รายงานการวิจัย

เรื่อง

ข้อมูลทางชีวภาพของอ่าวปัตตานี
(Biological Data of Pattani Bay)

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คณะวิทยาศาสตร์และเทคโนโลยี

มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตปัตตานี

คำนิยม

ขอขอบคุณคณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตปัตตานี ที่ให้ทุนวิจัยและอำนวยความสะดวกในเรื่องของอุปกรณ์ และสถานที่ในการทดลอง ขอกราบขอบพระคุณ ศ.ไพบูลย์ นัยเนตร ภาควิชาชีววิทยา คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ที่ให้เอกสาร ตลอดจนคำแนะนำต่าง ๆ ในการจำแนกตัวอย่าง ขอขอบคุณ คุณมะอีแต และนักศึกษาแผนกชีววิทยาทุกคน ที่ให้ความช่วยเหลือในการเก็บตัวอย่างสัตว์ ตลอดจนชาวประมง หมู่บ้าน ดาโต๊ะบางปู ตันหยงลูโล๊ะ ตันหยงปาโอ๊ะ และบางตาวา ที่อนุเคราะห์ตัวอย่าง ขอบคุณศูนย์วิจัยประมงทะเลจังหวัดภูเก็ตเกี่ยวกับเอกสาร และเทียบตัวอย่างสัตว์ และขอขอบคุณทุก ๆ คนที่ไม่ได้เอ่ยนามที่มีส่วนช่วยในงานวิจัยสำเร็จไปได้ด้วยดีไว้ ณ ที่นี้ด้วย

ข้อมูลทางชีวภาพของอ่าวปัตตานี

ชื่อผู้วิจัย

อิสระ อินตะนัย, สมพร จันทเดช, นุกูล รัตนดากุล และสมพร ประเสริฐส่งสกุล
แผนกชีววิทยา ภาควิชาวิทยาศาสตร์ คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัย
สงขลานครินทร์ วิทยาเขตปัตตานี จังหวัดปัตตานี

คำสำคัญ : อ่าวปัตตานี, หอย, กุ้ง, ปู, ไส้เดือนทะเล

บทคัดย่อ

เก็บตัวอย่างหอย กุ้ง ปู และไส้เดือนทะเล บริเวณอ่าวปัตตานี และทะเลใกล้เคียง ระยะเวลา 1 ปี (2538-2539) พบทั้งสิ้น 221 ชนิด ซึ่งส่วนใหญ่ได้ตรวจสอบความถูกต้องจากผู้เชี่ยวชาญ ได้จัดลำดับ ชื่อ และบรรยายถึง สภาพที่อยู่อาศัยของสัตว์แต่ละชนิด จากสัตว์ทั้งหมดเป็นหอยกาบเดี่ยว 113 ชนิด 26 วงศ์ หอยกาบคู่ 58 ชนิด 21 วงศ์ กุ้ง 12 ชนิด 4 วงศ์ ปู 25 ชนิด 4 วงศ์ และไส้เดือนทะเล 13 ชนิด 11 วงศ์

Biological Data of Pattani Bay

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Key words : Pattani Bay, Shells, Shrimp, Crabs, Polychaetes

Abstract

Collections of marine shells, shrimps, crabs and polychaetes were made from Pattani Bay and the adjacent offshore over a 12 month period, 1995-1996. In total 221 species, the majority of the identifications have been confirmed by specialists. A systematic check list is provide here with brief ecological notes on habitats from which each species was collected. One hundred thirteen species of Univalves in 26 families, 58 species of Bivalves in 21 families, 12 species of shrimps in 4 families, 25 species of crabs in 4 families and 13 species of polychaetes in 11 families were reported.

สารบัญตาราง

สารบัญ

หน้า

เอกสารอ้างอิง

นิธิ ฤทธิพรพันธุ์ จรมัน ว่องวิทย์ ศราวุธ เจ๊ะโส๊ะ จารุณี จันทรประมุข ชุติมา ตันติกิตติ วิมลรัตน์ เกษมทรัพย์ และดวงรัตน์ มีแก้ว. 2527. รายงานข้อมูลสำรวจ. ชีววิทยาทางน้ำของอ่าวปัตตานี. ภาควิชาวาริชศาสตร์ คณะทรัพยากรธรรมชาติ มหาวิทยาลัยสงขลานครินทร์.
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PROSOBRANCHIA

KEY TO FAMILIES

1. Shell external, possibly covered by mantle folds in active animals which withdraw when touched — 2
   Shell internal, permanently hidden beneath papillate mantle; animal resembles dorid nudibranch but has smooth tentacles and lacks a dorsal gill circlet — **31. Lamellariidae**

