

Monitoring seals in France – 2020-2021: Extended summary of the collective report of the National Seal Network



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This report is a 15-pages extended summary of the full report written by the same authors in French on the monitoring of seal colonies in France (49 PP)

The National Seal Network is coordinated by the *Délégation de façade Manche Mer du Nord* of the French Biodiversity Office (OFB) since 2018. Now, it includes all institutions (NGOs, local managers, national agencies, *etc*) monitoring seal colonies along the French coast, as well as rehabilitation centres and research groups working on seals in France. The full 2020-2021 report is the third annual report summarizing grey and harbour seal trends in France as well as the main scientific studies currently conducted on these species in France, and the present report is the first extended summary in English of this annual report.

Seal censuses in France started in 1986 at soonest. They are now conducted anywhere when at least ten seals haul-out frequently, along the coasts of mainland France (from the Belgium border to south-western Brittany) and Saint-Pierre-et-Miquelon overseas (south of Newfoundland, Canada). Most of these seal haulout sites are protected areas (marine national parks, Special Areas of Conservation, other Nature reserves). Different monitoring methods are applied in order to adapt to the variety of coastal substrates and sizes of haulout sites. Censuses are either conducted from land, at sea or by aerial surveys. In most cases they are conducted at low tide, and seals are counted on their haulout sites as well as in the water if they are in close vicinity of the haulout site. All figures provided below constitute relative abundances, based on the maximum number of seals counted simultaneously in a given area on a given day/tide. For pup production, the total number of pups is usually estimated from multiple censuses, considering the age class of the counted pups during each successive survey.

In all study sites censuses are conducted at least once during the moulting period and once during the breeding season, but in most sites monthly censuses are planned year-round (weather permitting). In mainland France, the grey seal moult spans from January to March, and the grey seal breeding season is between October and January. Harbour seal breeding season is in July and moulting in August.

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GENERAL RESULTS

In mainland France, harbour seals are more abundant in the Channel and Southern North Sea (Figure 1), while grey seals are present in the same areas as well as western Brittany.

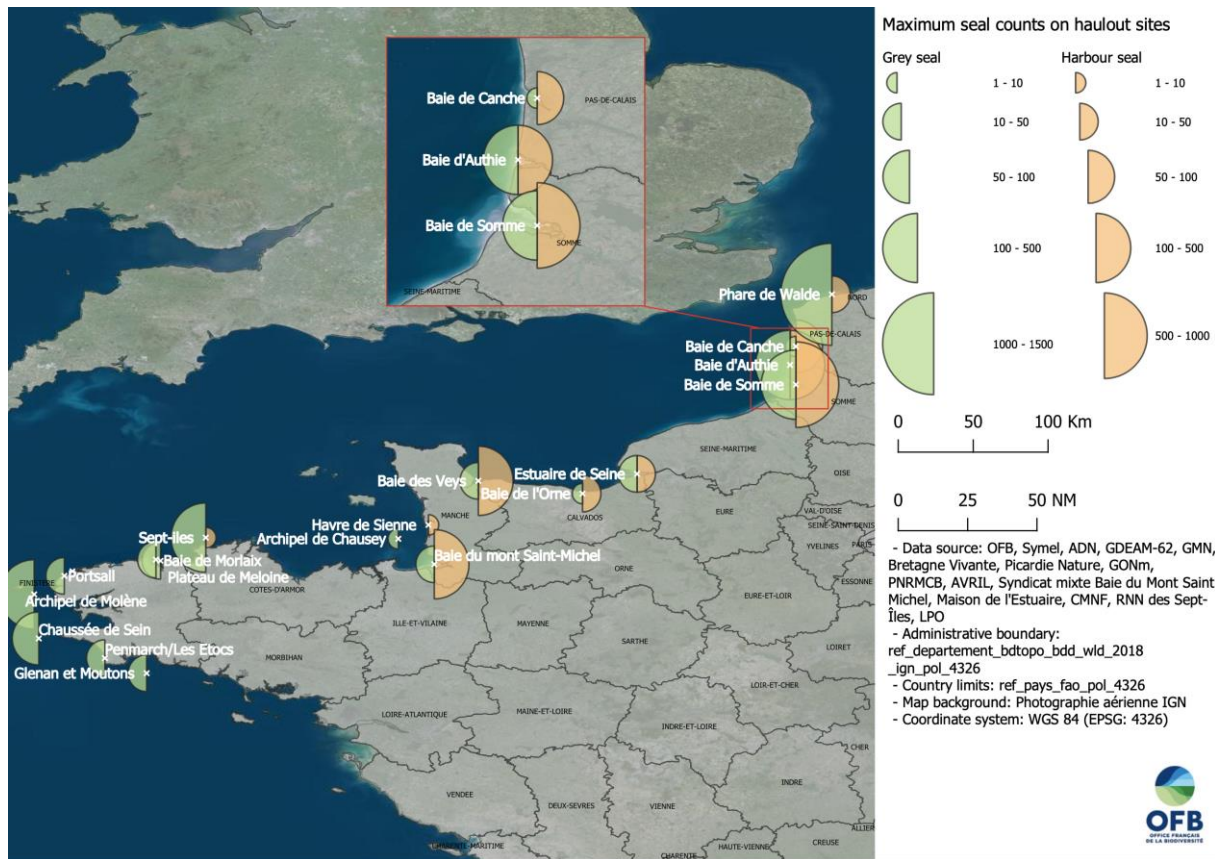


Figure 1: Distribution map of grey and harbour seal maximum haulout numbers in mainland France in 2021

With almost 208 grey seals and 597 harbour seals in 2020, the *Baie de Somme* holds the first seal haulout site in mainland France (Table 1).

