

## Migration and wintering of Mediterranean Gulls *Larus melanocephalus* ringed in the Netherlands and Belgium: a progress report

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### ABSTRACT

From 1990 through 1997, nearly 1,000 Mediterranean Gulls have been colour-ringed in the Netherlands and Belgium. This generated over 10,000 ring-reading records of these birds up to 1 July 1998. NW-France is a major staging and moulting area for both adults and immatures from mid-July to October, and for first-summers from April to August. On a smaller scale, this is also the case for Britain and Ireland. Wintering largely takes place in W-France, NW-Spain, Portugal and Morocco. Most records in SW-France are established in spring. There are few records in the Low Countries away from the breeding season. The few records in Central Europe are of adults, mostly in colonies.

### RÉSUMÉ

**Migration et hivernage des Mouettes mélanocéphales *Larus melanocephalus* baguées aux Pays-Bas et en Belgique: compte rendu.** De 1990 à 1997, quelques 1.000 Mouettes mélanocéphales ont été munies d'une bague de couleur aux Pays-Bas et en Belgique. Ceci a généré plus de 10.000 lectures de bagues de ces oiseaux jusqu'à la date du 1 juillet 1998. Le Nord-Ouest de la France est un site majeur de stationnement et de mue, aussi bien pour les adultes que pour les immatures de la mi-juillet à octobre, et pour les oiseaux de premier été d'avril à août. A plus petite échelle, ceci est également le cas pour la Grande-Bretagne et l'Irlande. L'hivernage a principalement lieu dans l'Ouest de la France, le Nord-Ouest de l'Espagne, le Portugal et le Maroc. La plupart des contrôles dans le Sud-Ouest de la France ont lieu au printemps. Il n'y a que peu de contrôles aux Pays-Bas et en Belgique en dehors de la saison de nidification. Les quelques contrôles en Europe Centrale concernent des adultes, la plupart du temps dans les colonies.

### INTRODUCTION

The breeding range of the Mediterranean Gull *Larus melanocephalus* was originally almost confined to the Black Sea, with smaller colonies regularly present in Greece (Isenmann 1982, Cramp & Simmons 1983, Goutner & Isenmann 1993, Bekhuis *et al.* 1997). Mainly since the 1950s the species has bred in several parts of central and western Europe. Only since the 1970s it established successful and growing colonies in Hungary (Széll & Bakaszi

1996), Italy (Goutner & Isenmann 1993), southern France (Yésou 1997), the Netherlands and Belgium (Meininger & Bekhuis 1990, Meininger & Flamant 1998). The combined breeding population of the Netherlands and Belgium showed an increase of six pairs in 1970 to ten pairs in 1980, followed by an almost exponential increase to 110 pairs in 1990 and 680 pairs in 1998 (Meininger & Bekhuis 1990, Meininger & Flamant 1998). In 1989, a ringing programme was started in the Netherlands, with additional engraved colour rings being used since 1990. Since 1992, this ringing programme, using the same type of rings, is also operational in Belgium. This paper presents a few preliminary results obtained during the first ten years of this study.

**Table 1. Number of Mediterranean Gulls *Larus melanocephalus* ringed in the Netherlands (1989-98) and Belgium (1992-98)**

**Tableau 1. Nombre de Mouettes mélanocéphales *Larus melanocephalus* baguées aux Pays-Bas (1989-98) et en Belgique (1992-98).**

	Chicks ringed with		Adults or 2 <sup>nd</sup> -years ringed with		All age classes ringed with	
	metal only	metal + colour	metal only	metal + colour	metal only	metal + colour
<b>Netherlands</b>						
1989	42	-	1	-	43	-
1990	71	35	24	24	95	59
1991	79	42	11	11	90	53
1992	50	27	11	11	61	38
1993	198	109	-	-	198	109
1994	162	98	14	14	176	112
1995	176	78	3	3	179	81
1996	220	139	-	-	220	139
1997	490	160	5	5	495	165
1998	273	207	21	21	294	228
<b>total NL:</b>	<b>1761</b>	<b>895</b>	<b>90</b>	<b>89</b>	<b>1851</b>	<b>984</b>
<b>Belgium</b>						
1992	44	30	1	-	45	30
1993	5	-	9	1	14	1
1994	6	1	4	-	10	1
1995	24	9	1	1	25	10
1996	175	71	45	45	220	116
1997	114	60	22	21	136	81
1998	349	203	42	42	391	245
<b>total B:</b>	<b>717</b>	<b>374</b>	<b>124</b>	<b>110</b>	<b>841</b>	<b>484</b>
<b>total NL + B</b>	<b>2478</b>	<b>1269</b>	<b>214</b>	<b>199</b>	<b>2692</b>	<b>1468</b>

## MATERIALS AND METHODS

### *Metal rings*

In 1989-1998 chicks and adult breeding birds of Mediterranean Gull have been ringed in most breeding colonies in Belgium and the SW-Netherlands. In the Netherlands, chicks were ringed with a metal ring on the right tibia, in Belgium also mainly on the right tibia, but in several cases on the right tarsus. The metal ring in adult breeding birds was placed on the left tibia in the Netherlands and generally on the left tibia in Belgium, but in several cases on the left tarsus. In the Netherlands aluminium rings were used in 1989-1996. Because aluminium rings become worn much quicker than stainless steel rings, the latter have been used since 1997. In Belgium both aluminium and steel rings have been used.

### *Colour rings*

In addition to metal rings, 'colour rings' have been applied in the Netherlands and Belgium since 1990. These are 3 cm high, white darvic PVC rings, with a black engraving composed of a unique combination of two digits and one letter, thus facilitating the identification of individual birds. The codes on the colour ring can be read with a telescope at distances up to 150 m. Colour rings were placed on the left tarsus of chicks and on the right tarsus of adult birds. Only chicks with a tarsus of over 42 mm (at least c. 12 days old), were ringed with a colour ring. Not all small chicks ringed with a metal ring were found during subsequent visits, because of mortality or simply because they were hidden in the vegetation. Consequently, the number of chicks ringed with an additional colour ring is smaller than the number ringed with a metal ring.

### *Catching adult breeding birds*

Adult breeding birds were captured on the nest with various cages (mostly walk-in cages). Trapping was done in the second half of the breeding period, when the nest contained either eggs or recently hatched chicks. To limit disturbance, catching sessions in colonies were performed only once or twice in a breeding season, and only a small sample of breeding birds was caught. Catching of adult birds was only done during favourable weather to prevent heating or chilling of eggs or chicks: not too cold, hot or windy, and no direct sunshine.