2. Shell a short curved tube, open basally, sealed apically with a conical or rounded calcareous plug — **23. Caecidae**
   Shell not this shape — 3

3. Shell with marginal slit, or with one or several holes in addition to aperture — 4
   Shell imperforate apart from aperture — 7

4. Shell with marginal slit — 5
   Shell with one or more holes — 6

5. Shell a small, globose spiral of two or three reticulate whorls — **2. Scissurellidae**
   Shell an open limpet- or cap-shaped cone, with recurved beak at apex — **3. Fissurellidae**

6. Shell an open limpet-shaped cone with single hole near apex — **3. Fissurellidae**
   Shell a flattened, ear-shaped spiral with several holes — **1. Haliotidae**

7. Shell not coiled; or if coiled, convolute so that coiling is not evident at apex — 8
   Shell coiled, not convolute; apical whorls may be raised above body whorl to form a spire, or coiled in one plane so that spire is absent — 13

8. Shell convolute, ovoid or spindle-shaped with long, narrow aperture; mantle covers shell in active animals — 9
   Shell an open, limpet-shaped cone; apex central or toward anterior margin — 10

9. Shell ovoid, rounded at each end, with transverse ridges — **32. Eratoidae**
   Shell elongate, drawn out into apical and basal canals; smooth and polished — **33. Ovulidae**

10. Shell with tongue-like shelf below posterior end of foot, aperture nearly circular; apex pointed, with small beak; body with expanded lateral lobes on neck; ctenidium large — **30. Calyptraeidae**
    Shell without internal shelf; without neck lobes; ctenidium small or absent — 11

11. Shell smooth, depressed, with apex toward anterior margin; pale with branching rays of pink or brown; single ctenidium in mantle cavity above head — **4. Acmaeidae**
    Shell smooth or with radiating ridges; not markedly depressed, often much raised; no ctenidium; with or without accessory (pallial) gills on mantle skirt around foot — 12

12. Pallial gills present on mantle skirt, edge of which also bears numerous pallial tentacles; pigmented eyes at base of cephalic tentacles; shell smooth, with blue rays near apex (animal on weed), or with radiating ridges (animal on rocks and stones); littoral **5. Patellidae**

Without pallial gills or pallial tentacles; no pigmented eyes; shell small (rarely > 10 mm in length), finely reticulate; never littoral **6. Lepetidae**

13. Shell an elongate cone of up to five whorls, with strong spiral striae over which a thick periostracum is raised into bristles; aperture triangular, tapering basally to a shallow spout; body with short, non-retractile proboscis; sublittoral **28. Trichotropidae**

Shell and body not like this **14**

14. Shell glossy, porcellaneous, with short spire and large, rather inflated last whorl; aperture long, narrow, with or without teeth on inner and outer lips; colourful mantle covers shell in active animals; no operculum **32. Eratoidae**

Shell and body not like this **15**

15. Shell without siphonal canal **16**

Shell with siphonal canal **56**

16. Shell with elevated spire **29**

Spire very depressed (not rising much above body whorl), or absent **17**

17. Shell a minute (< 1 mm diameter), biconcave disc, spire absent **20. Omalogyridae**

Shell not like this **18**

18. Shell with umbilicus **19**

Shell without umbilicus **25**

19. Umbilicus wide, funnel-shaped, exposing all older whorls; shell fragile, minute (< 2.5 mm diameter), almost disc-like, with three or four whorls and low spire **20**

Umbilicus deep, with narrow round or oval mouth, or chink-like with ⋀-shaped umbilical groove **21**

20. Shell smooth with irregular growth lines; whorls almost circular in section, aperture with circular peristome; up to 1.5 mm diameter; deep chestnut-brown **18. Skeneopsidae**

Shell with spiral striae confined to base of body whorl; whorls almost circular in section, aperture with circular peristome; up to 1.2 mm diameter; colourless or white; foot with three pairs of epipodial tentacles **6. Skeneidae**

Shell with complex sculpture of keels, costae, and growth lines; aperture without peristome, with prominent anal canal; up to 2.5 mm diameter; whitish **19. Tornidae**

21. Umbilicus chink-like, with ⋀-shaped umbilical groove; aperture height almost equal to shell height; foot with two pairs of metapodial tentacles **10. Lacunidae**

Umbilicus deep, with narrow, round or oval mouth; foot without metapodial tentacles **22**

22. Shell smooth, globular, polished; umbilicus deep, partly occluded by callus-like extension of inner lip; foot with greatly enlarged propodium forming plough-like shield over head and front of shell; creeps through and over sand **34. Naticidae**

