1	21	1				1														24
7.50 - 7.99	1	1	3																		5
8.00 - 8.49	12		3																		15
8.50 - 8.99	17	1																			18
9.00 - 9.49	2	1					1														4
9.50 - 9.99																					0
10.00 - 10.49																					0
TOTAL MEASURED	38	93	14	7	0	2	12	0	0	0	0	0	0	0	0	0	0	0	0	0	166
WEIGHT (g)	1720	1460	320	35	0	25	220	0	-	0	0	0	-	0	0	0	-	0	-	0	3780
UNPUNCHED (g)	0	0	0	0	100	0	0	3	-	3	3	0	-	0	0	0	-	0	-	0	109
TOTAL CATCH(g)	1720	1460	320	35	100	25	220	3	0	3	3	0	0	0	0	0	0	0	0	0	3889

Appendix A-3 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : March 1987

STATION DATE HEIGHT (cm)	1 9	2 10	3 10	4 10	5 10	6 13	7 11	8 11	9 -	10 11	11 11	12 13	13 -	14 13	15 12	16 12	17 -	18 12	19 -	20 12	TOTAL NO.	
1.00 - 1.49																					0	
1.50 - 1.99																						0
2.00 - 2.49	4																					4
2.50 - 2.99	18	2		1																		21
3.00 - 3.49	21	9		6	2			1		4	1			1		1					1	47
3.50 - 3.99	4	24	1	20	1	3	9			7				1	1	3					2	76
4.00 - 4.49	2	33		40	3	7	9	2		2				1		4		1			3	107
4.50 - 4.99	6	19		36	7	9	10	4		4	3	2		3	3	6		1				113
5.00 - 5.49	12	5		11	1	1	4				3				2	4						43
5.50 - 5.99	3	2		4			1				2					1					1	14
6.00 - 6.49	2	2	1	1	1		2															9
6.50 - 6.99	6	3					4			1												14
7.00 - 7.49	8	2	1		1		3															15
7.50 - 7.99	2		1			2					2										1	8
8.00 - 8.49	12		1		3	1				1		1			1							20
8.50 - 8.99	10				1		2															13
9.00 - 9.49	1						1															2
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	111	101	5	119	20	23	45	7	0	19	11	3	0	6	7	19	0	2	0	8		506
WEIGHT (g)	1590	650	130	800	330	250	600	50	-	150	170	20	-	20	80	130	-	15	-	60		5045
UNPUNCHED (g)	270	0	0	0	0	0	0	0	-	0	0	0	-	0	0	0	-	0	-	0		270
TOTAL CATCH(g)	1860	650	130	800	330	250	600	50	0	150	170	20	0	20	80	130	0	15	0	60		5315

Appendix A-4 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : April 1987

STATION DATE HEIGHT (cm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL NO.
1.00 - 1.49																					0
1.50 - 1.99																					0
2.00 - 2.49																					0
2.50 - 2.99	1									4											5
3.00 - 3.49	4				1			1		2											8
3.50 - 3.99	12		1		1			1		7	1										23
4.00 - 4.49	26		1		5			10		14	2								1		59
4.50 - 4.99	40		4		11			14		28	3										100
5.00 - 5.49	41		9		14			8		35	4				2						113
5.50 - 5.99	16		7		17			8		20	11									1	80
6.00 - 6.49	5		4		12			2		5	10									1	39
6.50 - 6.99	11		1		4			1			2										19
7.00 - 7.49	9		2		1																12
7.50 - 7.99	8		3		2																13
8.00 - 8.49	9		1																		10
8.50 - 8.99	15																				15
9.00 - 9.49	3																				3
9.50 - 9.99																					0
10.00 - 10.49																					0
TOTAL MEASURED	200	0	33	0	68	0	0	45	0	115	33	0	0	0	2	0	0	3	0	0	499
WEIGHT (g)	3200	-	560	-	1300	0	-	400	-	1550	450	0	-	-	10	0	-	45	-	-	7515
UNPUNCHED (g)	1200	-	0	-	0	0	-	0	-	0	0	50	-	-	0	0	-	0	-	-	1250
TOTAL CATCH (g)	4400	0	560	0	1300	0	0	400	0	1550	450	50	0	0	10	0	0	45	0	0	8765