For the first time, in 2021, the *Phare de Walde* holds the first seal haulout site, with principally 1329 harbour seals and 25 grey seals. The *Baie de Somme* is still an important seal haulout site with 494 grey seals and 668 harbour seals.

There is a strong geographical limit between the harbour seal and grey seal breeding colonies' distribution (Figure 2). With a total pup production of 255 in 2020, and 301 in 2021, the harbour seal is the first breeding seal species in mainland France, with breeding mainly occurring along the Channel coasts. This represents 31 more pups in 2020, and 77 more in 2021, then in 2019. Grey seal pup production also increased in mainland France with 75 pups in 2020, and 92 in 2021, versus 72 in 2019.

Table 1: Cumulative (pups) or maximum (other age classes) numbers of grey and harbour seals counted on their haulout sites in mainland France in 2020 and 2021. NA: Not assessed.

Sites (From the north-east to the south-west for mainland France)	Grey seal (Hg)						Harbour seal (Pv)			
	2020			2021			2020		2021	
	Pup production	Maximum number of seals hauled-out during moult (February-March)	Maximum number of seals hauled-out during summer	Pup production	Maximum number of seals hauled-out during moult (February-March)	Maximum number of seals hauled-out during summer	Pup production	Maximum number of seals hauled-out during moult (late July-early September)	Pup production	Maximum number of seals hauled-out during moult (late July-early September)
Phare de Walde	0	599	309	0	1329	642	0	17	0	25
Baie de Canche	NA	NA	1	0	1	2	NA	46	6	69
Baie d'Authie	NA	49	175	NA	20	161	6	153	8	146
Baie de Somme	2	252	208	3	494	297	150	597	178	668
Estuaire de Seine	0	3	23	0	2	45	0	8	0	16
Baie de l'Orne	0	1	1	0	1	1	0	14	0	18
Baie des Veys	0	1	12	0	1	37	63	204	76	254
Havre de Sienne	0	NA	NA	0	0	0	0	5	NA	5
Baie du mont Saint-Michel	0	0	7	0	0	13	36	131	33	117
Archipel de Chausey	0	2	8	1	NA	NA	0	0	NA	0
Sept-Îles	54	189	41	72	241	70	0	1	0	1
Plateau de la Méloine	0	0	NA	NA	20	30	NA	NA	NA	0
Triagoz	NA	NA	27	NA	NA	NA	NA	NA	NA	0
Baie de Morlaix	0	8	NA	NA	6	23	NA	23	NA	0
Portsall	NA	NA	12	NA	NA	NA	NA	NA	NA	0
Secteur Côte des Légendes (Aber Wrach - Guissény)	NA	NA	17	NA	NA	NA	NA	NA	NA	0
Archipel de Molène	19	257	226	16	392	217	NA	NA	NA	0
Chaussée de Sein	0	NA	94	0	87	89	NA	NA	NA	0
Penmarch/Les Etocs	NA	NA	13	0	7	19	NA	NA	NA	0
Glénan et Moutons	NA	NA	22	NA	34	28	NA	NA	NA	0
TOTAL (Mainland France)	75	1361	1196	92	2635	1674	255	1199	301	1319

