First autopsy report

LIFE SeaBiL (Action B6)

Saving SeaBirds from marine Litter

LIFE20 GIE/FR/000114

Coordinator

Beneficiaries

Financial partners

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1. Summary

This report presents the result of dead seabirds' necropsies made during the first winter of the project (2022-2023).

263 of those carcasses were analysed for plastic content by the different beneficiaries of the project (29 in France, 106 in Spain and 128 in Portugal). More specifically, necropsies were performed on a total of 16 Atlantic puffin (9 in France and 7 in Spain), 6 Common guillemots (6 in France, 0 in Portugal and 1 in Spain), 13 Black-legged kittiwakes (13 in France, 0 in Portugal and 0 in Spain), 9 northern gannet in Spain, 85 razorbills (1 in France and 84 in Spain), 3 great cormorants in Spain, and 103 European shags and 25 Cory's shearwaters in Portugal (see Table "summary of the results" for details on birds necropsied in France).

For each bird, different tissues were collected in addition to the digestive track: feathers, brain, muscle, kidneys, liver and blood. These tissues were stored frozen in the tissue bank set-up as part of the project (Action B5), to be shared with the scientific community (once the associated database will be operational).

Digestive tracks were extracted following the protocol "Protocol plastic extraction", and plastic particles were isolated, measured, counted and weighted. Below is a summary of the first results obtained. The characterisation of each plastic particles is currently being performed (polymers determined by infrared spectroscopy).

2. Report

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FIRST SEABIRDS' NECROPSIES' RESULTS WINTER 2022-2023 – SUMMARY REPORT

LIFE SEABIL "SAVING SEABIRDS FROM MARINE LITTER" LIFE20 GIE/FR/000114

Coordinating beneficiary

Associated beneficiaries

SUMMARY REPORT:
PROJECT LIFE SEABIL – ACTION B6

LIFE SEABIL "SAVING SEABIRDS FROM MARINE LITTER"
LIFE20 GIE/FR/000114

CONTEXT :

Action B6 – sub-action 2 of the SeaBiL project aims to analyse microplastics in the seabird carcasses collected as part of sub-action 1, to ultimately propose an MSDF indicator species. In that context, a transnational network has been set up in collaboration with volonteers and care centers (Action 4) and allowed the collection of >150 stranded carcasses during winter 2022/2023. Additionally, carcasses of European shags and Corry shearwaters were also collected during the breeding season in Portugal (128 individuals).

263 of those carcasses were analysed for plastic content by the different beneficiaries of the project (29 in France, 106 in Spain and 128 in Portugal). More specifically, necropsies were performed on a total of 16 Atlantic puffin (9 in France and 7 in Spain), 6 Common guillemots (6 in France, 0 in Portugal and 1 in Spain), 13 Black-legged kittiwakes (13 in France, 0 in Portugal and 0 in Spain), 9 northern gannet in Spain, 85 razorbills (1 in France and 84 in Spain), 3 great cormorants in Spain, and 103 European shags and 25 Cory's shearwaters in Portugal (see Table "summary of the results" for details on birds necropsied in France). Necropsies followed the protocol "Protocol for transportation & necropsies of stranded seabirds' carcasses and tissues" established as part of SEABIL – Action B6.

For each bird, different tissues were collected in addition to the digestive track: feathers, brain, muscle, kidneys, liver and blood. These tissues were stored frozen in the tissue bank set-up as part of the project (Action B5), to be shared with the scientific community (once the associated database will be operational).

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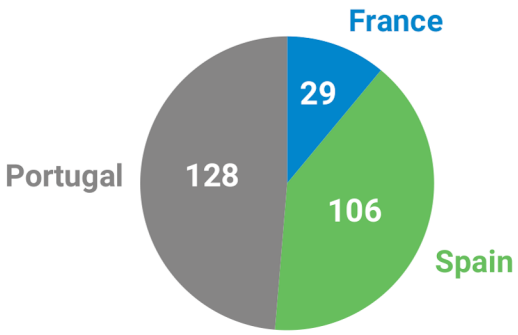


Number of bird carcasses necropsied for plastic analyses as part of the SeaBiL project.

