

SEABIRDS OBSERVED IN THE ANDAMAN SHELF SEA OFF PHUKET, THAILAND, 1990-91.

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A B S T R A C T

Observations of seabirds during 5 oceanographic cruises (67 observation hours) between October 1990 and June 1991 in the Andaman Shelf Sea off Phuket are reported. The density of seabirds was generally low, between 0.1 and 5 seabirds per observation hour. Peak abundances were recorded during the wet, southwest monsoon season and near the edge of the continental shelf. Altogether 9 species of seabirds, including unidentified terns and shearwaters, were observed. Frigatebirds, mainly Lesser Frigatebird (*Fregata ariel*) and Bridled Tern (*Sterna anaethetus*) were most common with 226 and 164 individuals observed, respectively. Pomarine Jaeger (skua) (*Stercorarius pomarinus*) was more common (25 observations) than hitherto acknowledged. Three streaked shearwaters (*Calonectris leucomelas*) were observed on Nov. 20; this is the first published sight record in Thai waters.

I N T R O D U C T I O N

In connection with oceanographic investigations carried out at Phuket Marine Biological Center in 1990/91, altogether five cruises were conducted in the Andaman Shelf Sea off Phuket (Thailand). On the first of these cruises, October 16–19, 1990, it struck me how few seabirds (as compared to temperate seas) we observed, even though no systematic observations or counts were made. Apart from the immediate coastal areas, where concentrations of terns and frigatebirds can be locally high, very few birds were observed in the more offshore shelf area; scattered Bridled Terns (maybe a few hundred) and Lesser Frigatebirds (25–50) were all we observed in 4 days. However, near the edge of the continental shelf (station 8, Figure 1) we came across locally high concentrations of seabirds (terns). In this region we observed feeding flocks of Bridled Terns of more than 200 individual. Since this observation fitted very well with our oceanographic measurements that identified a particularly rich (in terms of plankton production) shelf-break front here (Kjørboe et al., 1991), I decided to do more systematic bird observations on subsequent cruises. The purposes of this little study were, therefore, (1) to elucidate potential relations between seabird distributions and oceanographic features and (2) to gather preliminary data on the occurrence of seabirds in the Andaman Sea.

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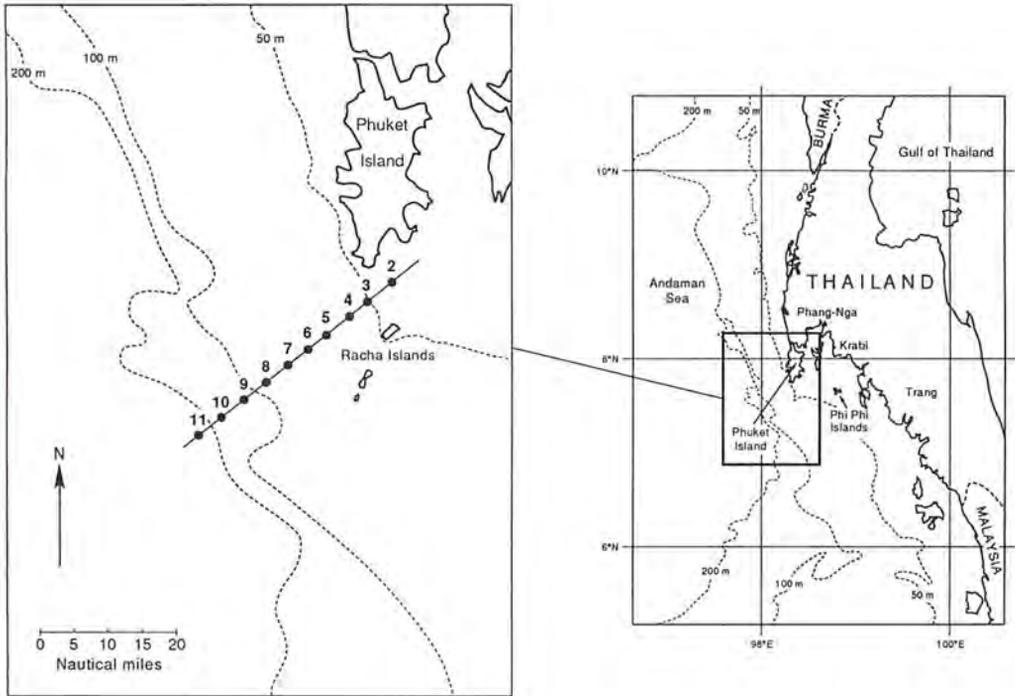


Figure 1. Map showing the Andaman Coast of Thailand and (insert) the transect sampled during the study.