### *Reports of colour rings*

Immediately after the start of various European colour-ringing programmes, requests to look for, read and report colour rings were published in various regional and national ornithological journals (e.g. *Alauda*, *Birding World*, *British Birds*, *Dutch Birding*, *Mergus*, *SOVON Nieuws*, *Vogelwarte*, etc.). This was repeated several times. Since 1997, details of the colour-ringing programmes could be found on the Internet on the 'colour-ringing site' ([www.ping.be/cr-birding/cr-birding.htm](http://www.ping.be/cr-birding/cr-birding.htm)). The use of e-mail (since 1994) facilitated an efficient communication between observers and organizers. A short newsletter was sent to the growing observer network (increasing from 20 people in 1991, to 300 in 1997 and 400 in 1998). All observers of a colour-ringed bird received a response with a complete life history of the bird observed. This all clearly stimulated the continuous flow of reports. The original meaning of 'ring recovery' *sensu stricto* is information on a ringed bird found, shot, caught etc. reported to the ringing centre, often with the actual ring also being delivered. In this paper 'recovery' also applies to reports of colour rings read.

**Table 2.** *Number of Mediterranean Gulls colour-ringed in the Netherlands (1989-97) and Belgium (1992-97) and recovered up to and including August 1998. Only individuals of which complete number was read and excluding breeding birds in their colony in the season of ringing, and excluding chicks and juveniles in their natal colony in the season of ringing.*

**Tableau 2.** *Nombre de Mouettes mélanocéphales Larus melanocephalus, munies de bagues de couleur aux Pays-Bas (1989-97) et en Belgique (1992-97), et reprises/contrôlées jusqu'au mois d'août 1998 inclus. Sont seulement repris les individus dont le code complet a été lu mais les oiseaux nicheurs dans leur colonie pendant la saison du baguage sont exclus, ainsi que les poussins et juvéniles dans leur colonie natale pendant la saison de baguage.*

	Ringed as chick			Ringed as adult or 2 <sup>nd</sup> -year		
	Ringed	n	Recovered %	Ringed	n	Recovered %
<b>Netherlands</b>						
1990	35	15	43%	24	23	96%
1991	42	24	57%	11	8	73%
1992	27	18	67%	11	10	91%
1993	109	79	72%	-	-	-
1994	98	58	59%	14	13	93%
1995	78	39	50%	3	1	33%
1996	139	57	41%	-	-	-
1997	160	95	59%	5	4	80%
<b>total NL:</b>	<b>688</b>	<b>385</b>	<b>56%</b>	<b>68</b>	<b>59</b>	<b>87%</b>
<b>Belgium</b>						
1992	30	17	57%	-	-	-
1993	-	-	-	1	1	100%
1994	1	-	-	-	-	-
1995	9	4	44%	1	-	-
1996	71	35	43%	45	39	87%
1997	60	41	68%	21	17	81%
<b>total B:</b>	<b>171</b>	<b>97</b>	<b>57%</b>	<b>68</b>	<b>57</b>	<b>84%</b>
<b>total NL + B:</b>	<b>859</b>	<b>482</b>	<b>56%</b>	<b>136</b>	<b>116</b>	<b>85%</b>

## Processing of records

All reliable reports of colour rings were stored in a relational database (Paradox 4.5), including code of colour ring, observer, locality with geographical co-ordinates, condition of bird (dead, alive, breeding) and remarks (e.g. on behaviour, partner). The relatively few reports of metal rings (e.g. of birds found dead or read with a telescope) were not included in the database, and will only be mentioned briefly in this paper.

## RESULTS

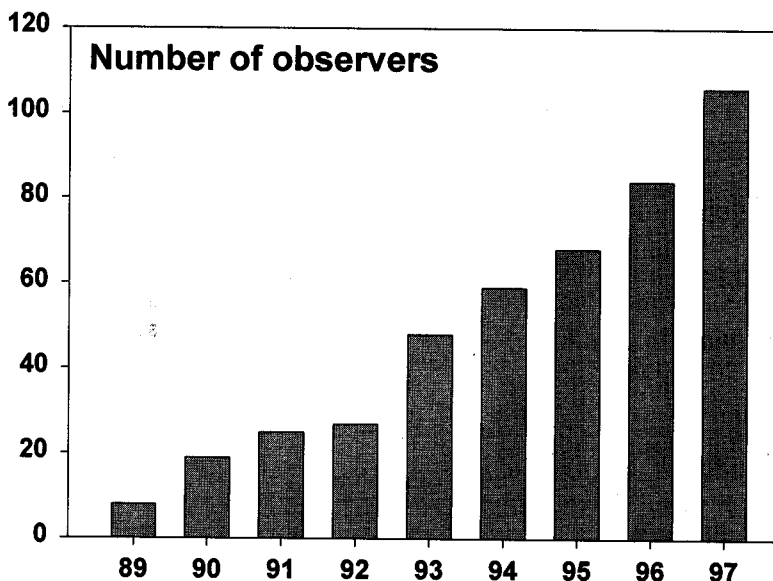
### Reports of rings

Table 1 shows the numbers of Mediterranean Gulls ringed with metal and colour rings in the Netherlands and Belgium in 1989-1998. Table 2 shows the number of colour-ringed birds reported at least once up to 1 July 1998, and the respective recovery rates.

A recovery is defined as a report of a bird ringed as a chick, of which the colour ring was read outside the breeding colony, or as a report of a bird ringed as adult breeder of which the colour ring was read away from the ringing site, or reported at the ringing site in another

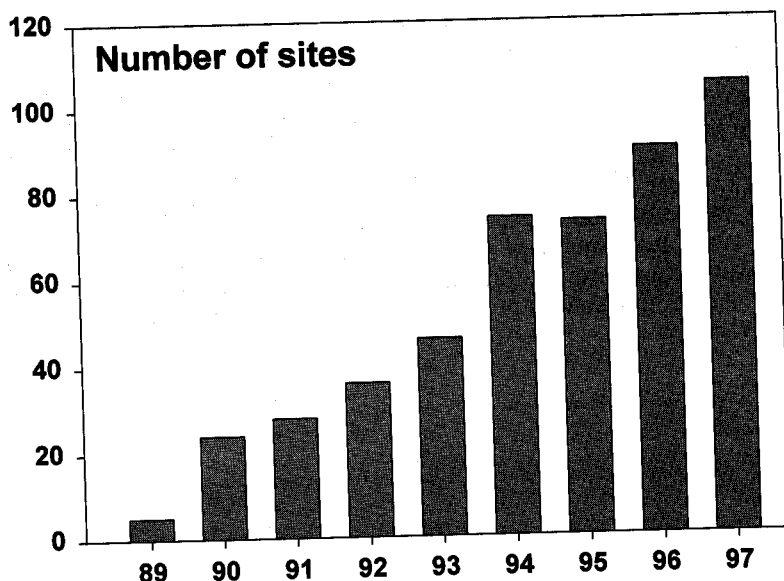
breeding season. The overall recovery rate of birds colour-ringed in 1989-97 was 85 % in birds ringed as adult breeders and 56 % in birds ringed as chicks. As a comparison, the recovery rate of birds ringed as chicks with metal rings was only 2-3 %. Moreover, most of these recoveries were accomplished at one locality by a single enthusiastic observer of colour rings, who regarded reading of metal rings as an extra challenge! Only 14 were reported as dead away from the ringing site, the 'traditional' ring recovery. All of these also had a colour ring, which may well have increased the chance of being found.