Shell and animal not like this **23**

23. Shell minute (<2 mm with three or four whorls), globose (height = breadth); aperture with complete peristome; foot with three pairs of epipodial tentacles or none **24**

Shell small (>4 mm with four or five whorls), depressed globose (height < breadth); aperture without complete peristome; foot with five or six pairs of epipodial tentacles **7. Trochidae**

24. Shell with spiral striae around umbilicus or over entire surface, umbilicus oval with spiral ridge; foot with three pairs of epipodial tentacles; operculum transparent, polygyrous with central nucleus **8. Skeneidae**

Shell smooth, without spiral striae, umbilicus round, without spiral ridge; foot without epipodial tentacles; operculum with nucleus on columella margin, with peg-like process and three radiating ridges on underside **21. Rissoellidae**

25. Shell cap-shaped, almost hemi-ellipsoid, with slightly coiled subterminal apex; internally a large shell-like partition lies at posterior end below apex; body with expanded neck lobes and large ctenidium; often found in stacks of ascending size **30. Calyptraeidae**

Shell and body not like this **26**

26. Shell minute (2 mm or less), ear-shaped with up to two and a half rapidly expanding whorls; without periostracum; aperture very large, though animal cannot fully withdraw into shell; no operculum; in crevices and empty barnacle tests on upper shore **Pulmonata: *Otina***

Shell and body not like this **27**

27. Shell thinly calcified, with thick periostracum; no operculum; usually sublittoral **28**

Shell solid, without periostracum; with operculum; common intertidally **11. Littorinidae**

28. Shell cap-shaped (or, more strictly, involute, i.e. coiled in one plane) with large, almost circular aperture applied to substratum so that apex coils posteriorly; periostracum around aperture forms fringe, with earlier fringes evident on expanded last whorl; shell not covered by mantle **29. Capulidae**

Shell ear-shaped, not involute; periostracum not drawn out into frills; mantle edge swollen, partly covering shell in active animals **31. Lamellariidae**

29. Spire tall, shell awl-shaped with at least ten whorls in adult **30**

Spire short, less than ten whorls; shell more broadly conical **37**

30. Shell smooth or with microscopic growth lines only; often highly polished **31**

Shell with obvious ornament of costae or spiral striae or both **32**

31. Whorls flat-sided, sutures extremely shallow; shell highly polished **38. Eulimidae**

Whorls tumid, sutures deep; shell <6 mm in height **37. Aclididae**

32. Sculpture of spiral striae only — **33**
Sculpture of costae, with or without spiral striae — **34**

33. Shell large (up to 20 whorls, 55 mm high); mantle edge with pinnate tentacles, operculum with fringed margin; no umbilicus — **22. Turritellidae**
Shell small (up to ten whorls, 6 mm high); mantle edge smooth, operculum plain; with umbilicus — **37. Aclididae (*Aclis*)**

34. Sculpture of costae only — **35**
Sculpture of costae and spiral striae producing reticulate or tuberculate surface — **36**

35. Shell large (up to 40 mm high), whorls very timid, linked at sutures by thin, widely spaced costae; aperture circular, with complete peristome — **35. Epitoniidae**
Shell small (up to 8 mm high), whorls almost flat-sided, costae numerous and flexuous; aperture ear-shaped; apex of shell sinistral — **Opisthobranchia: Pyramidellidae, *Turbonilla***

36. Shell minute (2–3 mm high), almost transparent, delicately reticulate with nine or ten narrow, tumid whorls and bulbous apex; slight umbilical groove — **37. Aclididae (*Graphis*)**
Shell solid, opaque, commonly 8–15 mm high with 10–15 slightly tumid whorls; reticulate ornament of strong tubercles, base of last whorl with spiral striae only; no umbilical groove — **24. Cerithiidae**

37. Shell globose-conic with the initial two or three whorls forming a styliform apex; mantle partly covers shell in life; parasitic on echinoids — **39. Stiliferidae**
Shell not like this — **38**

38. Shell delicate, purple or pale violet, broadly conical or globose; pelagic, usually washed ashore on south-western beaches — **36. Janthinidae**
Shell not like this — **39**

39. Shell smooth, globular and polished; umbilicus deep, partly occluded by a callus-like extension of the inner lip; foot with greatly enlarged propodium forming plough-like shield over head and front of shell; creeps through and over sand — **34. Naticidae**
Shell and body not like this — **40**