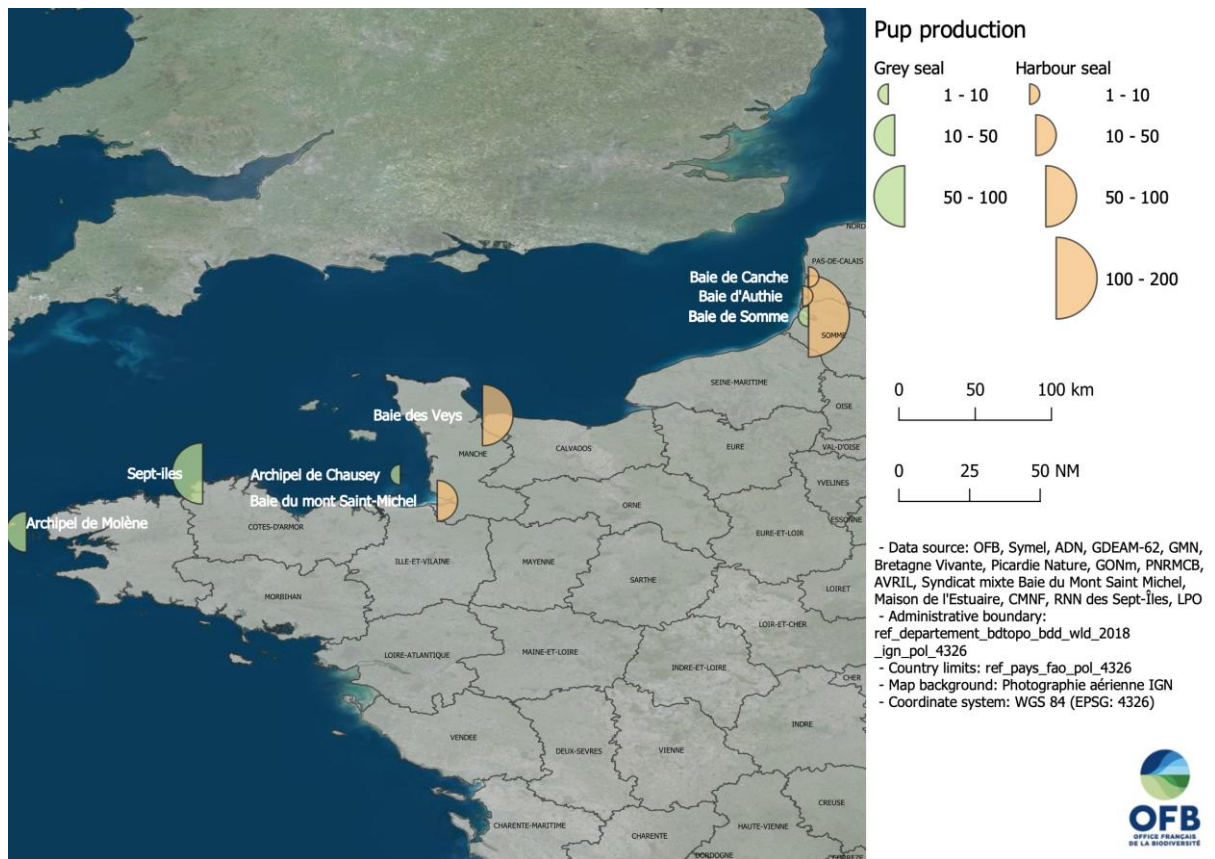


Figure 2: Distribution of grey and harbour seal pup counts in mainland France in 2021.

RESULTS IN MAINLAND FRANCE

Grey seal

Grey seal pup production

The total pup production keeps increasing (Figure 3). Most grey seal pups are born in the *Sept-Îles* archipelago (72% in 2020 and 78% in 2021 of grey seal pups in mainland France), where the highest inter-annual rate of increase was also recorded (+15.9 % per year since 2005). In the *Archipel de Molène* (25% in 2020 and 17% in 2021 of grey seal pup counts) an increasing number of pups are also counted, especially these last years (+11.8 % per year). Lastly in *Baie de Somme*, only 1-3 grey seal pups are recorded each year. It's important to note the first seal pup in the *Achipel de Chausey* in 2021.

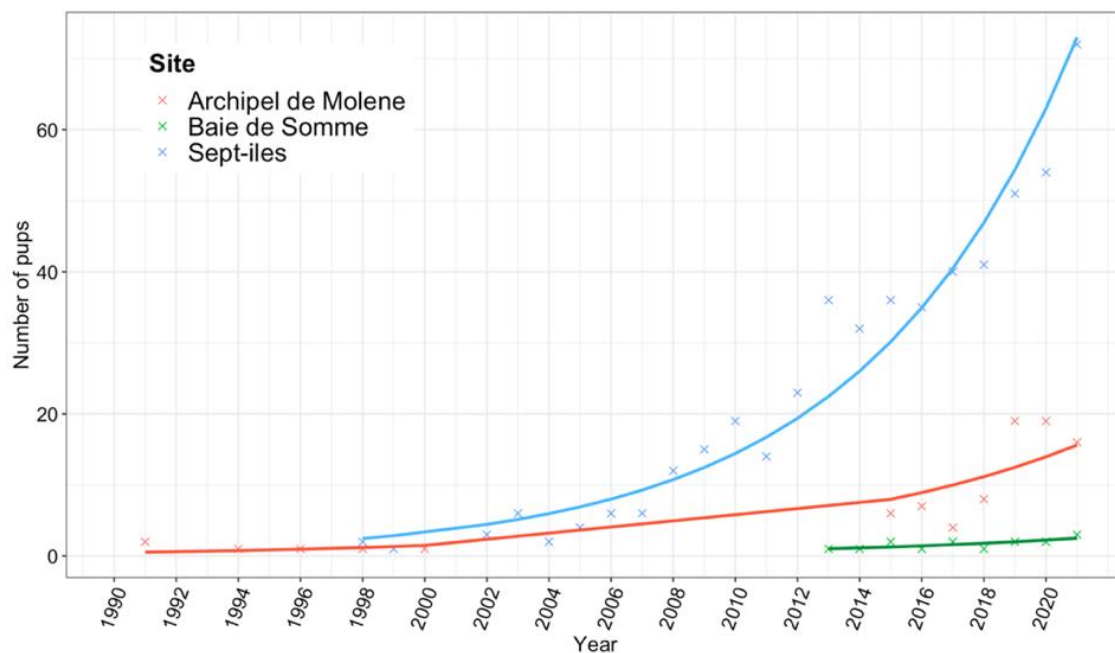


Figure 3: Trends in grey seal pup numbers in mainland France, from the 1990's to 2021. Statistical results presented in Annex 1.

Grey seal censuses during the moult

During the moult (February-March), grey seals can be observed in the North-eastern Channel (*phare de Walde* and *Baie de Somme*), and in Brittany (*Sept-Îles*, *Archipel de Molène* and *Chaussée de Sein*, Figure 4). The 3 main haulout sites during the grey seal moult are also breeding sites. In 2020 and 2021, the *phare de Walde* become the first site frequented by grey seal with 599 individuals in 2020 and 1329 in 2021. The *Archipel de Molène* is the second site with a maximum number of haulout moulting grey seal of 257 in 2020 and 392 in 2021, followed by *Baie de Somme* (252 seals in 2020 and 494 seals in 2021) and *Sept-Îles* (189 seals in 2020 and 241 seals in 2021). On the other haulout sites, around a hundred seals haul out during the moult. In Normandy, no grey seal was recorded during this time of year in 2019, with the exception of a single individual in *Estuaire de Seine*. In 2020, 3 grey seals were recorded in 2020 and 2 in 2021 in the *Estuaire de Seine* and the *Baie des Veys* and *Baie de l'Orne* recorded one seal in 2020 and one in 2021.