Up to 1 July 1998, the 995 Mediterranean Gulls colour-ringed in the Netherlands and Belgium in 1990-1997, produced a total of over 10,150 reports, generated by over 275 observers. While the majority of observers reported only one or a few reports, only 29 observers were responsible for 90% of the reports, and three observers for almost 60% of the reports, including observers producing as many as 2,726 (27%), 2,030 (20%) and 1,248 (12%) ring-readings.



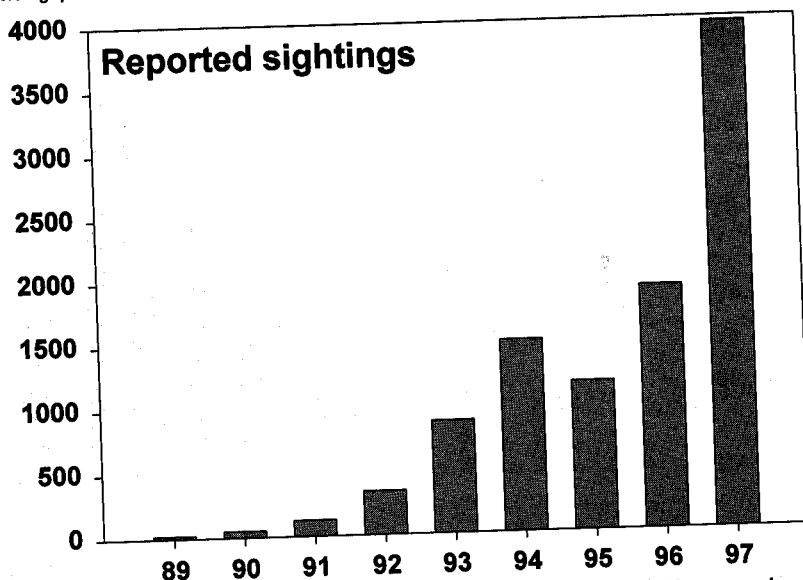
**Figure 1. Number of observers per season submitting at least one report of a Mediterranean Gull *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium (seasons running from 1 July through 30 June).**

**Figure 1. Nombre d'observateurs par année soumettant au moins une lecture d'une Mouette mélanocéphale *Larus melanocephalus* munie d'une bague de couleur provenant des Pays-Bas ou de Belgique (les années biologiques s'étalant du 1 juillet au 30 juin).**



**Figure 2.** Number of localities per season from where at least one Mediterranean Gull *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium, was reported (seasons running from 1 July through 30 June).

**Figure 2.** Nombre de sites par année d'où au moins une Mouette mélanocéphale *Larus melanocephalus*, munie d'une bague de couleur aux Pays-Bas ou en Belgique, a été rapportée (les années biologiques s'étalant du 1 juillet au 30 juin).

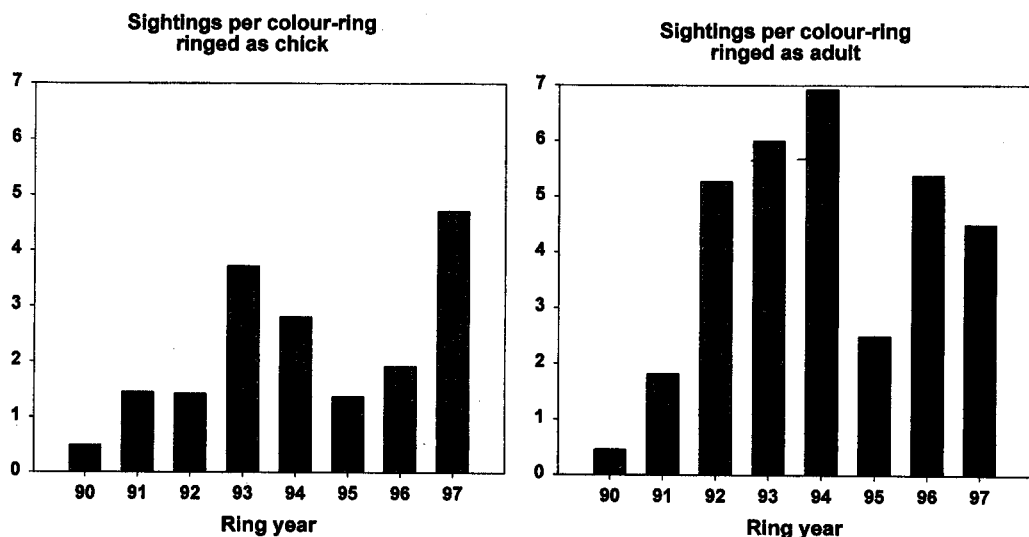


**Figure 3.** Number of reported sightings per season of Mediterranean Gulls *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium (seasons running from 1 July through 30 June).

**Figure 3.** Nombre de contrôles de Mouettes mélanocéphales *Larus melanocephalus* munies d'une bague de couleur aux Pays-Bas ou en Belgique rapportés par année (les années biologiques s'étalant du 1 juillet au 30 juin).

## Observer effort

The observer network (Figure 1) and the efforts of individual observers has increased considerably since the start of the study. This was stimulated by requests for co-operation, personal contacts, information sent in response to observations submitted, the use of better optical equipment etc. Also the fact that checking flocks of Mediterranean Gulls became increasingly rewarding, due to the large number of colour-ringed individuals from various projects, has clearly been stimulating. Not only were known large concentrations of gulls checked more often (e.g. at Le Portel and Boulogne-sur-Mer in France; Meininger *et al.* 1993, Hoogendoorn *et al.* 1995), but also the exploration of 'new' Mediterranean Gull staging sites (Figure 2) resulted in more reports (Figure 3). Figure 4 illustrates the observer effort, expressed as the number of records per colour-ringed bird within a year of ringing. From this figure it becomes clear that an ever increasing number of observers did *not* result in a comparable increase of records per ringed bird. There even was a dip in 1995, probably mainly caused by a relatively poor coverage of Le Portel/Boulogne in autumn 1995.



**Figure 4.** Mean number of sightings of individual Mediterranean Gulls *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium (ringed either as chick or as adult breeder) up to 1 July of the calendar year after ringing, per class of year of ringing.

**Figure 4.** Moyenne du nombre de contrôles (par classe d'année de baguage) d'individus de Mouettes mélanocéphales *Larus melanocephalus*, munis d'une bague de couleur aux Pays-Bas ou en Belgique (bagués comme poussins ou adultes nicheurs), jusqu'au 1 juillet de l'année calendaire suivant le baguage.