Appendix A-5 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : May 87

STATION DATE HEIGHT (cm)	1 18	2 19	3 19	4 19	5 -	6 18	7 -	8 20	9 -	10 20	11 20	12 22	13 -	14 22	15 21	16 21	17 -	18 21	19 -	20 21	TOTAL NO.	
1.00 - 1.49																					0	
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99																						0
3.00 - 3.49																						0
3.50 - 3.99	1			1																		2
4.00 - 4.49				2				4														6
4.50 - 4.99	9			1				6														16
5.00 - 5.49	10							14		2	1											27
5.50 - 5.99	30	5	1					13		16	4						2					71
6.00 - 6.49	27	35	4	6				15		35		2					1		1			126
6.50 - 6.99	10	40	11	19				9		23	2	1					3		3			121
7.00 - 7.49	4	17	12	19				4		16							1		1			74
7.50 - 7.99	2	1	1	20						2									1			27
8.00 - 8.49	4																					4
8.50 - 8.99	5	1	1																			7
9.00 - 9.49	3																					3
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	105	99	30	68	0	0	0	65	0	94	7	3	0	0	0	0	0	7	0	6	484	
WEIGHT (g)	1700	2000	700	1700	-	0	-	1050	-	2100	60	30	-	0	0	0	-	130	-	160	9630	
UNPUNCHED(g)	5200	1700	0	2700	-	0	-	400	-	2300	0	0	-	0	0	0	-	0	-	0	12300	
TOTAL CATCH(g)	6900	3700	700	4400	0	0	0	1450	0	4400	60	30	0	0	0	0	0	130	0	160	21930	

Appendix A-6 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : June 87

STATION DATE HEIGHT (cm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL NO.
1.00 - 1.49	-	-	-	-	-	19	-	-	-	-	-	19	-	-	-	-	-	-	-	-	0
1.50 - 1.99																					0
2.00 - 2.49																					0
2.50 - 2.99																					0
3.00 - 3.49																					0
3.50 - 3.99																					0
4.00 - 4.49																					0
4.50 - 4.99																					0
5.00 - 5.49																					0
5.50 - 5.99																					0
6.00 - 6.49																					0
6.50 - 6.99																					0
7.00 - 7.49												1									1
7.50 - 7.99												1									1
8.00 - 8.49																					0
8.50 - 8.99																					0
9.00 - 9.49																					0
9.50 - 9.99																					0
10.00 - 10.49																					0
TOTAL MEASURED	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
WEIGHT (g)	-	-	-	-	-	0	-	-	-	-	-	30	-	-	-	-	-	-	-	-	30
UNPUNCHED (g)	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-	0
TOTAL CATCH(g)	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	0	0	0	30

Appendix A-7 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : July 87

STATION DATE HEIGHT (cm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL NO.
1.00 - 1.49	-	-	-	-	-	24	-	22	-	22	-	-	-	24	22	23	-	23	-	23	0
1.50 - 1.99																					0
2.00 - 2.49																					0
2.50 - 2.99								2													2
3.00 - 3.49								3													3
3.50 - 3.99								18													18
4.00 - 4.49								16													16
4.50 - 4.99								21		2											23
5.00 - 5.49								13													13
5.50 - 5.99								5		1											6
6.00 - 6.49								7		5											12
6.50 - 6.99								2		2											4
7.00 - 7.49										22											22
7.50 - 7.99										16											16
8.00 - 8.49										5											5
8.50 - 8.99																					0
9.00 - 9.49																					0
9.50 - 9.99																					0
10.00 - 10.49																					0
TOTAL MEASURED	0	0	0	0	0	0	0	87	0	53	0	0	0	0	0	0	0	0	0	0	140
WEIGHT (g)	-	-	-	-	-	0	-	500	-	1665	-	-	-	0	0	0	-	0	-	0	2165
UNPUNCHED (g)	-	-	-	-	-	0	-	0	-	0	-	-	-	0	0	0	-	0	-	0	0
TOTAL CATCH(g)	0	0	0	0	0	0	0	500	0	1665	0	0	0	0	0	0	0	0	0	0	2165

