Santa Maria e Formigas/1990: Relatório (87-91)

SOME STUDIES OF CORY'S SHEARWATER *Calonectris diomedea*, AROUND THE ISLAND OF SANTA MARIA

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Preliminary observations were made in relation to preparation for a joint University of Glasgow/Universidade do Algarve expedition to the Azores, in August/September, 1990, to study the diet, feeding ecology and colony attendance patterns of the **Cagarro** or Cory's shearwater *Calonectris diomedea*. A search was made for breeding colonies suitable for detailed studies, and observations were made on the distribution of birds at sea and on rafting behaviour.

DISTRIBUTION OF COLONIES

It was known that the island held a large breeding population of Cory's shearwaters, and that there is an accesssible colony on the Ilhéu da Vila, but it was not known whether any other colonies on and around the main island are suitable for the type of studies that were planned. Visits were therefore made other to parts of the coast, including Baía de São Lourenço, Baía de Tagarefe and Anjos. Althought large "rafts" of birds were seen on the sea in those areas during late afternoon, the presumed breeding colonies were on steep islets and cliffs. However, visits made to Ilhéu da Vila showed that this island has sufficient, easily accessible nests for a successful study.

DISTRIBUTION AT SEA

The value of the dietary studies planned for August/September, 1990, would be greater if there were some indication of the areas in which the birds collected their food. A preleminary study of shearwater distribution at sea was therefore made during the journey by Portuguese navy frigate from Ponta Delgada to Santa Maria. The sea on both sides of the ship was scanned by eye from a location towards the stern. Birds seen were checked and counted using a 10x40 binocular, and observations were recorded in a consecutive series of 10-minute blocks from the beginning to end of the journey. The presence of cetaceans was also noted.

Figure 1 shows the number of birds counted on the sea or in flight in each ten minute block.

The maximum number was seen at 18.30 off the north-west coast of Santa Maria, probably representing birds beginning to gather in rafts prior to going ashore to their breeding colonies, but also coinciding with the shelf edge around Santa Maria. The small peak at 15.50 coincided with the shelf edge around São Miguel and that at 17.30 was associated with the presence of a whale and twenty dolphins.

RAFTING

A characteristic of a number of seabird species, including shearwaters, is "rafting" behaviour, or the gathering in flocks on the sea off the breeding colonies prior to going

ashore. Few studies have been undertaken of this behaviour, and it was considered that it may be an important component of the Cory's shearwater's time budget in relation to foraging behaviour and energy needs. It was thought that, if birds have difficulty finding enough food, because of food scarcity or the demands of young in the nest, the time spent feeding would increase and the start of rafting may be delayed. Two sets of observations were therefore made as pilot studies in relation to the monitoring of rafting behaviour:

1 - birds at sea, within a 45° arc, counted by telescope (magnification 25x) from the quay at Vila do Porto on the 14th. June, 1990. A count was made at 15 minute intervals from 15.30 to 18.45. The results (figure 2) show a low initial density, followed by a steep rise from 17.30 to a maximum at 18.30. It is interesting to note the relation between the numbers of birds present and the presence of cetaceans in the area, but the later high numbers are related to the rafting behaviour of the birds, a raft of 50-100 birds being seen on the sea in the direction of Ilhéu da Vila at 18.24. (no observations were made at 17.00 and 17.15).