Migration and wintering

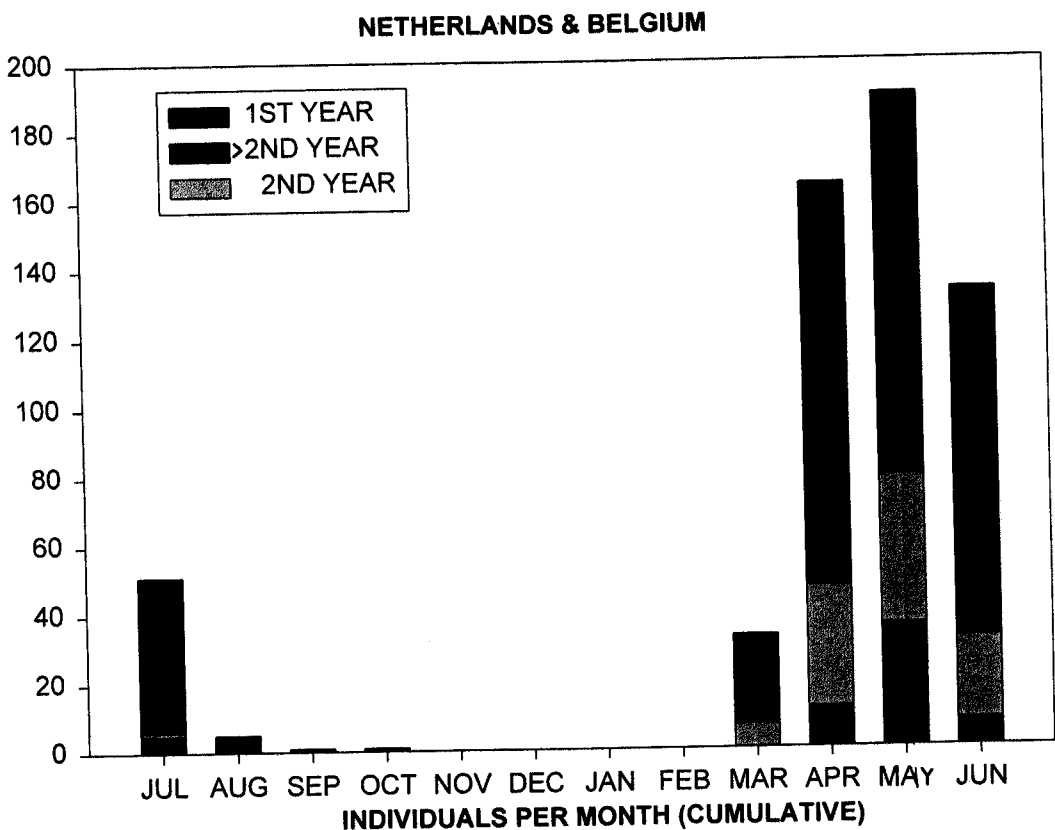
Many interesting results have been obtained, contributing to the insight into migration, wintering and movements of Mediterranean Gulls ringed in the Netherlands and Belgium, both on the level of populations as on the level of individual birds. Since the study is still in full progress, only a few examples of preliminary results are given below. More complete analyses are intended to be published within a few years.

Figure 5 shows the number of individuals (per age class) recorded per month in nine different regions of Europe. It should be noted that an individual was only counted once in a single month, also in cases when there were several records of this individual during that month in the same region.

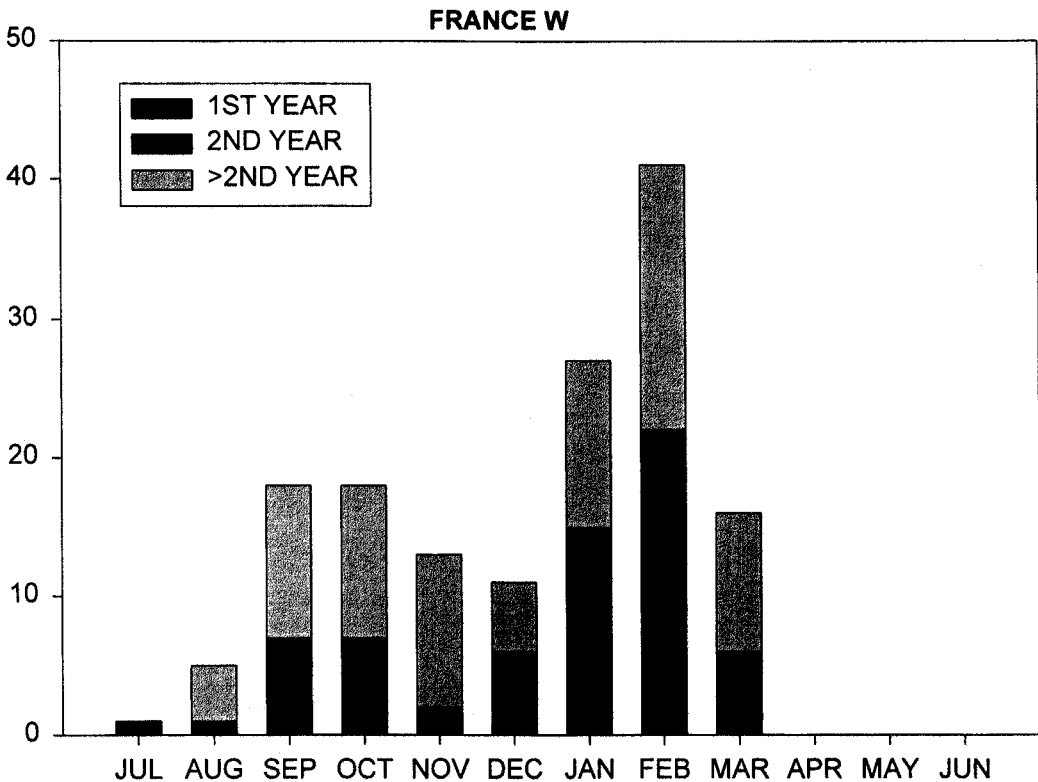
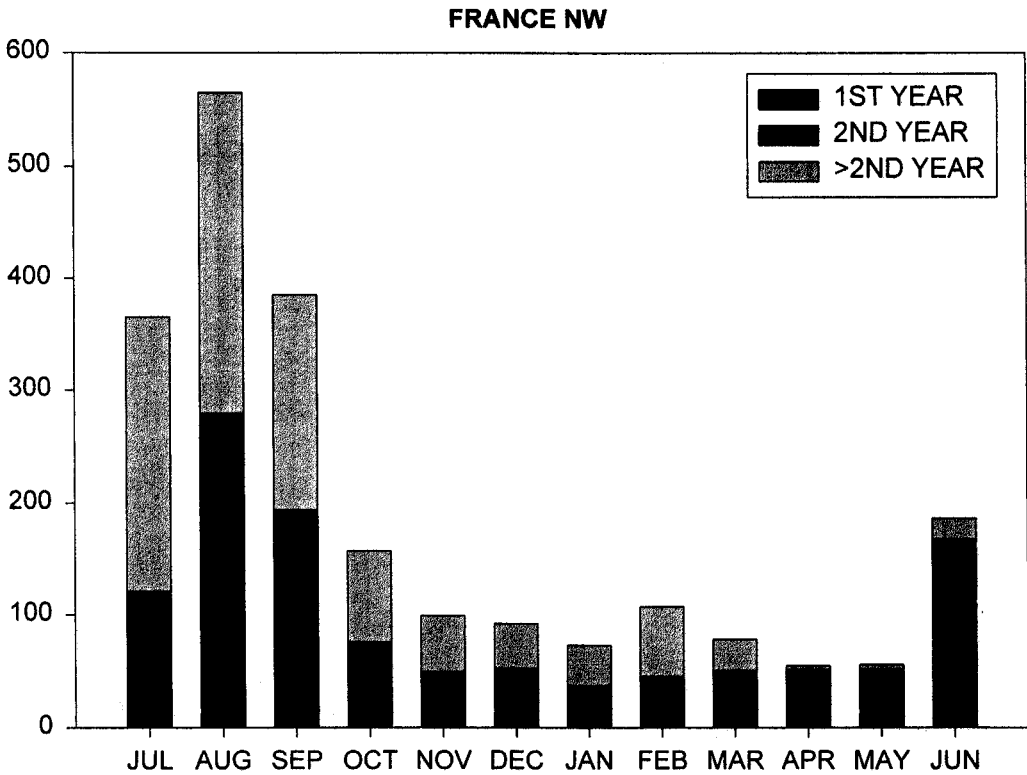
In the Netherlands and Belgium, the adult breeding birds leave the colonies in July. Only a few fledged juveniles are reported in the Low Countries far from their natal colony. Between September and February there are hardly any records of colour-ringed birds. Breeders begin to arrive in March, and most records are generated in and near the breeding colonies in April through June. A small to moderate influx of first-summer birds, visiting the colonies without breeding, occurs mainly during May.