Appendix A-8 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : August 1987

STATION DATE HEIGHT (cm)	1 10	2 -	3 -	4 -	5 -	6 10	7 -	8 11	9 -	10 11	11 -	12 10	13 -	14 13	15 11	16 12	17 -	18 12	19 -	20 12	TOTAL NO.	
1.00 - 1.49																						0
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99																						0
3.00 - 3.49																						0
3.50 - 3.99																						0
4.00 - 4.49								2														2
4.50 - 4.99								8														8
5.00 - 5.49	1							15														16
5.50 - 5.99	1							23		1												25
6.00 - 6.49	5							13														18
6.50 - 6.99	12					1		11														24
7.00 - 7.49	5							4		3												12
7.50 - 7.99	9							2		1												12
8.00 - 8.49	2							2		13		2						1				20
8.50 - 8.99	1							1		2										1		5
9.00 - 9.49										1												1
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	36	0	0	0	0	1	0	81	0	21	0	2	0	0	0	0	0	1	0	1	143	
WEIGHT (g)	850	-	-	-	-	20	-	1400	-	860	-	100	-	0	0	0	-	45	-	20	3295	
UNPUNCHED (g)	0	-	-	-	-	0	-	1800	-	0	-	0	-	0	0	0	-	0	-	0	1800	
TOTAL CATCH(g)	850	0	0	0	0	20	0	3200	0	860	0	100	0	0	0	0	0	45	0	20	5095	

Appendix A-9 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : September 1987

STATION DATE HEIGHT (cm)	1 21	2 21	3 21	4 22	5 22	6 25	7 22	8 22	9 -	10 23	11 23	12 -	13 -	14 24	15 24	16 23	17 -	18 24	19 -	20 24	TOTAL NO.	
1.00 - 1.49																						0
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99																						0
3.00 - 3.49																						0
3.50 - 3.99																						0
4.00 - 4.49											1											1
4.50 - 4.99					1																	1
5.00 - 5.49			1		2						1											4
5.50 - 5.99			3		11		3				2											19
6.00 - 6.49	1		8		28						6											43
6.50 - 6.99	1	2	3		22						8											36
7.00 - 7.49	5	2	1		9		2	1			1											21
7.50 - 7.99	20	11	10		8		1			1												51
8.00 - 8.49	37	40	9		5			1		1												93
8.50 - 8.99	8	27	9				1			1												46
9.00 - 9.49	1																					1
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	73	82	44	0	86	0	4	5	0	3	19	0	0	0	0	0	0	0	0	0	0	316
WEIGHT (g)	3000	3100	1900	0	1800	0	170	105	-	200	350	-	-	0	0	0	-	0	-	0	0	10625
UNPUNCHED (g)	0	2300	0	0	3700	0	0	0		0	0			0	0	0		0		0	0	6000
TOTAL CATCH(g)	3000	5400	1900	0	5500	0	170	105	0	200	350	0	0	0	0	0	0	0	0	0	0	16625

Appendix A-10 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : October 1987