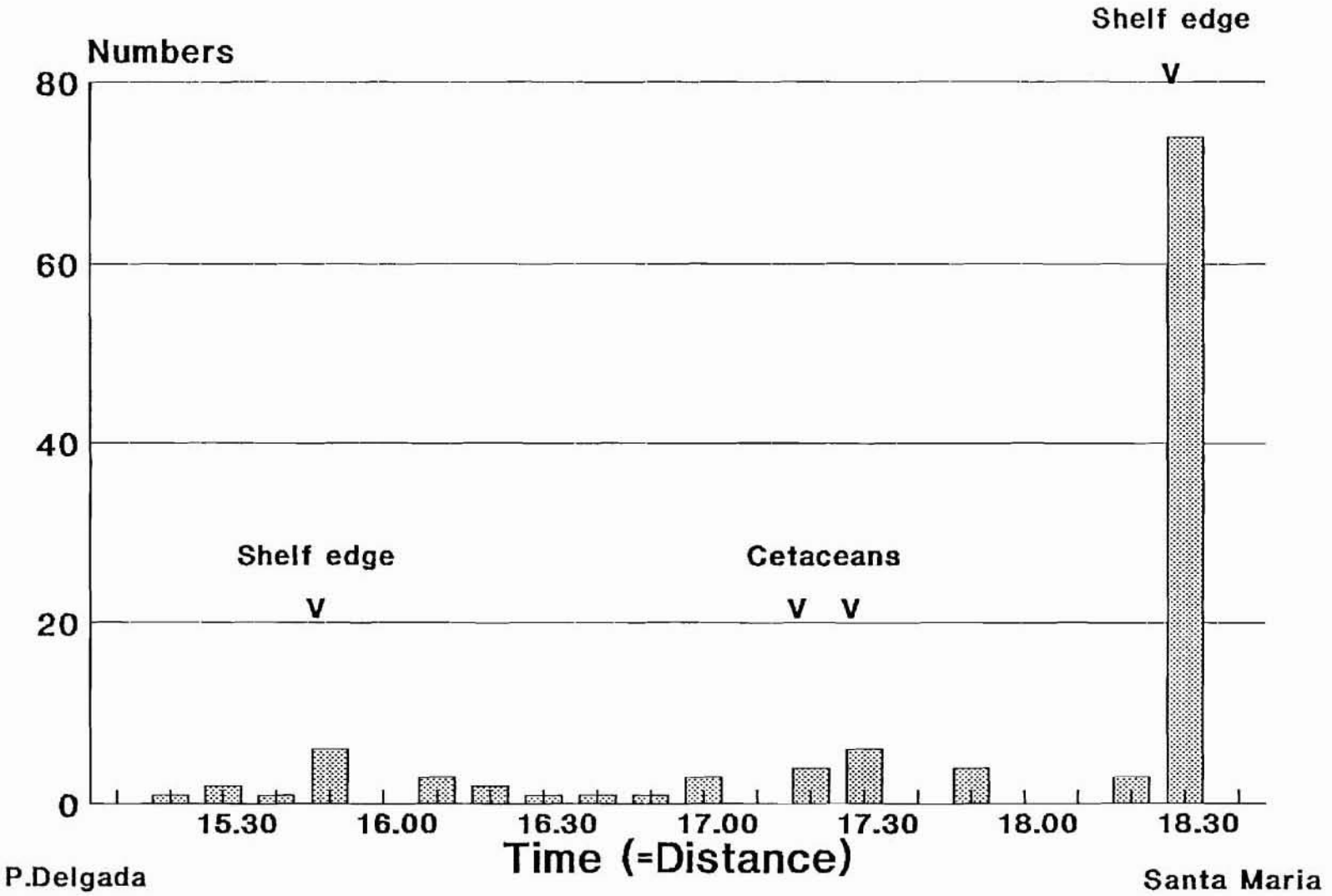
2 - observations were made on the 15th. June, 1990 from a point on the cliffs overlooking Ilhéu da Vila, from 18.10 to 19.00, and from 20.50 to 21.30 (figure 3). The first raft of the birds was seen at 18.10 and numbers on the sea rose rapidly to 250 at 19.00. During the period 20.50 to 21.30 the rafts moved gradually towards and behind the **ilhéu** at 21.44. (on the night of 16th. of June, observations on the **ilhéu** showed that the first birds came ashore at 21.30).