Monitoring grey seal numbers during Summer

Summer as defined here corresponds to the moulting season for harbour seals, i.e. from late July to early September. In Summer 2020 and 2021, grey seals were observed along the whole coastline (Figure 4). The haulout site where the maximum number was recorded was the *phare de Walde* with a maximum of 309 in 2020 and 642 hauled out seals, then the *Baie d'Authie*, *Baie de Somme* and *Archipel de Molène*, with 175 to 226 in 2020 and 161 to 297 seals maximum in 2021. The *Archipel de Molène* and the *Baie de Somme* are haulout sites used by a significant number of seals year-round. Other haulout sites in Brittany and along the Channel host between 12 and 70 individuals.

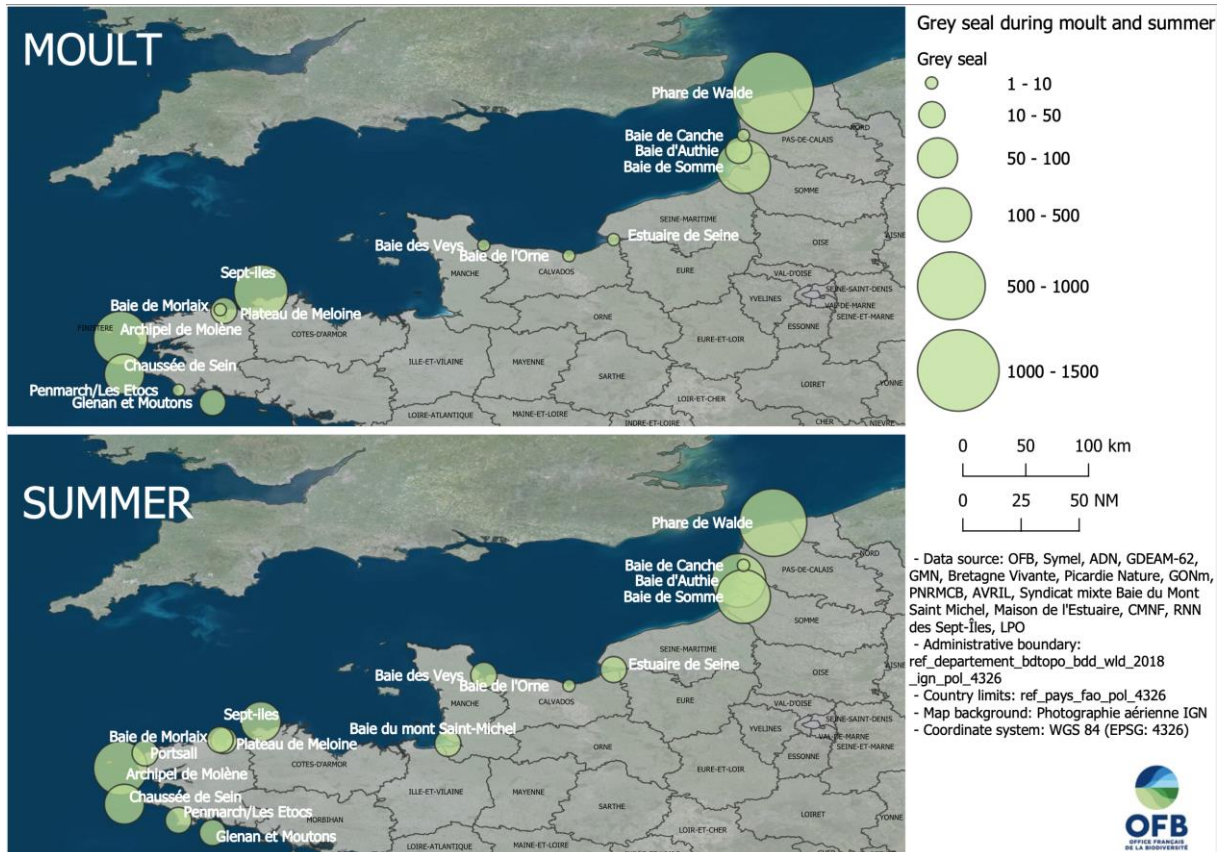


Figure 4: Distribution of grey seals during the moult (upper map) and Summer (lower map) in mainland France in 2021.

Grey seal trend

Figure 5 shows the trends in maximum grey seal numbers for the most important haulout sites in mainland France, since censuses are conducted. The highest rate of increase is in *Phare de Walde* (+40.5 %/year), followed by *Baie d'Authie* and *Baie de Somme* (+25.6 % and +18.7 % per year respectively). Those sites are in the north-eastern Channel, close to the larger grey seal colonies of England and the Netherlands where grey seal numbers have also increased exponentially since 2010. Grey seals are observed in *Baie d'Authie* and *Phare de Walde* since the 2000's only. The two other grey seal colonies in Brittany also show positive trends with +14.1 %/year for *Sept-Îles* and +7.4% per year in the *Archipel de Molène*.