STATION DATE HEIGHT (cm)	1 15	2 15	3 16	4 15	5 16	6 19	7 16	8 16	9 16	10 17	11 17	12 -	13 -	14 18	15 17	16 17	17 -	18 18	19 -	20 18	TOTAL NO.	
1.00 - 1.49																					0	
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99																						0
3.00 - 3.49																						0
3.50 - 3.99																						0
4.00 - 4.49																						0
4.50 - 4.99																						0
5.00 - 5.49																						0
5.50 - 5.99					1			1														2
6.00 - 6.49			4		7			1														12
6.50 - 6.99		1	11		38			4			3											57
7.00 - 7.49	2	4	6		24			1			4											41
7.50 - 7.99	12	9	6		11			1			3											42
8.00 - 8.49	24	23	10		3			1														61
8.50 - 8.99	14	27	9																			50
9.00 - 9.49	2	4																				6
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	54	68	46	0	84	0	0	9	0	0	10	0	0	0	0	0	0	0	0	0	0	271
WEIGHT (g)	2550	3350	1700	0	2250	0	0	180	0	0	300	-	-	0	0	0	-	0	-	0	0	10330
UNPUNCHED (g)	0	2550	0	0	1300	0	0	0	0	0	0			0	0	0			0		0	3850
TOTAL CATCH (g)	2550	5900	1700	0	3550	0	0	180	0	0	300	0	0	0	0	0	0	0	0	0	0	14180

Appendix A-11 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : November 1987

STATION DATE HEIGHT (cm)	1 25	2 25	3 25	4 25	5 26	6 29	7 26	8 26	9 -	10 27	11 27	12 -	13 -	14 28	15 27	16 28	17 -	18 28	19 -	20 28	TOTAL NO.	
1.00 - 1.49																						0
1.50 - 1.99																						0
2.00 - 2.49																						0
2.50 - 2.99				1																		1
3.00 - 3.49		3		1																		4
3.50 - 3.99	1	2		1														1				5
4.00 - 4.49		1		1						1								1				4
4.50 - 4.99																		1				1
5.00 - 5.49			1																			1
5.50 - 5.99																						0
6.00 - 6.49							2															2
6.50 - 6.99			3				5															8
7.00 - 7.49	1	1	6				10				2											20
7.50 - 7.99	12	1	7				2				5											27
8.00 - 8.49	29	3	5				1															38
8.50 - 8.99	23	2	3	1																		29
9.00 - 9.49							1															1
9.50 - 9.99																						0
10.00 - 10.49																						0
TOTAL MEASURED	66	13	25	5	0	0	21	0	0	1	7	0	0	0	0	0	0	3	0	0	141	
WEIGHT (g)	3100	350	1160	40	0	0	610	0	-	10	220	-	-	0	0	0	-	20	-	0	5510	
UNPUNCHED (g)	0	0	0	0	0	0	0	0		0	0			0	0	0		0		0	0	
TOTAL CATCH (g)	3100	350	1160	40	0	0	610	0	0	10	220	0	0	0	0	0	0	20	0	0	5510	

Appendix A-12 Shell height frequency distribution and catch data of *Amusium pleuronectes* from Chang Islands.

MONTH : December 1987

STATION DATE HEIGHT (cm)	1 21	2 21	3 -	4 24	5 -	6 22	7 24	8 -	9 -	10 23	11 -	12 -	13 -	14 22	15 23	16 -	17 -	18 22	19 -	20 23	TOTAL NO.		
1.00 - 1.49																						0	
1.50 - 1.99																							0
2.00 - 2.49																							0
2.50 - 2.99																							0
3.00 - 3.49																							0
3.50 - 3.99				1																			1
4.00 - 4.49		3																					3
4.50 - 4.99		5		1																			6
5.00 - 5.49		6		1																			7
5.50 - 5.99							2			2													4
6.00 - 6.49							5			3													8
6.50 - 6.99																							0
7.00 - 7.49																							0
7.50 - 7.99																							0
8.00 - 8.49	10																						10
8.50 - 8.99	11						1																12
9.00 - 9.49	3																						3
9.50 - 9.99																							0
10.00 - 10.49																							0
TOTAL MEASURED	24	14	0	3	0	0	8	0	0	5	0	0	0	0	0	0	0	0	0	0	0	54	
WEIGHT (g)	1300	340	-	40	-	0	130	-	-	60	-	-	-	0	0	-	-	0	-	0	0	1870	
UNPUNCHED (g)	0	0		0		0	0			0				0	0			0		0	0	0	
TOTAL CATCH(g)	1300	340	0	40	0	0	130	0	0	60	0	0	0	0	0	0	0	0	0	0	0	1870	