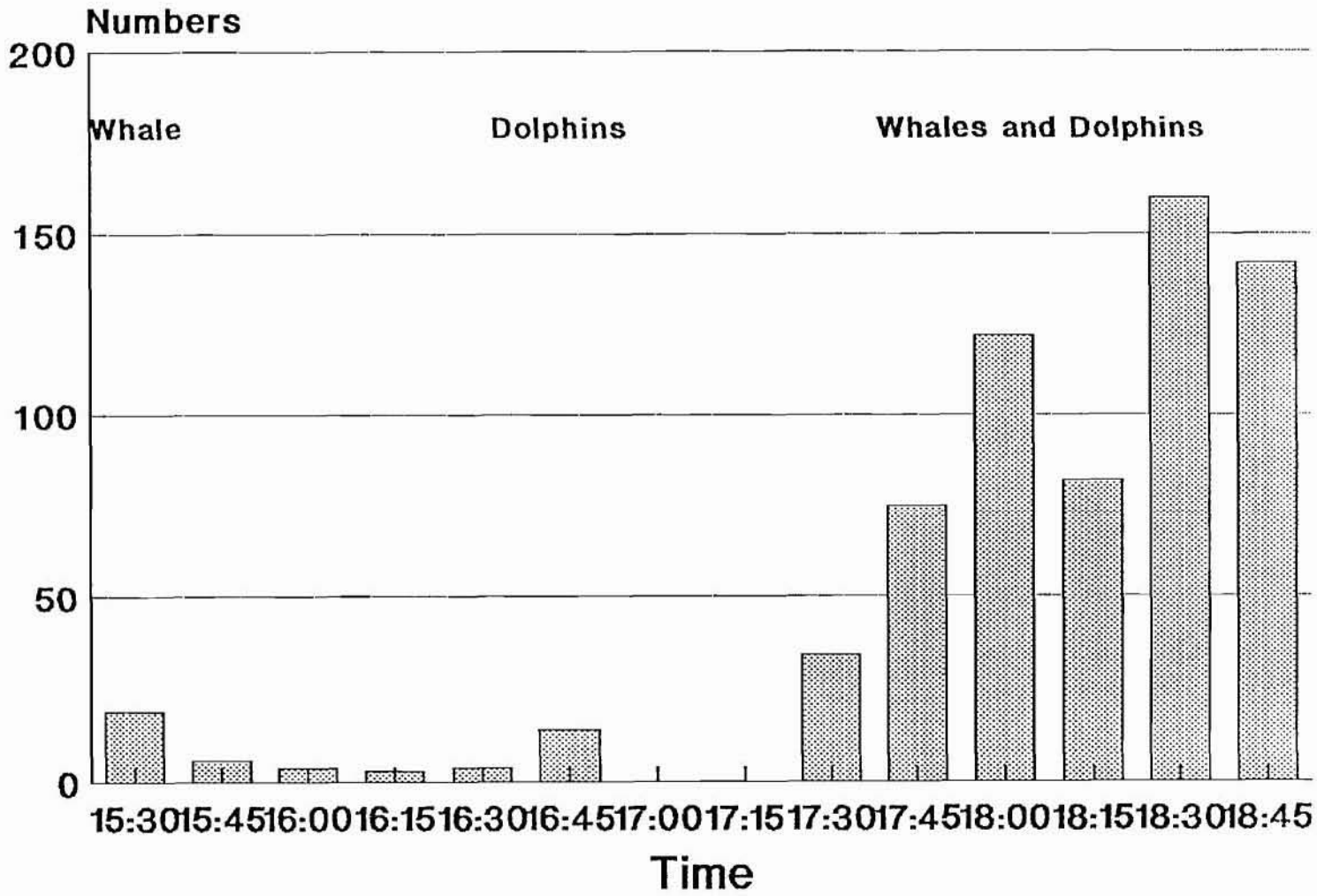
It is interesting to note the length of time, i.e. 3 hours 20 minutes, between the first rafts forming (18.10) and the going ashore of the first birds (21.30). This suggests that the shearwaters have no difficulties in finding sufficient food at this time of year.