M A T E R I A L S A N D M E T H O D S

Cruises were conducted on November 19 – 22, 1990; February 4 – 8, 1991; April 1 – 5, 1991, and June 3 – 7, 1991. On each cruise 10 oceanographic stations along a transect line across the shelf were occupied (Figure 1). Two or three stations were sampled per day. Observations were carried out while occupying stations (2 – 5 h per station) and when cruising between stations. Each night we anchored at one of the Racha Islands, and observations were also carried out while cruising back and forth between stations and Racha Islands in the early mornings and late afternoons.

Birding had secondary priority on the cruises and was carried out while simultaneously performing other duties. Most birds were first observed by the naked eye; only occasionally did I scan the horizon with a binocular. Number of birds seen per observation hour was used as an index of bird density. The figures presented here are conservative, since birding was not particularly intense; I estimate that a more alert observer might have seen up to 2 – 4 times as many birds per hour than I did. Everything else being equal more birds are seen while cruising than while anchored. In calculating the number of birds per h, the observation time at anchor stations was somewhat arbitrarily put to 1 h, independently of how long we stayed at the station.

Nomenclature follows KING et al. (1975).

R E S U L T S A N D D I S C U S S I O N

Seasonal Variation

Table 1 summarizes observations made during the four cruises and gives also the average number of birds per h on each cruise. The densities of seabirds were particularly low in February, higher in November and February, and peaked in July. Although no systematic counts were made during the October cruise, densities of seabirds on this occasion were at least as high as in June, suggesting a pronounced seasonality in the occurrence of seabirds in the Andaman Sea, with peak abundances during the wet, south-west monsoon season (May–October).

Spatial Patterns

In Table 2 all observations were assigned to one of four sections along the transect line; section III includes the shelf-break front. The very distinct distribution of seabirds observed in October was not seen again in a consistent manner on subsequent cruises. However, averaged over all four cruises (November to June), seabird densities peaked in region III around the shelf-break front (if we exclude one observation of a flock of 150 Lesser Frigatebirds in section I), although the trend was not particularly evident on individual cruises. This region, thus, appears to attract seabirds, which is consistent with the locally elevated pelagic productivity here. Note that much higher concentrations of seabirds than observed in this study, including significant flocks of Frigatebirds and Black-naped

Table 1. Seabirds observed, numbers of observation hours and average number of birds seen per hour during four cruises in the Andaman Sea off Phuket 1990–91. Data in parentheses include one flock of 150 Lesser Frigatebirds.

Species/Cruise	Nov. 19–22	Feb. 4–8	April 1–5	June 3–7
Streaked Shearwater <i>Calonectris leucomelas</i>	3			
Unidentified Shearwater				2
Great Frigatebird <i>Fregata minor</i>				2
Christmas Frigatebird <i>Fregata andrewsi</i>			1	
Lesser + unid. Frigatebird <i>Fregata ariel</i> + <i>Fregata</i> sp.	36	1	4	35 (185)
Pomarine Jaeger <i>Stercorarius pomarinus</i>	2		9	14
Bridled Tern <i>Sterna anaethetus</i>	32		17	115
Great Crested Tern <i>Sterna bergii</i>	1			
Unident. (white) Tern	5		16	
Total no. seabirds	79	1	47	168 (318)
No. of observation hours	16	14	16.25	20.5
Ave. no. of seabirds per hour	4.9	0.1	2.9	8.2 (15.5)

Table 2. Spatial distribution of seabirds across the shelf in the Andaman Sea off Phuket. No of birds observed per hour in four sections during four cruises. Section I: st. 2 – 4; section II: st. 4 – 6; section III: st. 7 – 9; section IV: st. 10 – 11. Data in parentheses include one observation of a large (150 individuals) flock of Lesser Frigatebirds.