40. Shell oval-conic, smooth, with four or six tumid whorls patterned with zigzag streaks of variable colour; operculum calcareous, white, convex lens-shaped; foot with three pairs of epipodial tentacles — **9. Tricoliidae**
Shell not like this; operculum horny, foot with or without epipodial tentacles — **41**

41. Adult shell decollate (apical whorls lost), columnar with three or four whorls and blunt apex, usually finely ribbed; immature shell (before decollation) of six or seven tapering whorls, the apical two smooth; snout very long, used with foot in caterpillar-like 'looping' locomotion; high on shore in muddy areas with Sea Blite; south coast — **13. Truncatellidae**
Shell and body not like this — **42**

42. With at least three pairs of epipodial tentacles; operculum polygyrous, circular with central nucleus; shell depressed-globular or pyramidal (breadth usually greater than height); aperture in markedly prosocline plane (about 45° or more to vertical) 43

Without epipodial tentacles; operculum not circular, with few turns; shell globose-conic or a more oval or elongate cone (higher than broad) 44

43. Shell minute (<2 mm high), globular or depressed globular; aperture with complete peristome; protoconch without pointed tip **8. Skeneidae**

Shell not minute (>2 mm high), depressed globular or pyramidal; aperture without complete peristome, usually with nacreous lining; protoconch with broad point on tip of initial whorl **7. Trochidae**

44. Shell smooth, polished, oval or barrel-shaped with incised sutures; aperture long, narrow with tooth on columella; pinkish or brown with white bands; shallow burrower in sand **Opisthobranchia: Acteonidae**

Shell not like this 45

45. Shell with chink-like umbilicus and ⋀-shaped groove on columella; foot with two prominent metapodial tentacles (Fig. 12.3) **10. Lacunidae**

Shell with or without umbilicus, but if present without ⋀-shaped groove leading to it; foot with or without metapodial tentacles 46

46. Shell turreted, with fine striae and prosocline costae below thick periostracum; foot with two prominent metapodial tentacles **10. Lacunidae**

Shell and body not like this 47

47. (*In this dichotomy it is important that shell size be related to the number of whorls*) Shell rarely up to 9 mm, commonly <6 mm in height at five or six whorl stage, 2 mm or less at three to four whorls; oval-conic or globular; smooth, or with costae, or spiral striae, or both; aperture with complete peristome; foot with or without metapodial tentacle, mantle with one or two pallial tentacles or none 48

Shell minimum 9 mm, frequently larger, at five or six whorl stage, 4 mm or more at three to four whorls; drop-shaped with short, slightly coeloconoid spire of flat-sided whorls, or more globular with tumid whorls; smooth or with spiral striae, never costate; aperture without distinct peristome, which is completed by no more than a thin glaze in the parietal region; without metapodial or pallial tentacles **11. Littorinidae**

48. Apex of shell sinistral; spire otherwise dextral; smooth or with fine decussation, with or without tooth on columella; cephalic tentacles grooved on outer sides, with eyes set between them; a shelf-like projection (*mentum*) lies between the underside of the head and the propodium **Opisthobranchia: Pyramidellidae**

Shell and body not like this 49

49. Shell smooth, oval or spindle-shaped with flat-sided whorls and shallow sutures; last whorl large (>60% of shell height), aperture narrow, scimitar-shaped with two or three prominent teeth on columella; no operculum, cephalic tentacles short, retractile, with eyes at base; in crevices, usually on upper shore **Pulmonata: Ellobiidae**

Shell and body not like this 50

50. Cephalic tentacles short, semicircular lobes with large eyes at tip; semi-terrestrial in salt-marshes between Kent and Humber (shell oval-conic) or high on shore in caves and crevices on south coasts (shell globose-conical, rare) **14. Assimineidae**

Cephalic tentacles cylindrical, single or bifid, with eyes at or behind their base **51**

51. Shell smooth, with five or six slightly tumid whorls: usually cream with single spiral band of red (may be uniform red or white); operculum crimson with internal peg-like process; foot with red opercular lobes and slightly bifid posterior tip; no metapodial or pallial tentacles **16. Barleeidae**

Shell and body not like this **52**

52. Mantle edge with pallial tentacle on right (protrudes from adapical angle of aperture), with or without similar tentacle on left **53**

Mantle edge without pallial tentacle on left or right **54**

53. Metapodial tentacle present, though it may not extend to posterior tip of foot; shell smooth or with costae or spiral striae or both; marine **15. Rissoidae**

Metapodial tentacle absent, shell smooth; in estuarine and brackish waters **12. Hydrobiidae**

54. Adult shell 5–6 mm with six whorls; thin periostracum, occasionally drawn out into peripheral keel of bristles, often with black encrustations on spire; umbilicus at most a minute chink; in fresh and brackish waters only **12. Hydrobiidae (*Potamopyrgus*)**