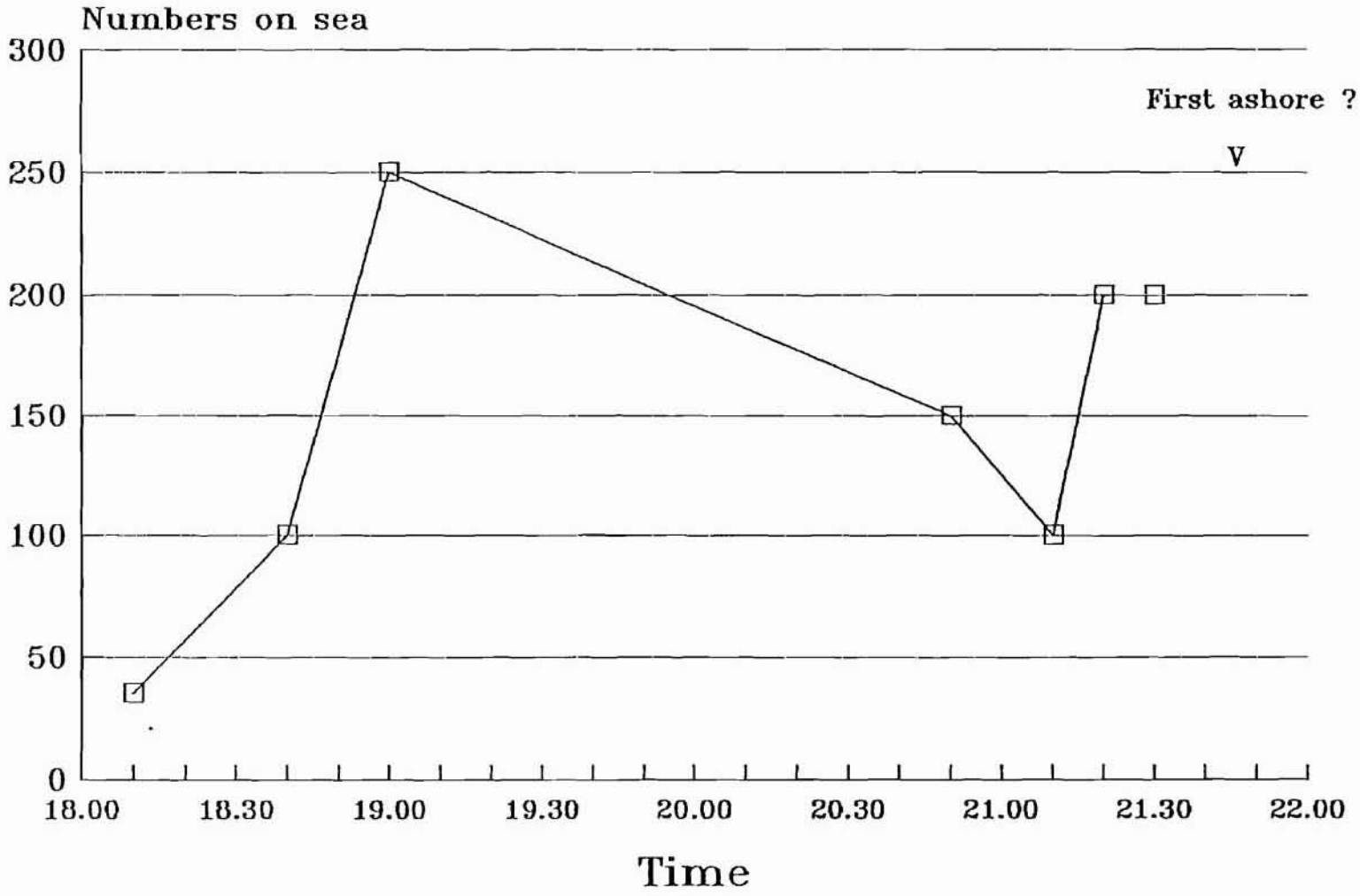
Figure 1- the number of Cory's shearwaters counted on the sea or in flight in consecutive series of 10 minute blocks during the journey from Ponta Delgada to Santa Maria.

Figure 2- counts at 15 minute intervals of Cory's shearwaters of Vila do Porto on the 14th. of June, 1990, with records of the presence of cetaceans.

Figure 3- counts of Cory's shearwaters in rafts on the sea to the south and east of Ilhéu da Vila on 15th. of June, 1990.


Shelf edge
Numbers
80
60
40
20
0
Shelf edge
Cetaceans
15.30
16.00
16.30
17.00
17.30
18.00
18.30
Time (=Distance)
P.Delgada
Santa Maria


Numbers
200
150
100
50
0
Whale
Dolphins
Whales and Dolphins
15:30
15:45
16:00
16:15
16:30
16:45
17:00
17:15
17:30
17:45
18:00
18:15
18:30
18:45
Time


Numbers on sea
300
250
200
150
100
50
0
First ashore ?
V
18.00
18.30
19.00
19.30
20.00
20.30
21.00
21.30
22.00
Time