Figure 5. Sightings of Mediterranean Gulls *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium: number of individuals (per age class) observed per month in nine different regions (see text for explanation).

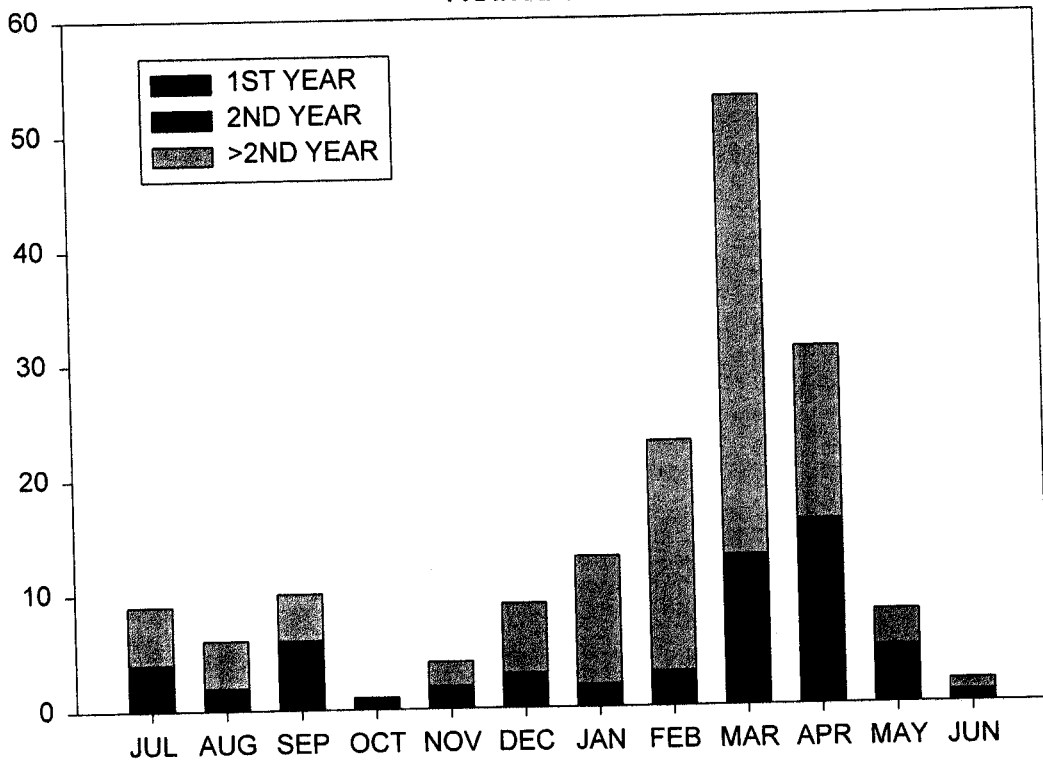
Figure 5. Contrôles de Mouettes mélanocéphales *Larus melanocephalus*, munies d'une bague de couleur aux Pays-Bas ou en Belgique: nombre d'individus (par classe d'âge) observés par mois dans neuf régions différentes (voir le texte pour les explications).