Section/ Cruise	Nov. 19 – 22	Feb. 4 – 8	Apr. 1 – 5	June 3 – 7	Average hours	Total
I	5.7	0.0	5.3	0.6 (27.6)	2.9 (9.7)	15
II	5.2	0.0	2.0	9.5	4.2	14.75
III	5.6	0.3	5.0	13.1	6.0	22.25
IV	2.8	0.0	2.7	0.7	1.6	14.75

Terns, occur close to the coasts and rocky islands scattered in the area, e.g., Phi Phi Island in Phang Nga Bay, but these are primarily caused by the proximity of roosting or nesting islets, rather than being associated with feeding areas.

Species Composition

No more than 9 species of seabirds, including unidentified terns and shearwaters, were observed in the offshore regions during this study (Table 1).

There are no previous sight records of shearwaters in Thai waters, but one Streaked Shearwater was once found dead in NE Thailand, and one Short-tailed Shearwater was once taken at sea off Phuket (LEKAGUL & ROUND, 1991). Altogether I saw 5 Shearwaters on three occasions during four cruises. The three Streaked Shearwaters were seen together at station 11 (7° 25' 00" N, 97° 56' 30"E) on Nov. 20. They were passing the boat at a distance of about 200 m (bright sunshine) in typical shearwater flight: gliding on rigid wings just above the sea surface with the gliding interrupted by short bursts of wing-beats. The size of the birds was similar to or somewhat larger than that of Pomarine Jaeger. The color pattern was light/white below and dark above. The head appeared white. According to KING et al. (1975) the latter characteristic is diagnostic. Two more shearwaters were observed during the June cruise. One was seen near station 11 on June 5 at great distance (ca. 500 m); it was entirely dark and appeared slightly smaller than Pomarine Jaeger. Another shear water (same species?) was observed at station 7 (7° 33' 00"N, 98° 9' 00" E) on June 7. This bird was seen in good light (slightly overcast), from all angles and at close distance (down to < 25 m) for more than 5 minutes while it was flying around the boat. The body was dark chocolate brown (not black) both below and above, the wings slightly lighter brown than the body, bill dark, relatively short, wedge-shaped tail, and overall body

size and wing span slightly to somewhat smaller than Pomarine Jaeger. The color of the feet was not noted; thus, they were presumably dark. The description fits reasonably with the description of Short-tailed Shearwater in KING *et al.* (1975) and LEKAGUL & ROUND (1991), except that the present bird appeared closer in size to Pomarine Jaeger than the description in the above guides indicate, and the tail of the present bird appeared considerably shorter than that illustrated in LEKAGUL & ROUND (1991).

Frigatebirds were almost exclusively Lesser Frigatebird, although only ca. 50% of the birds were close enough for identification. Among the birds identified with certainty one Christmas Frigatebird was observed in April and two Greater Frigatebirds were seen in June; all other identified birds were Lesser Frigatebird.

Several species of terns were observed. However, in general I was unable to identify the white terns (too far away; too little experience) with the exception of one Great Crested Tern seen near station 11 on Nov. 20.

In addition to the seabirds mentioned above and in Table 1 several Black Drongos (total of 16) and one Yellow Wagtail were seen heading NE on April 2 and 3 as far offshore as station 8.

CONCLUDING REMARKS

Birding in the offshore regions of the Andaman Shelf Sea is not particularly rewarding. Species diversity and bird densities are both low, although several species appear more common than previously thought. The season that appears to be most rich in birds (the SW monsoon season) is furthermore characterized by rough seas. That probably explains why the birds that do occur are relatively little studied and their occurrence poorly known.

The most recent summary of the occurrence of birds in Thailand is that of LEKAGUL & ROUND (1991). They consider the Frigatebirds as uncommon (Lesser and Christmas) or rare (Greater) visitors. However, Lesser Frigatebird appears to be quite common and it is present year round in the Andaman Sea off Phuket. In fact it seems to be even more abundant in the immediate coastal area and in Phang Nga Bay than further offshore; for example, Lesser Frigatebird can be seen with almost certainty at any time of the year from the southwesternmost tip of Phuket and at Phi Phi Island. Islets off Phi Phi Island are the only known roosting sites in the area, and all birds observed in the present study were within 15 – 20 nautical miles from there.

The Pomarine Jaeger is considered an uncommon winter visitor by LEKAGUL & ROUND (1991); in this study it was observed regularly, except during the winter (February) cruise.

The Bridled Tern is characterized as an uncommon resident by LEKAGUL & ROUND (1991); together with Lesser Frigatebird it was the most abundant seabird observed during this study.

Several species of shearwaters probably occur regularly but in small numbers in the Thai Andaman Sea.

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