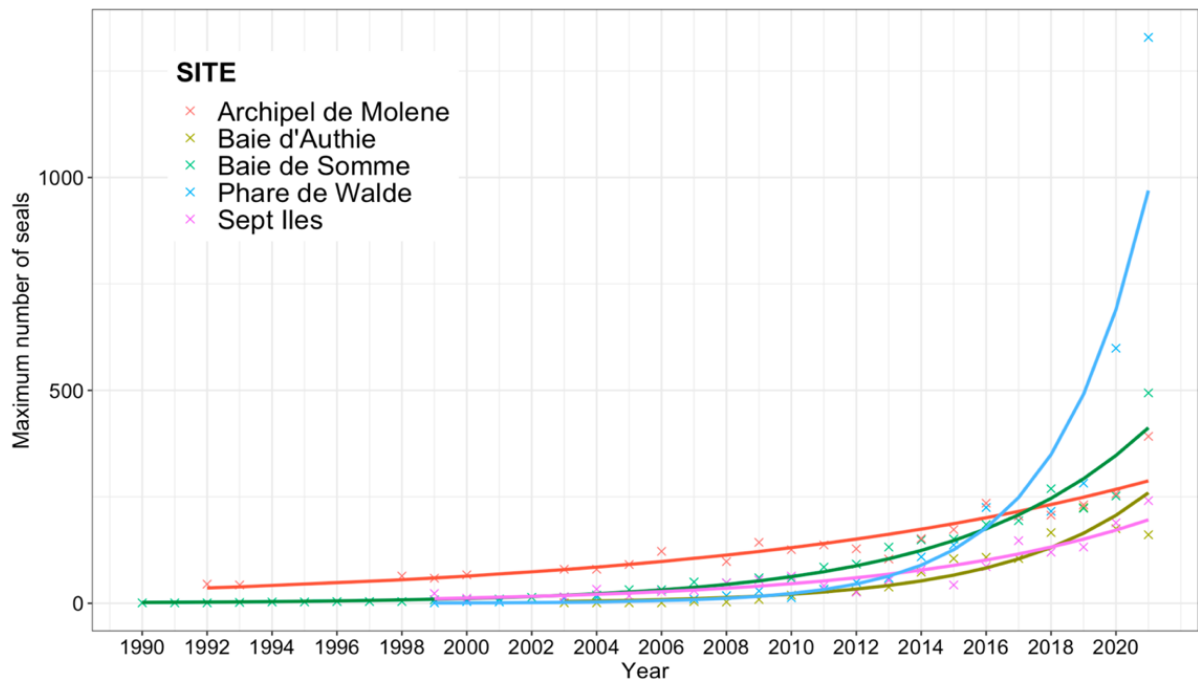


Figure 5: Trends in maximum grey seals numbers in the five main haulout sites in mainland France, from the early counts in the 1990's or 2000's to 2021. Statistical results presented in Annex 2.

Harbour seal

Harbour seal pup production

With a total of 150 pups counted in 2020 and 178 in 2021, the *Baie de Somme* is the main breeding colony for harbour seals in mainland France, where 59% of the national harbour seal pup production is recorded (Figure 6). Unsurprisingly, with an increase of +15.2% per year, the *Baie de Somme* shows the strongest rate of increase since the first births in 1988, and this increase is especially observed since 2005. Then, in *Baie des Veys* there are 63 pups in 2020 and 73 pups in 2021, which represent 25 % of national harbour seal pup production and an increasing of 14.2% per year. In *Baie du Mont-Saint-Michel* there are 33 pups in 2020 and 36 in 2021, which represent 14% and 11% respectively of the national harbour seal pup production. The increase of the pup production is 9.5% per year. This increase is linear, but it is lower the two historical haulout sites. In *Baie de Canche* and *Baie d'Authie*, in close vicinity of *Baie de Somme*, less than 10 pups are recorded and represent less than 5% of pups. Since 2020, the increase of the pup production in these two haulout sites has been significative, with an increasing 21.1% per year and 24.5% per year respectively.

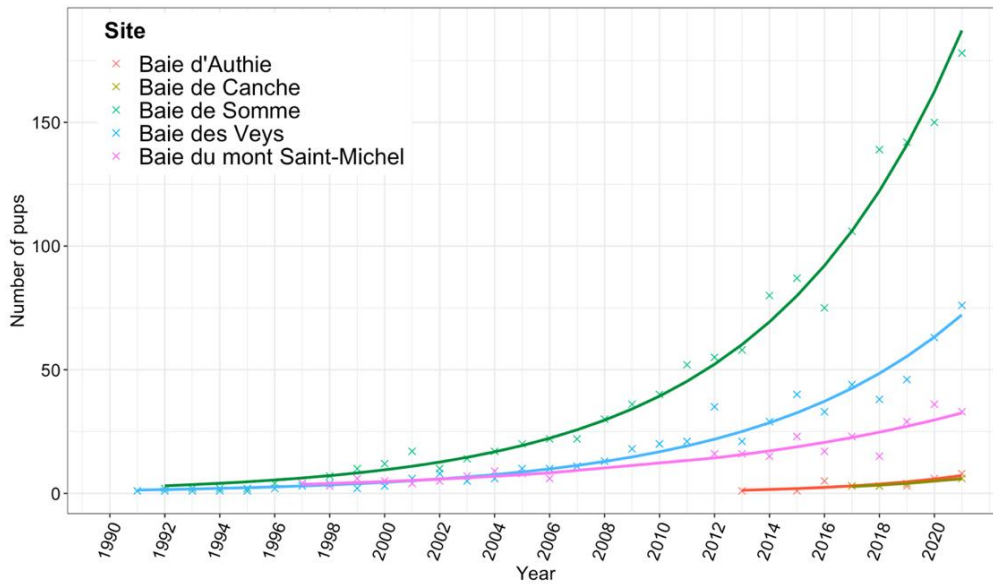


Figure 6: Trends in harbour seal pup production in mainland France, from the early counts to 2021. Statistical results presented in Annex 3.