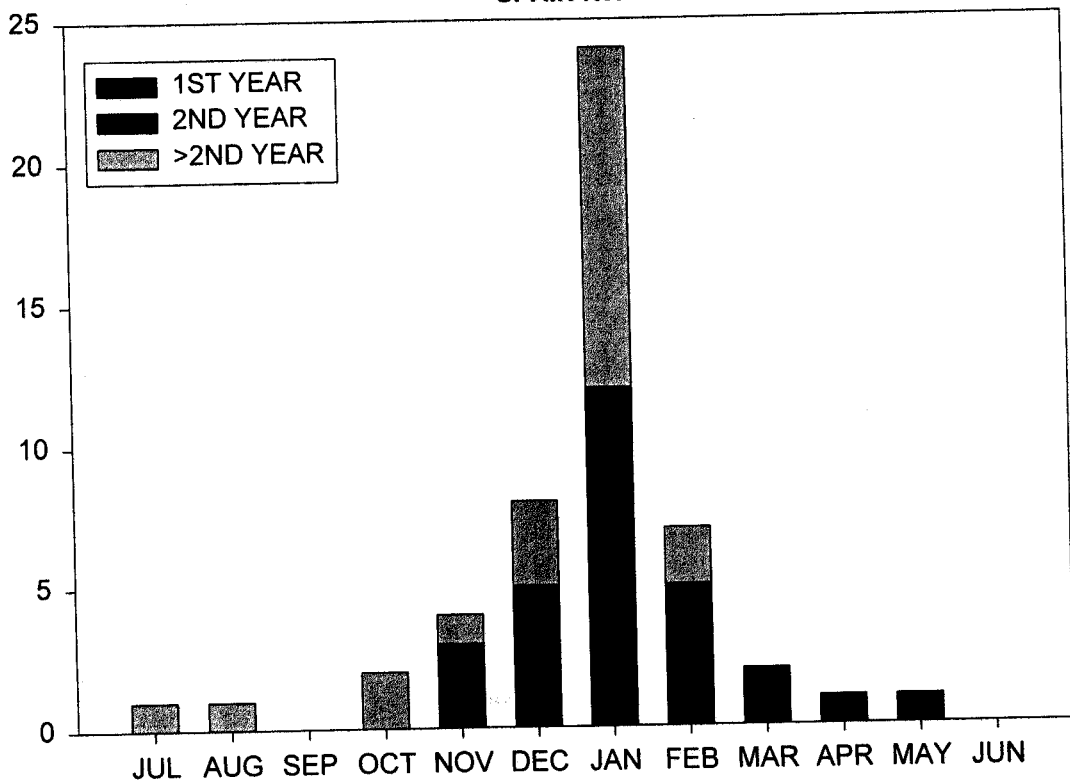




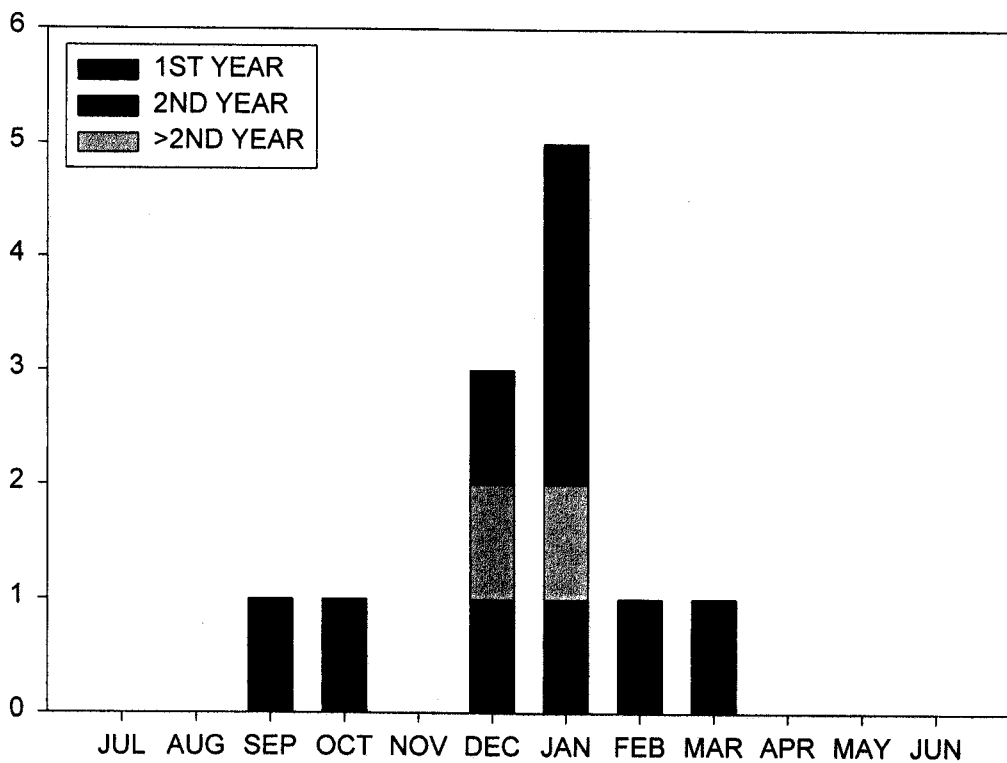
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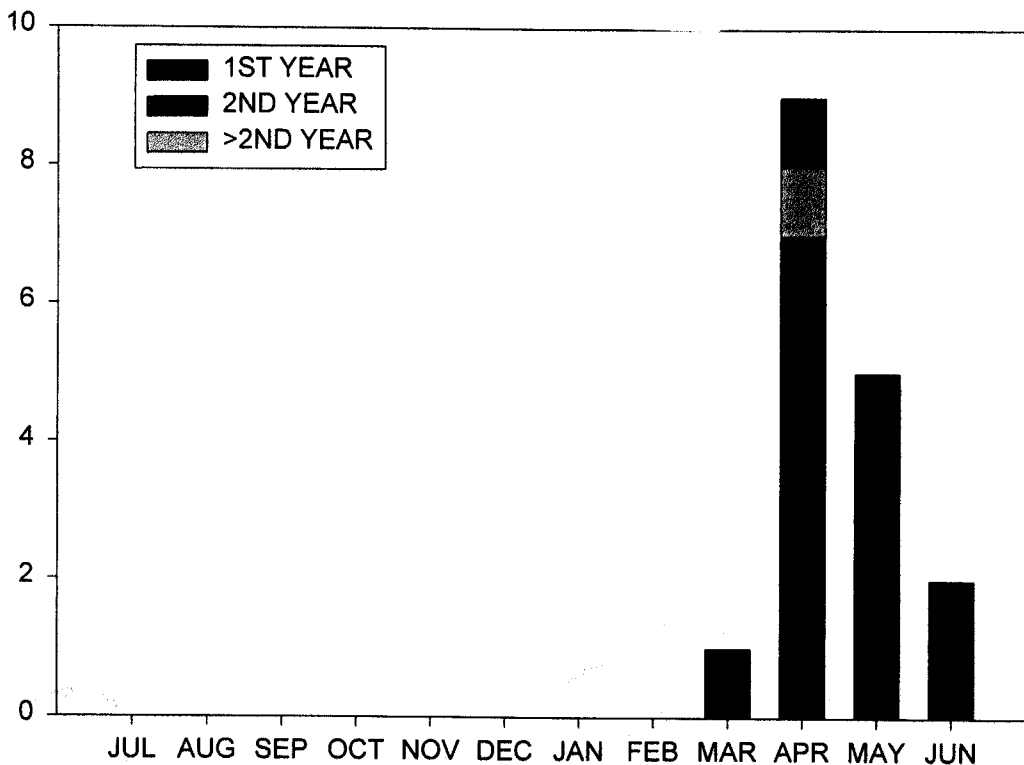
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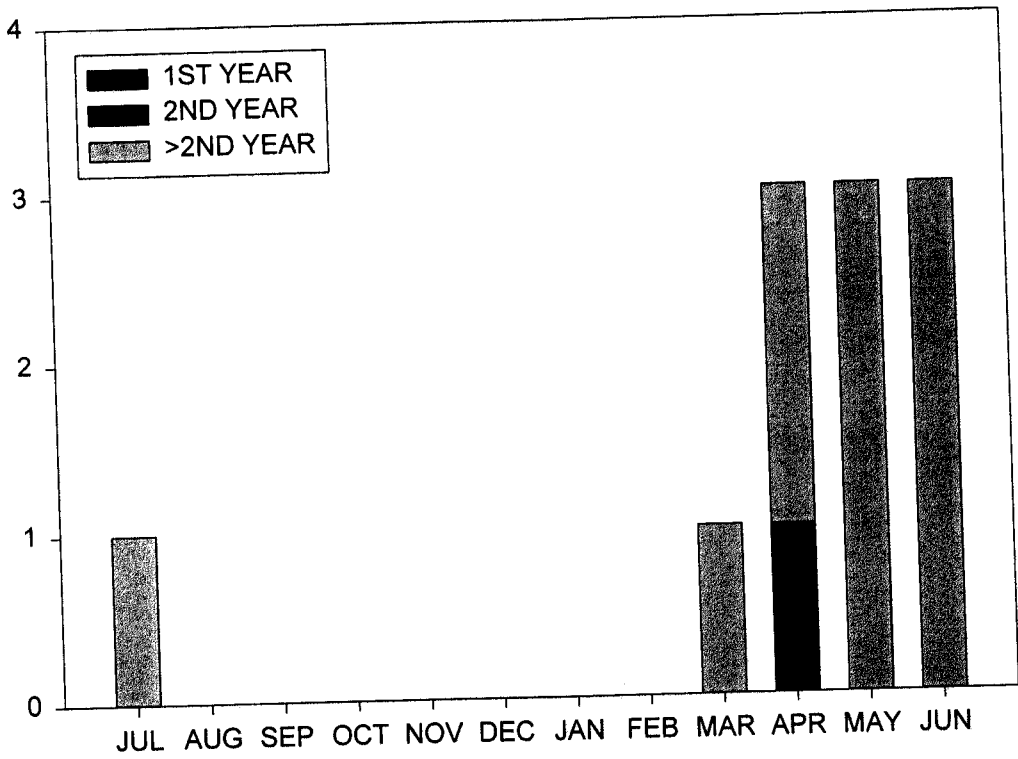
# PORTUGAL & MOROCCO