Adult shell minute (< 2 mm with three to four whorls), without periostracum; umbilicus usually obvious, chink-like or deep and round; foot with prominent opening of mucus gland medially on sole; marine **55**

55. Shell whitish, glossy, and slightly iridescent, its transparency revealing distinctive dark spots on mantle; umbilicus a narrow chink or deep and round; snout deeply bifid, each half tentacle-like; cephalic tentacles single or bifid; operculum concentric with nucleus at middle of columella edge, a peg-like process and three radiating ridges on its inner surface **21. Rissoellidae**

Shell cream or light horn colour with three red-brown bands on body whorl (young shells may be uniform brown); with or without umbilical chink; snout bifid but not tentacle-like, cephalic tentacles single, foot with short triangular metapodial tentacle, operculum spiral, without ridges **17. Cingulopsidae**

56. Shell dextral **57**

Shell sinistral **26. Triphoridae**

57. Shell with tall spire of tumid whorls bearing crescentic costae and fine spiral striae: mature shells with palmate extension to outer lip, juveniles (up to eight whorls) with sharply pointed siphonal canal but without palmate outer lip **27. Aporrhaidae**

Shell not like this **58**

58. Shell elongate, needle-like, of up to fourteen whorls, each with three rows of tubercles; aperture small with short siphonal notch at base — **25. Cerithiopsidae**
Shell not like this — **59**

59. Shell smooth, or with growth lines only — **41. Buccinidae**
Shell with costae or spiral striae or both — **60**

60. Shell costate, with or without spiral striae — **61**
Shell with spiral striae only — **71**

61. Spiral striae absent — **40. Muricidae (*Boreotrophon*)**
Spiral striae present, though may be fine — **62**

62. Shell with twelve or more costae on penultimate whorl — **63**
Penultimate whorl with less than twelve costae — **68**

63. Shell breadth equals 50% or more of total height — **64**
Shell breadth less than 50% of height — **65**

64. Shell breadth >60% of height, whorls tumid, costae strongly crescentic, fading below periphery of last whorl; aperture broadly oval, without teeth on outer lip; shell large (up to 110 mm high) — **41. Buccinidae**
Shell less than 30 mm in height, costae not strongly crescentic, outer lip thickened and ridged internally; foot with two metapodial tentacles — **42. Nassariidae**

65. Siphonal canal long (equal to aperture length, or nearly so), narrow — **66**
Siphonal canal not as described — **67**

66. Shell of seven or eight turreted whorls, with numerous narrow costae and spiral striae producing deep reticulation; spiral element absent from subsutural band on shoulder of each whorl; aperture oval or triangular, without anal sinus, siphonal canal straight, narrow — **40. Muricidae (*Trophonopsis*)**
Shell of up to eleven tumid whorls, with numerous costae terminating apically at a broad, concave subsutural band; aperture elongate with deep anal sinus; no operculum — **43. Turridae (*Comarmondia*)**

67. Shell up to 30 mm, spire tall, almost flat-sided, with reticulate pattern; aperture may have teeth on inner and outer lips, siphonal canal separated from base of shell by deep spiral groove; foot with two metapodial tentacles, operculum present — **42. Nassariidae**
Shell not as above, <20 mm in height; foot without metapodial tentacles, with or without operculum — **43. Turridae**

68. Shell breadth equal to or greater than half the height — **69**
Shell breadth less than half the height — **70**

69. Shell < 12 mm with seven to nine whorls; no operculum **43. Turridae**
Shell > 15 mm (often twice this) with seven or eight whorls; with operculum **40. Muricidae**

70. Adult shell up to 5 mm with five or six whorls; penultimate whorl with four flat spiral striae and nine or ten costae; aperture without anal sinus, outer lip with varix; shell chestnut-brown; with operculum **41. Buccinidae (*Chauvetia*)**
Shell not as above; adult > 5 mm, commonly up to 10 mm; aperture with anal sinus; no operculum **43. Turridae**

71. Spiral ridges strong and cord-like, five or six on penultimate whorl; aperture narrow with deep anal sinus, outer lip thin, crenulate; protoconch with diamond-shaped reticulation; no operculum **43. Turridae (*Teretia*)**
Shell not like this; aperture broad, anal sinus slight or absent, protoconch simple, animal with operculum **72**

72. Spire short, last whorl > 80% of shell height; outer lip thick, with internal teeth in mature shells **40. Muricidae (*Nucella*)**
Spire long, last whorl < 80% of shell height **41. Buccinidae**