APPENDIX B

COMPARISON OF GROWTH PARAMETERS ESTIMATES
IN SCALLOPS OF THE GENUS *AMUSIUM*

SPECIES AND LOCALITY	METHODS OF ESTIMATION	Loo cm	K per yr.	ϕ'	SOURCES
<i>Amusium balloti</i>					
Shark Bay; W. Australia	Tagging-recapture (Summer)	10.43	2.21	2.38	Heald & Caputi (1981)
	(Rest)	9.54	1.27	2.06	
	Gulland and Holt	10.39	1.41	2.18	
	Manzer-Taylor	10.41	1.29	2.15	
<i>A. japonicum balloti</i>					
C.E. Queenlands; Australia	Tagging-recapture (Bustard Heads, 1976)	10.81	2.72	2.50	Williams & Dredge (1981)
	(Bustard Heads, 1977)	10.49	3.06	2.53	
	(Bustard Heads, 1978)	10.85	2.89	2.53	
	(Yepoon, 1977)	10.20	2.68	2.45	
<i>A. pleuronectes</i>					
Lingayen Gulf; Philippines	Height frequency	10.60	0.92	2.01	Del Norte (1986)
Visayan Sea; Philippines	Height frequency	10.00	0.94	1.97	Llana (1988)
Koh Chang-Koh Kood; E. Gulf of Thailand	Height frequency	11.40	1.30	2.23	This study

APPENDIX C

INCIDENCE OF PEA CRAB INFESTATION
IN DIFFERENT SPECIES POPULATIONS OF BIVALVE MOLLUSKS.

(Adapted from Lopez, 1982)

Pea crab / host	% infested	Locality & Sources
Unspecified / <i>Placuna placenta</i>	30-40	Binakayan, Cavite Philippines (Blanco, 1956)
Unspecified / <i>Placenta placenta</i>	80	Kakinada Bay, India (Bhavanarayana & Devi, 1974)
<i>Pinnotheres hickmani</i> / <i>Mytilus edulis</i> (wild population)	80	Port Phillip Bay, Australia (Stauber, 1945)
<i>P. hickmani</i> / <i>M. edulis</i> (cultured population)	55	Port Phillip Bay, Australia (Stauber, 1945)
<i>P. maculatus</i> / <i>M. edulis</i>	97.6	Quicks Hole, Massachusetts, USA (Pearce, 1964)
<i>P. ostreum</i> / <i>Crassostrea</i> <i>virginica</i>	< 25.0	Delaware Bay, USA (Stauber, 1945)
<i>Pinnotheres</i> sp. / <i>Amusium</i> <i>pleuronectes</i>	2.15	Visayan Sea, Philippines (Llana, 1979)
<i>Pinnotheres</i> sp. / <i>A. pleuronectes</i>	7.46	Chang Islands, Gulf of Thailand (This study)



BIODATA

Miss Jintana Nugranad was born on November 8, 1957 in Phitsanulok Province. She graduated from Srinakharinwirot University, Bangsaen Campus, Chonburi in 1979 with the Bachelor of Education degree in biology. After graduation, she has been working for the Royal Thai government in Department of Fisheries, Ministry of Agriculture and Cooperatives since October 1979 until now. She had been to the Philippines for a training course on marine finfish hatchery at SEAFDEC Aquaculture Department, Iloilo City, in April-June 1981; and training on using the Compleat ELEFAN microcomputer program at ICLARM office, Manila, in April 1988. In June 1989, she visited the United States and Canada for observation tour on mollusk hatchery and culture techniques, supported by the USAID under the ATT (Agricultural Technology Transfer) project. Having been working in the field of coastal aquaculture for over 10 years, she is presently in the position of senior fisheries biologist of the Prachuap Khiri Khan Coastal Aquaculture Development Center, Klong Wan, Prachuap Khiri Khan Province, with specialty on mollusk hatchery and research works.