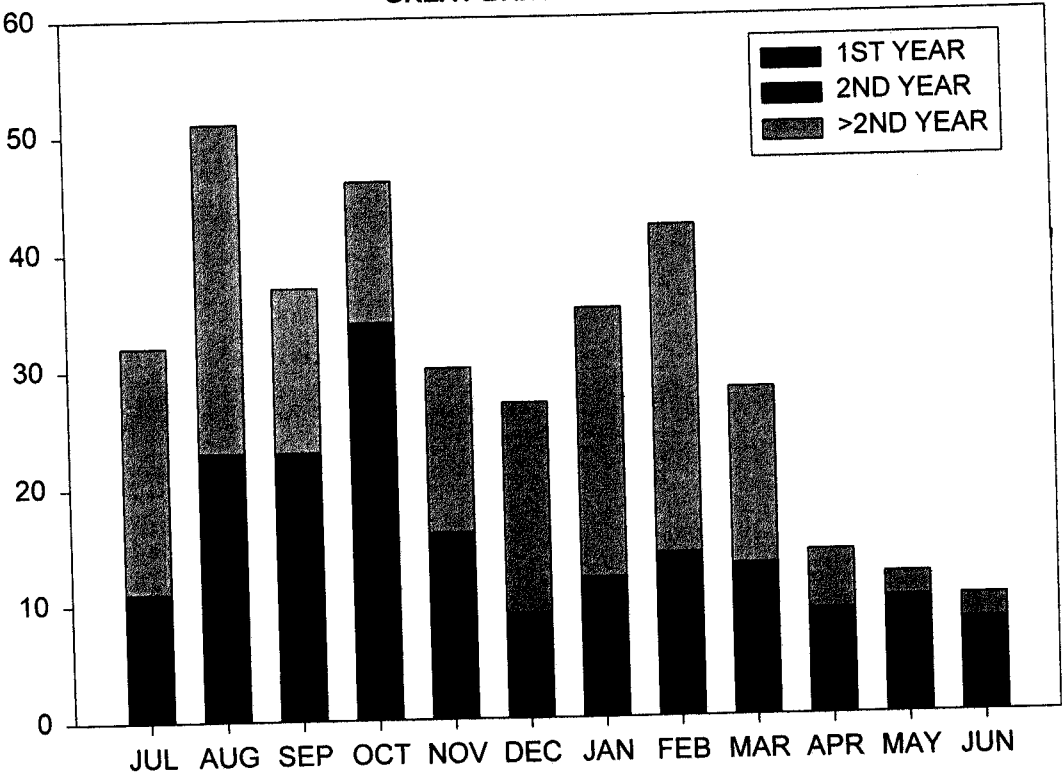
# MEDITERRANEAN



CENTRAL EUROPE



GREAT BRITAIN AND IRELAND



NW-France (including Normandy) is mainly used as an autumn staging area. Many first-summer birds are observed in June. A relatively small peak occurs in W France (Côtes-d'Armor, Brittany) in autumn, but most reports are from January and February (winter and early spring). SW-France produces most observations in spring, with a clear peak in March, mainly composed of adult birds. NW-Spain, Portugal and Morocco are mainly used as wintering areas. It is probable that many regular wintering sites along these coasts are never visited by ring-readers!

Almost all reports from the Mediterranean Sea are from spring and mainly concern first-summer birds.

The few records from central Europe (Germany, Poland and Hungary) concern adult birds, several of them actually breeding.

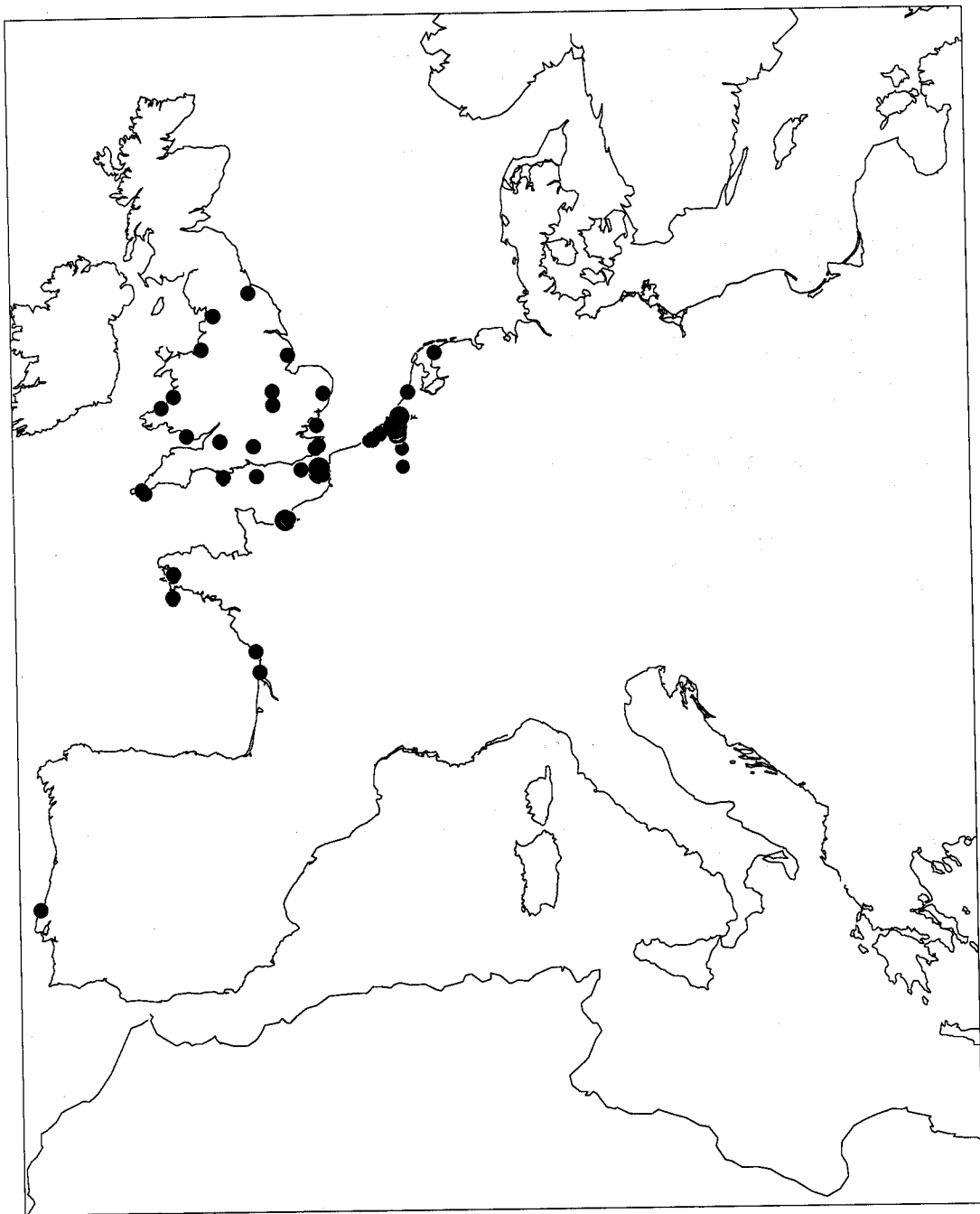
The pattern for Great Britain and Ireland as a whole shows small numbers in April, May and June, an influx of adults in July and August, and an influx of juveniles in August-October. Many of these birds spend the winter on the British Isles, others move south to France and Spain.