Harbour seal censuses during the moult

During the moult, in August-September 2019, most harbour seals were observed in the Channel and southern North Sea, with the exception of 6 individuals in the *Archipel de Molène*, but in 2021, no individual was recorded in this period, in this site (western Brittany; Figure 7). However, a lack of observation is to be considered due to the health context. The highest numbers are recorded in *Baie de Somme*, with a maximum of 597 seals hauled out simultaneously in 2020 and 668 in 2021. The *Baie des Veys* comes second with 204 individuals in 2020 and 254 in 2021, and in *Baie d'Authie* and *Baie du Mont-Saint-Michel* between 117 and 153 seals are counted at maximum. In the other sites, less than 50 harbour seals are counted during the moult (except the *Baie de Canche* which recorded 69 seals in 2021), and the *Archipel de Chausey* doesn't seem to be used by harbour seals during this period.

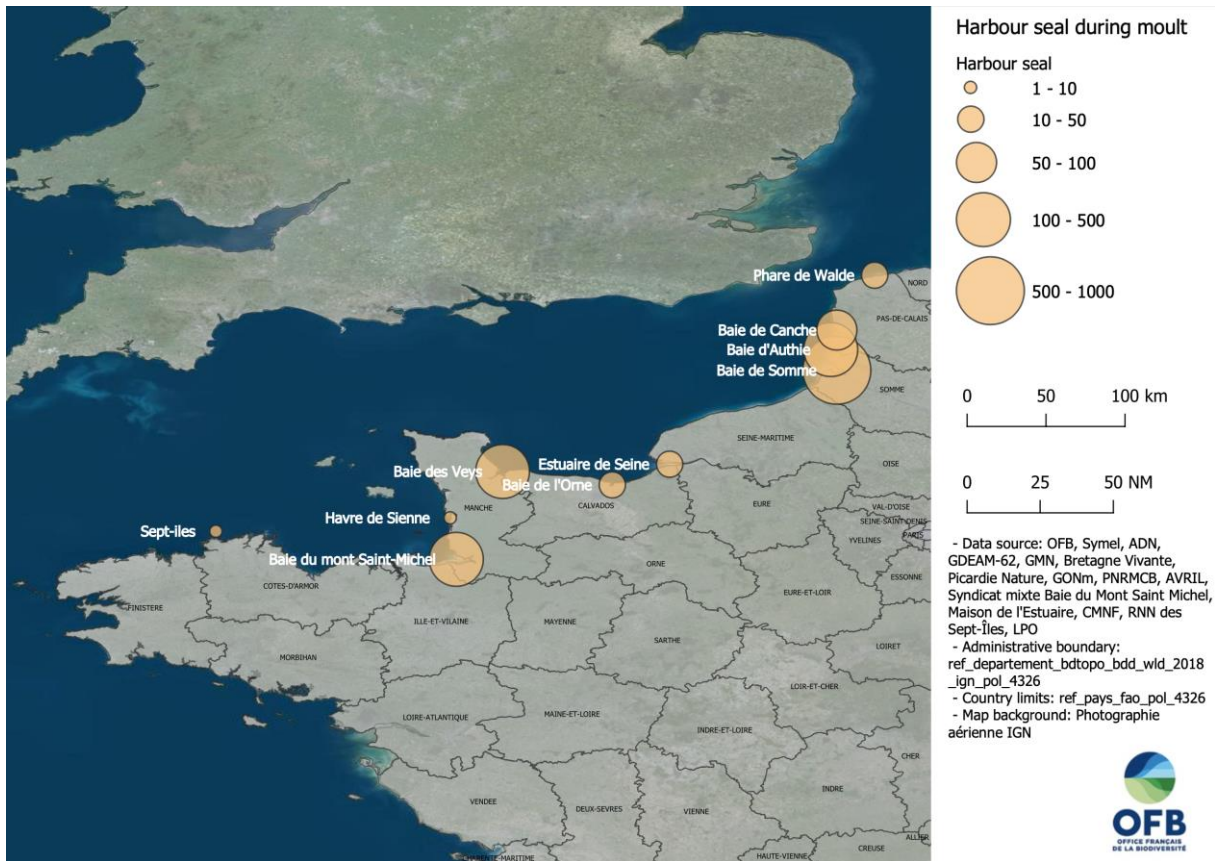


Figure 7: Distribution of harbour seals numbers during the moult (mainland France– 2019). Statistical results presented in Annex 4.

Figure 8 shows the trends in maximum numbers of harbour seals in the main colonies since their natural recolonization. Harbour seals in *Baie d'Authie* were observed at a later date than in other sites but their rate of increase is higher (+20,4%/year), especially since 2010. This was particular true in 2019, with 28% more individuals counted compared to 2018. In *Baie de Somme* and *Baie des Veys*, the two main colonies, harbour seal numbers keep increasing, with +12,1 % and +11,7 % per year respectively, with a marked increase since 2005. The colony in *Baie du Mont-Saint-Michel* increases regularly (+ 8,8%/year).

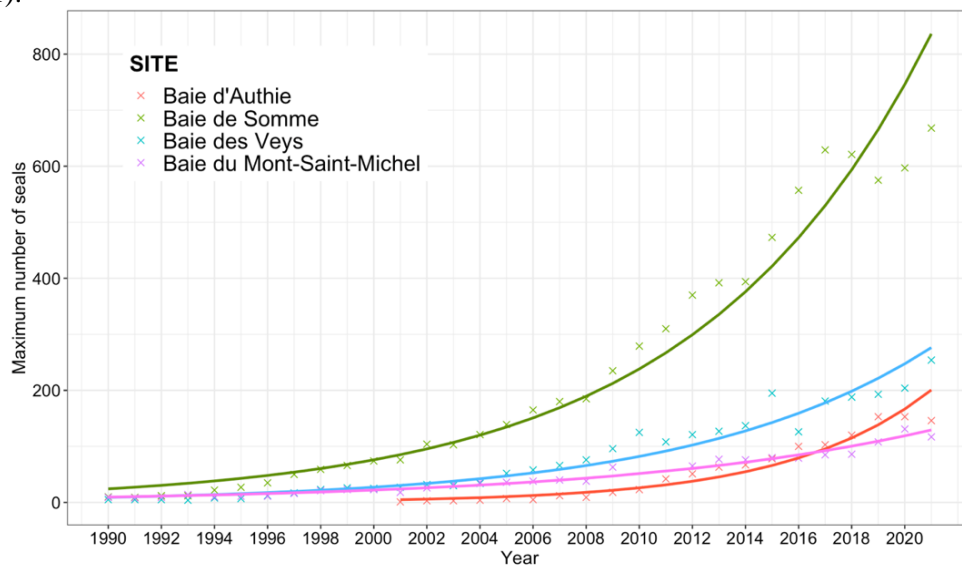


Figure 8: Trends in maximum numbers of harbour seals hauled out in the four main colonies in mainland France, from 1990 to 2019.

RESULTS IN OVERSEAS: SAINT-PIERRE ET MIQUELON

Overseas, in *Saint-Pierre et Miquelon* (Figure 9), censuses over the whole archipelago showed that harbour seals were the main seal species counted on the haulout sites in the area, with up to 1652 individuals counted, versus 218 grey seals in 2020 (Table 2). Only data between October and November 2021 is available, there are 147 grey seals and 1070 harbours seals.

Harbour seals haul-out more during the breeding season (May-June) with 1652 seals and during moult (July-Auguste) with 1222 seals. Grey seals are more presents in summer with 218 seals and during moult (May-June) with 208 seals.

Only harbour seals are breeding in *Saint-Pierre et Miquelon*, but the pup production is not monitored to date. A lot of data is missing for the year 2021 because of a missing of count.

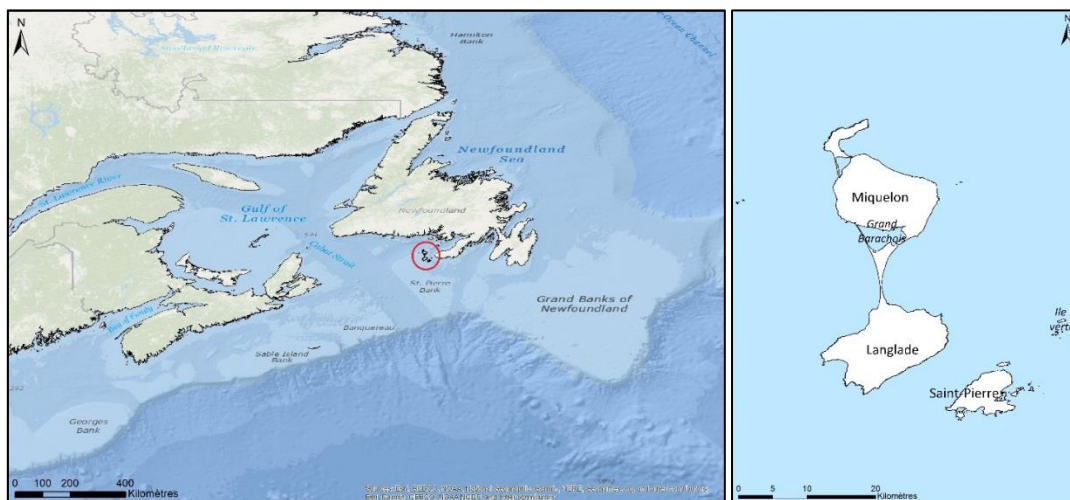


Figure 9: Saint-Pierre-et-Miquelon: geographical context and main islands of the archipelago.

Table 2: Cumulative (pups) or maximum (other age classes) numbers of grey and harbour seals counted on their haulout sites in Overseas in Saint-Pierre et Miquelon in 2020 and 2021. NA: Not assessed.

Species	Period	2020	2021
Grey seal	Seal hauled-out during moult (May-June)	208	NA
	seal hauled-out during summer	218	NA
	Seal hauled-out during pre-breeding (October-November)	180	147
Harbor seal	Seal hauled-out during breeding (May-June)	1652	NA
	Seal hauled-out during moult (July-Auguste)	1222	NA
	Seal hauled-out during post-moult (October-November)	1069	1070
Unidentified	Seal hauled-out in May-June	NA	NA
	Seal hauled-out in summer	NA	NA
	Seal hauled-out in October-November	1	7

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We thank all the organizations that participated in the different sessions of census of the haulout area and colonies and accepted to share their data. The result of this collective work is the present report.