Prevalence of plastics in birds collected along the French coasts:

Plastic particles were found in every bird in black-legged kittiwakes, common guillemot and razorbills, and in 90% of Atlantic puffins.

Species	% birds with at least 1 plastic particle	Nb of birds with plastic particles
Black legged kitiwake	**100**	**95**
Atlantic puffin	**90**	**48**
Common guillemot	**100**	**26**
Razorbill	**100**	**5**

In all species, the number of plastic particles varied according to which part of the digestive track was considered. Overall, the oesophagus and stomach concentrated the plastic particles while little plastic was found in the intestine. The tables and figures below summarize the presence of plastic particles found in each individual, species, and part of the digestive track.

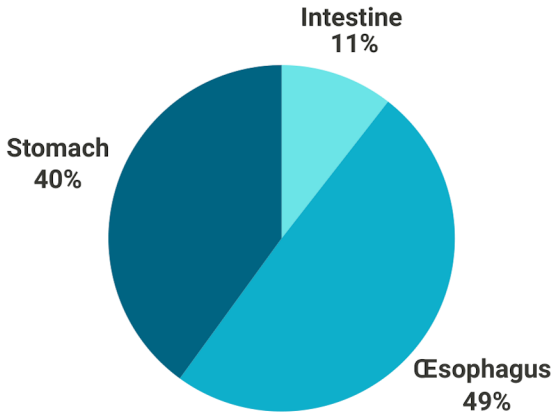
As for the type of plastic found, I haven't yet been to the Toulouse platform to analyse them, but for the macro plastics, it's a lot of transparent filaments or small transparent bits similar to plastic boxes.

Species	ID	Number of plastic found	Œsophagus	Stomach	Intestine
BLKI	1097-22	10	5	4	1
BLKI	0036-23	7	4	3	0
BLKI	1116-22	8	4	3	1
BLKI	1117-22	8	2	5	1
BLKI	1104-22	15	9	4	2
BLKI	1110-22	11	1	7	3
BLKI	564	5	3	2	0
BLKI	1107-23	9	5	3	1
BLKI	0052-23	8	4	3	1
BLKI	1109-22	4	0	4	0
BLKI	1125-22	6	6	0	0
BLKI	0051-23	2	2	0	0
BLKI	0039-23	2	2	0	0
ATPU	0043-23	5	1	4	0

ATPU	**CAP67**	**15**	**2**	**>10**	**3**
ATPU	**33**	**12**	**1**	**8**	**3**
ATPU	**0049-23**	**1**	**1**	**0**	**0**
ATPU	**0023-23**	**11**	**1**	**2**	**0**
ATPU	**Bisca 35**	**0**	**0**	**0**	**0**
ATPU	**0044-23**	**4**	**1**	**2**	**1**
ATPU	**758**	**0**	**0**	**0**	**0**
ATPU	**91-23**	**0**	**0**	**0**	**0**
COMU	**0026-23**	**11**	**3**	**7**	**1**
COMU	**CAPferret 348**	**4**	**2**	**1**	**1**
COMU	**0027-23**	**4**	**4**	**0**	**0**
COMU	**0072-23**	**4**	**2**	**1**	**1**
COMU	**0002-23**	**1**	**1**	**0**	**0**
COMU	**0016-23**	**2**	**0**	**2**	**0**
Razorbill	**23-362**	**5**	**3**	**2**	**0**