As examples, two maps are presented, showing the distribution of reports of two age classes during two periods of the year. First-year birds in July-September (Figure 6) are mainly observed around the natal colonies, in France in the Boulogne/Le Portel region, at Le Havre, and a few further south. There are many reports from England, including several at inland localities.

Adult birds in winter (Figure 7) have been reported from both sides of the English Channel, with a clear concentration in the Boulogne/Le Portel region, in SW-France (Lac Hossegor), and in northern Spain. The winter distribution is restricted to coastal localities.

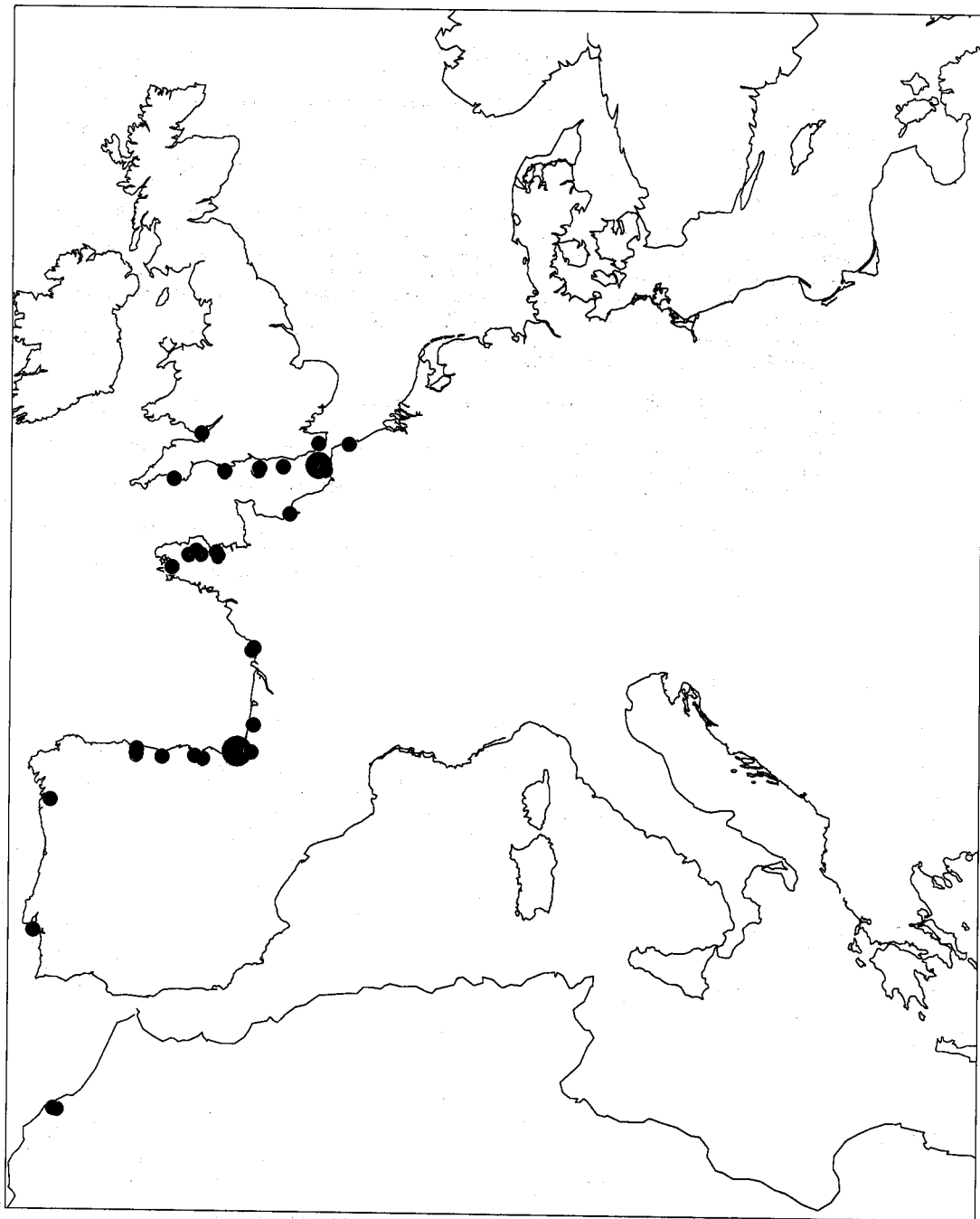
#### ACKNOWLEDGEMENTS

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**Figure 6. Sightings of first-year (juvenile) Mediterranean Gulls *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium, in July-September.**

**Figure 6. Contrôles pendant la période juillet-septembre des individus de première année (juvéniles) de Mouette mélanocéphale *Larus melanocephalus*, munis d'une bague de couleur aux Pays-Bas ou en Belgique.**



**Figure 7. Sightings of adult Mediterranean Gulls *Larus melanocephalus*, colour-ringed in the Netherlands or Belgium, in December-January.**

**Figure 7. Contrôles de décembre à janvier des adultes de Mouette mélanocéphale *Larus melanocephalus*, munis d'une bague de couleur aux Pays-Bas ou en Belgique.**

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