From the north to the south:

- La Direction des Territoires de l'Alimentation et de la Mer de Saint-Pierre et Miquelon,
- La Coordination mammalogique du Nord de la France,
- Le PNM des estuaires picards et de la mer d'Opale,
- Le Groupement de Défense de l'Environnement de l'Arrondissement de Montreuil et du Pas-de-Calais,
- L'Association Découverte Nature,
- Picardie Nature,
- La maison de l'estuaire pour le RNN Estuaire de Seine,
- Le Groupe mammalogique normand,
- Le PNR des marais du Cotentin et du Bessin pour la RNN du domaine de Beauguillot,
- Le Groupe Ornithologique Normand,
- L'association AVRIL,
- L'Établissement public du Mont-Saint-Michel,
- Le Syndicat mixte des espaces littoraux de la Manche,
- La LPO pour la RNN des Sept- îles,
- Bretagne vivante,
- Le PNM d'Iroise,
- L'OFB (Services départementaux des Côtes d'Armor, du Finistère, délégation de façade Atlantique).

CONTACTS AND USEFUL LINKS

Site	Organization	Contact	Website
Phare de Walde	Coordination Mammalogique du Nord de la France	info@cmnf.fr jkarpouzopoulos@nordnet.fr	http://www.cmnf.fr/
Baie de Canche	GDEAM-62 Groupement pour la défense de l'environnement de Montreuil et du Pas-de-Calais.	etude.Gdeam-62@orange.fr standard : gdeam.asso@orange.fr 03 21 06 50 73	
Baie d'Authie	Association Découverte Nature de Berck sur Mer	adn.62600@gmail.com	www.facebook.com/ADN.Berck
Baie de Somme	Picardie Nature	sarah.monnet@picardie-nature.org contact@picardie-nature.org	http://www.picardie-nature.org/
Estuaire de Seine	Maison de l'Estuaire	Thomas.lecarpentier@maisondelestuaire.org	www.maisondelestuaire.org
Estuaire de l'Orne	Groupe Mammalogique Normand (GMN)	1018 Boulevard du Grand Parc 14 200 Hérouville-Saint-Clair m.gaultier@gmn.asso.fr 09.54.53.85.61	http://www.gmn.asso.fr/index.php?post/Nos-actions-en-faveur-des-mammif%C3%A8res-marins
Baie des Veys	Parc Naturel régional des Marais du Cotentin et du Bessin, RNN du Domaine de Beauguillot.	jfelder@parc-cotentin-bessin.fr 3, village Ponts d'Ouve, Saint-Côme-du-Mont - 50500 Carentan-les-Marais	https://parc-cotentin-bessin.fr/
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Chaussée de Sein			
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Les Glénan	Bretagne Vivante	marion.diard@bretagne-vivante.org margot.leguen@bretagne-vivante.org	https://www.bretagne-vivante.org/
St Pierre et Miquelon	Direction des Territoires de l'Alimentation et de la Mer de Saint-Pierre et Miquelon	frank.urtizberaa@equipement-agriculture.gouv.fr Direction des Territoires, de l'Alimentation et de la Mer Boulevard Constant Colmay, BP : 4217 - 97500 Saint-Pierre et Miquelon	http://www.saint-pierre-et-miquelon.developpement-durable.gouv.fr/

ANNEXES

Summary table of results

Annexe 1: Summary table of trends in grey seal pup production in mainland France, from the early counts to 2021 with the quasi-Poisson GLM method.

Site	Result (%/year)	T-value	P-value
Archipel de Molène (1991-2021)	11,8	4,623	<0,001***
Baie de Somme (2013-2021)	11,8	2,718	0,030 *
Sept-Îles (1998-2021)	15,9	15,45	<0,001***

Annexe 2: Summary table of trends in maximum grey seal number in mainland France, from the early counts to 2021 with the quasi-Poisson GLM method.

Site	Result (%/year)	T-value	P-value
Archipel de Molène (1992-2021)	7,4	12,82	<0,001***
Baie de Somme (1990-2021)	18,7	26,84	<0,001***
Baie d'Authie (2003-2021)	25,6	4,504	<0,001***
Sept-Îles (1999-2021)	14,1	10,54	<0,001***
Phare de Walde (1999-2021)	40,5	11,15	<0,001***

Annexe 3: Summary table of trends in evolution in harbour seal pup production in mainland France, from the early counts to 2021 with the quasi-Poisson GLM method.

Site	Result (%/year)	T-value	P-value
Baie d'Authie (2013-2021)	24,5	3,17	0,019 *
Baie de Canche (2017-2021)	21,1	6,93	0,020 *
Baie du Mont Saint-Michel (1997-2021)	9,5	$6,7 \times 10^{-3}$	<0,001***
Baie des Veys (1991-2021)	14,2	23,31	<0,001***
Baie de Somme (1992-2021)	15,2	37,22	<0,001***

Annexe 4: Summary table of trends in maximum harbour seal number in mainland France, from the early counts to 2021 with the quasi-Poisson GLM method.

Site	Result (%/year)	T-value	P-value
Baie des Veys (1990-2021)	11,7	20,84	<0,001***
Baie de Somme (1990-2021)	12,1	25,11	<0,001***
Baie d'Authie (2001-2021)	20,4	15,20	<0,001***
Baie du Mont Saint-Michel (1990-2021)	8,8	28,43	<0,001***

*p-value<0,05; **p-value<0,01; ***p-value<0,001