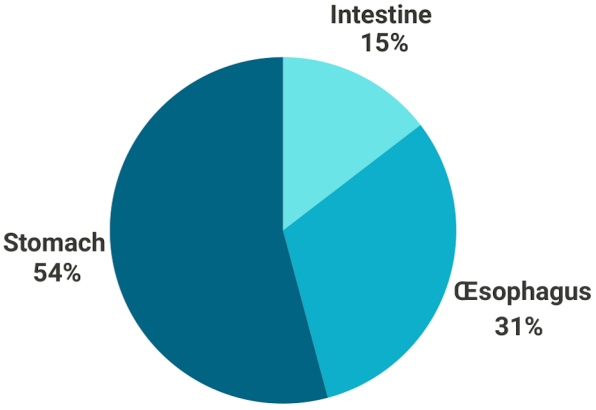
Black legged kitiwake

	Œsophagus	Stomach	Intestine
Nb plastic particles	47	38	10
% plastic	49	40	11



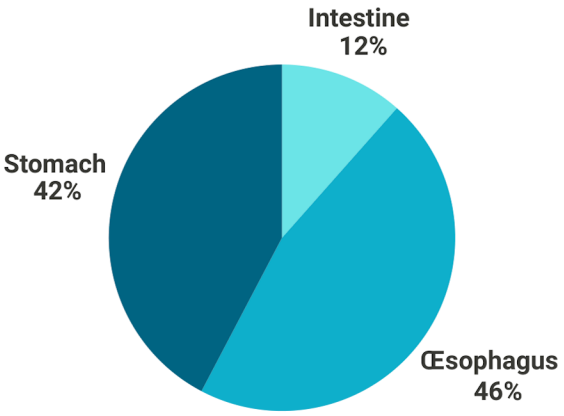
Atlantic puffin

	Œsophagus	Stomach	Intestine
Nb plastic particles	15	26	7
% plastic	31	54	15



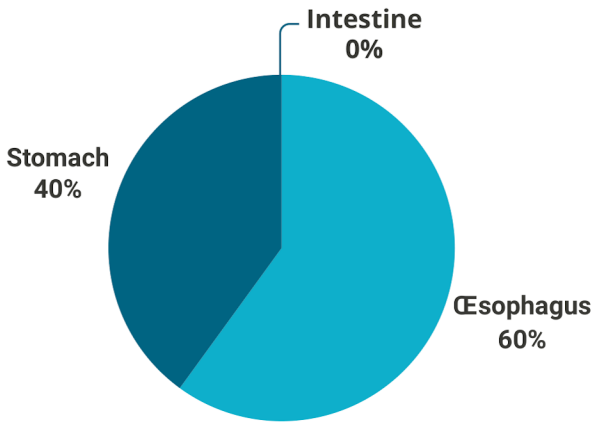
Common murre

	Œsophagus	Stomach	Intestine
Nb plastic particles	12	11	3
% plastic	46	42	12



Razorbill

	Œsophagus	Stomach	Intestine
Nb plastic particles	3	2	0
% plastic	60	40	0



Prevalence of plastics in birds collected along the Spanish coasts:

Specimens mainly were collected by citizens included in the networking and TRAGSA ministry technicians collaborators of the project and some from Care Centres in Andalusia. The specimens are stranded seabirds in coastal areas mainly in Almeria, Cadiz and Granada (Andalusia).

More than 100 specimens were necropsied and more than 500 samples were collected by 5 species (84 razorbills, 6 Atlantic puffins, 9 northern gannets, 3 great cormorants and 1 common murre). At the moment, the digestive stomachs of razorbills and Atlantic puffin specimens were processed. Microplastic were found in 15 specimens of the razorbill digestive samples (17.9%). 3 specimens of Atlantic puffin were found with plastic contents in their stomachs (50%).

Prevalence of plastics in birds collected along the Spanish coasts:

In Portugal, protocols were tested in European Shag population during 2022 and 2023 breeding seasons (January to June). Cory's Shearwater sampling and lab analysis were tested in May-June 2023. More than 100 and 25 samples were collected for Shag and Cory's Shearwater, respectively. Microplastic were found in ~92% of the Cory's Shearwater samples. Seven in 53 (11%) and three in 50 (2%) of European Shag nests were found with plastic contents in 2022 and 2023, respectively.

Species	Nb individuals	% of birds with plastic particles	Country
Atlantic puffin	9	33,3	France
Atlantic puffin	6	50	Spain
Razorbill	1	100	France
Razorbill	84	18	Spain
Common murre	5	100	France
European shag	103	10	Portugal
Cory's shearwater	25	92	Portugal

Coordinating beneficiary

Associated beneficiaries

Financed by: