Pigiannimit palâstikkisajait kamagijaunningit iluani Nunatsiavummi

Baselines for plastic monitoring in Nunatsiavut

A baseline is a benchmark. It's a fixed number that becomes the point of comparison for future monitoring to see if it is getting better or worse. They are created when there is a strong sample size and low variation between places or seasons, so we can be confident the number reflects the overall phenomenon it is intends to measure.

There are also some summaries of plastic characteristics in this section. While not strictly baselines, the summaries are here because the *type* of plastic might shift over time, in addition or independently to the *amount* of plastics.

Iceberg run argound at Saddle Island, by Rigolet. June 2025. Photo: Max Liboiron.

Table 2: Baseline figures for plastic ingestion by animals in Nunatsiavut[a]

Animal	Sample size[b]	# of animals that ate plastic	% animals that ate plastic (%FO)[c]	% animals that did NOT eat plastic	Total number of plastics eaten	Minimum # of plastics eaten	Median # of plastics eaten[d]	Maximum # of plastics eaten	IQR of # plastics eaten[e]	Mean # of plastics eaten	Standard deviation of the mean[f]	Median size of plastics eaten (mm)[g]	total # of non-plastic waste materials eaten[h]
iKaluk (Arctic char)	348	89	25.6%	74.4%	125	0	0	7	1.0	0.36	0.77	1.09	63
natsik (Ringed seal)	152	66	43.4%	56.6%	109	0	0	7	1.0	0.72	1.10	1.84	65
Ogatuinnak (Atlantic cod)	68	9	13.2%	86.8%	10	0	0	2	0.0	0.15	0.40	0.84	4
Ujagak Ogâtsuk (Rock cod)	32	2	6.3%	93.8%	2	0	0	1	0.0	0.06	0.20	1.03	3
mitik (Common eider)	24	7	29.2%	70.8%	11	0	0	3	1.0	0.46	0.88	1.45	3
Ânâtlik (Brook trout)	19	1	5.3%	94.7%	1	0	0	1	0.0	0.05	0.23	2.93	2
kavaisitik (Salmon)	17	2	11.8%	88.2%	2	0	0	1	0.0	0.12	0.30	1.03	1
Suglutuk (Surf scoter)	11	5	45.5%	54.5%	9	0	0	3	1.5	0.82	1.10	3.13	2

[a] These baselines are for all animals collected between 2017-2025 from two or more regions in Nunatsiavut (Nain, Hopedale, Makkovik, the Torngats or Hebron). We recommend looking at the original dataset to see the locations and see whether these fit your goals for a regional baseline.

[b] The greyed-out rows are for sample sizes that are too small (<24) to make a baseline. They should be understood as preliminary findings that show whether animals ingest plastics.

[c] FO% stands for Frequency of Occurrence, the main Western scientific measure for plastic ingestion that measures the percent of animals in a sample that ingested plastic, no matter the size of plastic or how many plastics the animal ate. While this is not a metric that is often referenced in community conversations, it allows comparison to other studies, since it's reliably reported in published literature.

[d] The median is the middle number in series of numbers. If the median is 0, it means half or more of the animals in the study ate no plastics.

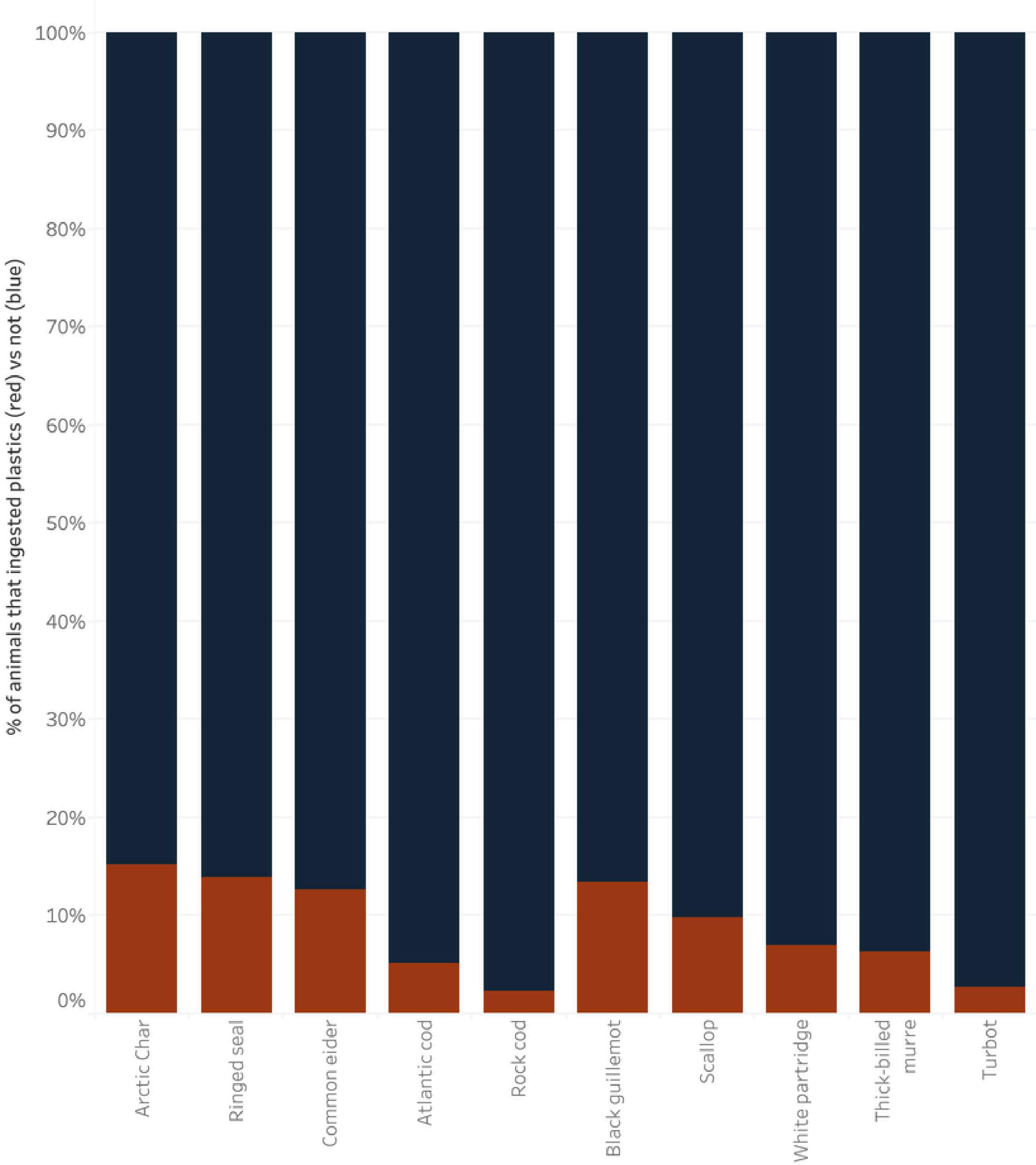
[e] The Interquartile Range (IQR) is the spread of the middle half of the data, from where the bottom 25% ends to where the top 25% begins. An IQR of 0 means that if we stacked animals from most to least plastics ingested, the middle half of the stack would not have eaten plastics (and therefore not the lowest part of the stack either!).

[f] The standard deviation (SD) tells us how far data points are from the mean. It measures variation. When the standard deviation is smaller than the mean, the data points are clustered relatively close to the average, suggesting consistent values. When the SD is larger than the mean, the data is highly spread out (more variation), which often indicates the presence of extreme outliers or that the average isn't a good representation of the "typical" value.

[g] Median length of the longest side.

[h] Like cotton or paper. Non-plastic waste materials are not included in the other summary statistics for plastics, meaning these counts are *in addition* to the ones in the rest of the table.

Figure 8: Baseline frequency of occurrence (FO%) for plastic ingestion by all animals in Nunatsiavut, 2017-2025



Frequency of Occurrence is the main Western scientific measure for plastic ingestion that measures the percent of animals in a sample that ingested plastic, no matter the size of plastic or how many plastics the animal ate. While this is not a metric that is often referenced in community conversations, it allows comparison to other studies, since it's reliably reported in published literature. It also allows comparison to other animals in the study, since it allows for differences in sample size.

Arctic char, Ringed seal, Common Eider, Atlantic cod, and Rock cod were sampled from multiple places in Nunatsiavut. Black guillemot, scallop, White partridge, and Thick-billed murre were sampled around Nain. And Turbot were sampled from a location between Hopedale and Postville.

The median number of plastics for all animals is 0.

Table 3: Baseline figures for plastic ingestion by animals near Nain,[a] 2019-2025

Animal	Sample size[b]	# of animals that ate plastic	% animals that ate plastic (%FO)[c]	% animals that did NOT eat plastic	Total number of plastics eaten	Minimum # of plastics eaten	Median # of plastics eaten[d]	Maximum # of plastics eaten	IQR of # plastics eaten[e]	Mean # of plastics eaten	Standard deviation of the mean[f]	Median size of plastics eaten (mm)[g]	total # of non-plastic waste materials eaten[h]
aKiggik (White partridge)	74	18	24.3%	75.7%	26	0	0	3	0.0	0.35	0.73	1.31	11
appak (Thick-billed murre)	40	5	12.5%	87.5%	10	0	0	6	0.0	0.25	1.00	10.26	4
pitsiulâk (Black guillemot)	32	12	22.0%	88.0	19	0	0	4	1.0	0.59	0.98	0.53	5
Matsojak (Scallop)	32	3	9.4%	90.6%	4	0	0	2	0.0	0.13	0.40	1.37	2
Appaliatsuk (Dovekie)	8	3	37.5%	62.5%	3	0	0	1	1.0	0.38	0.52	1.17	2
A-angik (Hound duck)	3	1	33.3%	66.7%	1	0	0	1	0.5	0.33	0.58	21.33	1
Pitsuilâppak (Brasswing)	1	1	100.0%	0.0%	1	1	1	1	0.0	1.00	n/a	6.10	0
Nipisak (Lump fish)	1	1	100.0%	0.0%	4	4	4	4	0.0	4.00	n/a	0.82	0

[a] Animals that were caught between Kamarsuk and Napattusuak, or that were collected from the Nain community freezer, are included as baselines for the Nain region.
[b] The greyed-out rows are for sample sizes that are too small to make a baseline. They should be understood as preliminary findings that show whether animals ingest plastics or not, but not the amount, frequency, or range.
[c] FO% stands for Frequency of Occurrence, the main Western scientific measure for plastic ingestion that measures the percent of animals in a sample that ingested plastic, no matter the size of plastic or how many plastics the animal ate.
[d] The median is an average that is the most central number in a dataset. If the median number of plastics is 0, it means most animals in the study ate no plastics.
[e] The Interquartile range (IQR) tells us about the spread of the middle 50% of data points. In this baseline, an IQR of 0 means that at least three quarters of the animals ate no plastics.
[f] The standard deviation (SD) tells us how far data points are from the mean. It measures variation. When the standard deviation is smaller than the mean, the data points are clustered relatively close to the average, suggesting consistent values. When the SD is larger than the mean, the data is highly spread out (more variation), which often indicates the presence of extreme outliers or that the average isn't a good representation of the "typical" value.
[g] Median length of the longest side.
[h] Like cotton or paper. Non-plastic waste materials are not included in the other summary statistics for plastics, meaning these counts are in addition to the ones in the rest of the table.

For more details on how these numbers were made see Appendix 16, Table S3.

Table 4: Baseline figures for plastic ingestion by Natânnavait (Turbot) by Striped Island, 2019

Animal	Sample size	# of animals that ate plastic	% animals that ate plastic (%FO)[a]	% animals that did NOT eat plastic	Total number of plastics eaten	Minimum # of plastics eaten	Median # of plastics eaten[b]	Maximum # of plastics eaten	IQR of # plastics eaten[c]	Mean # of plastics eaten	Standard deviation of the mean[d]	Median size of plastics eaten (mm)[e]	total # of non-plastic waste materials eaten[f]
Natânnavak (Turbot)	33	3	9.1%	90.9%	3	0	0	1	0.0	0.09	0.30	0.66	1

[a] FO% stands for Frequency of Occurrence, the main Western scientific measure for plastic ingestion that measures the percent of animals in a sample that ingested plastic, no matter the size of plastic or how many plastics the animal ate.
[b] The median is an average that is the most central number in a dataset. If the median number of plastics is 0, it means most animals in the study ate no plastics.
[c] The Interquartile range (IQR) tells us about the spread of the middle 50% of data points. In this baseline, an IQR of 0 means that at least three quarters of the animals ate no plastics.
[d] The standard deviation (SD) tells us how far data points are from the mean. It measures variation. When the standard deviation is smaller than the mean, the data points are clustered relatively close to the average, suggesting consistent values. When the SD is larger than the mean, the data is highly spread out (more variation), which often indicates the presence of extreme outliers or that the average isn't a good representation of the "typical" value.
[e] Median length of the longest side.
[f] Like cotton or paper. Non-plastic waste materials are not included in the other summary statistics for plastics, meaning these counts are in addition to the ones in the rest of the table.

There are several species that we have fewer than ~20 samples, but not enough for a baseline. They are all from one specific area so cannot be used to understand the species in the wider region.

However, they do tell us whether an animals ingests plastics–but only if they ingested one! A small sample size with 0 ingestd plastics does not mean that animal doesn't ingest plastics. But a single plastic in one animal tells us that they do. The size and type of plastic can also tell us that they do ingest plastics of that particular size and kind, but not whether that is usual for that animal or place. These include:

- **kanajuk (Sculpin):** Three from around Comma Island caught in 2024 did not ingest any plastics. However, we know from Gus Dicker, who found a large plastic handle from a fish box in a sculpin, that as a species, they ingest plastics. Also, if you've ever met a sculpin you know they probably eat plastic.
- **niglik (Canada goose):** One Canada goose caught in Kaigulitok in 2023 did not ingest a plastic.
- **Ânâtlik (Lake trout):** Out of two trout caught in the Kingurutik River in 2020, one ate a plastic that was 1.01mm on the longest side. It was a yellow polyethylene fragment.

Table 5: Plastics in surface water in Nunatsiavut, 2017-2025

Place	# Samples[a]	Samples with no plastic (%)	Mean concentration	Standard deviation +/-	Average/NHL hockey rink[c]
Nain (average)	5	3 (60%)	0.0068	0.0088	11
Nain Bay	2[b]	2 (100%)	0.0000	0.0000	0
Webb's Bay	1[b]	0	0.0083	n/a	13
Paul Island	2[b]	1 (50%)	0.0128	0.0119	20
Hopedale (average)	12	2 (17%)	0.0029	0.0023	5
Hopedale	6	0	0.0033	0.0013	5
Nunaaksaluk	3	0	0.0035	0.0013	6
Umiattugiak	3	2 (67%)	0.0027	0.0046	4
Uivak Point	1[b]	1 (100%)	0.0000	0.0000	0
Makkovik (average)	7	0	0.0278	0.0221	44
Makkovik wharf	1[b]	0	0.0738	n/a	117
Makkovik Harbour	4	0	0.0242	0.0089	19
Outside Makkovik	2[b]	0	0.0118	0.0036	38
Torngats (average)	26	11 (42%)	0.0049	0.0056	8
Eclipse	5	1 (20%)	0.0077	0.0100	12
Saglek	18	8 (44%)	0.0039	0.0041	6
Ramah	3	2 (67%)	0.0060	0.0062	9
Hebron	1[b]	0	0.0052	n/a	8
Total	51	16 (31%)	0.0077	0.0056	12
Nunatsiavut average[d]	**44**	**10 (23%)**	**0.00326**		**4**

[a] We were unable to measure the concentration of plastics in some samples, so the number here indicates the number of samples with concentration data only.
[b] To be sure of our results, we usually only calculate concentrations for areas with three samples collected that accurately measured the volume of water sampled. Given that this is a community report, we summarize all data here, but generally 3 or more samples produce more reliable results.
[c] The number of plastics in a square meter are scientific standards, but the numbers do not make intuitive sense (what does 0.010 plastics in a meter look like?!) so we use the number of plastics in an area the size of an NHL hockey rink instead. It's much easier to think about 17 plastics in a hockey rink. See the section on surface water plastics for more details.
[d] This is the average without the wharf in Makkovik. You can see the difference between this number and the Total in the line above–the "total" is almost double because the wharf in Makkovik skews the data so much. This average without the wharf is a truer number for all of Nunatsiavut.

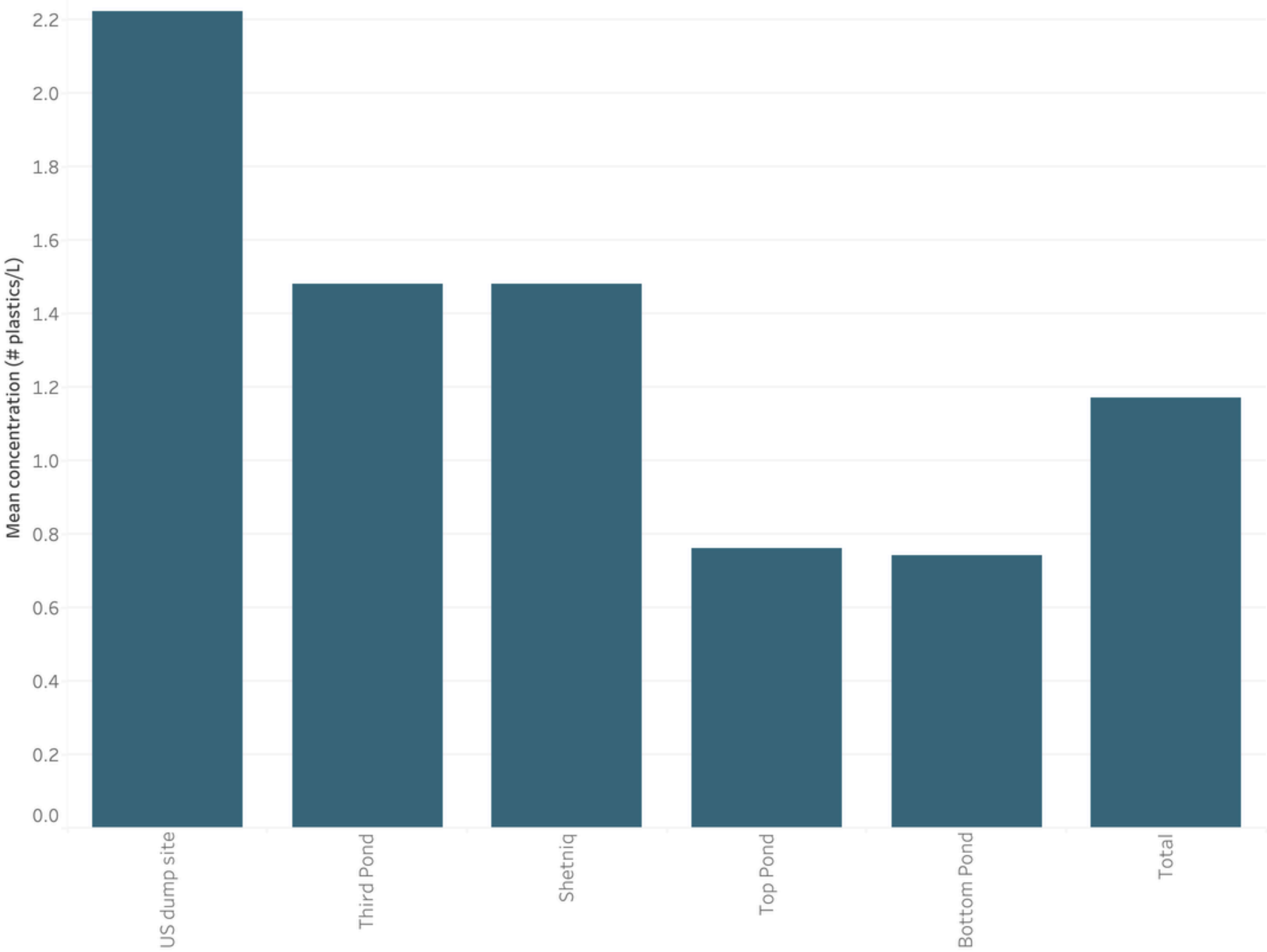
For more about how these numbers are made see Appendix 16, Table S3.

Table 6: Baseline of plastics in pond water around Hopedale, Nunatsiavut, 2024

Location	Sample size	% samples with no plastic	Total # of plastics	Minimum # of plastics	Median # of plastics	Maximum # of plastics	IQR of # of plastics	Median concentration (# plastics/L)	Mean concentration (# plastics/L)	SD of the mean concentration	Smallest size of waste material (mm)[a]	Total # of non-plastic waste materials
Top Pond	6	67%	2	0	0	1	0.75	0.0	0.76	1.18	0.03	1
Third Pond	3	67%	2	0	0	2	0.75	0.0	1.48	1.48	0.01	1
Bottom Pond	6	67%	2	0	0	1	1	0.0	0.74	0.74	0.01	4
Shetniq	3	67%	2	0	0	2	1	0.0	1.48	1.48		1
US dump site	3	67%	3	0	0	3	1.5	0.0	2.22	2.22	0.01	4
Total	**21**	**67%**	**11**	**0**	**0**	**3**	**1**	**0.0**	**1.17**	**1.94**	**0.01**	**11**

[a] The smallest dimension of the smallest human-made material that would determine the filter size required to capture the particle.

Figure 9: Mean concentration of plastics/L in pond water around Hopedale, Nunatsiavut, 2024



Top: Alex Bond and Laura Crick gathering a water sample from Ponds in Hopedale. June 30, 2024. Photo: Paul McCarney. Bottom: Three jars of driking water collected from Third pond in Hopedale, June 30 2024. Photo: Alex Bond

Table 7: Summary for likely[a] plastic sources in Nunatsiavut, 2017-2026

Type of sample	Sample size	Total number of plastics	% waste water	% packaging	% fishing	% cigarettes	% paint	% local[c]
All animals[b]	901	346	43%	7%	10%	0.3%	11%	13%
Shoreline (MDT)	23	7686		23%	9%	4%		59%
Shoreline (quad)	963	134		28%	15%	5%		53%
Surface water	70	214	18%	9%	13%	1%	8%	23%
TOTAL[d]	**1961**	**4926**	**2%**	**22%**	**9%**	**4%**	**1%**	**56%[e]**

75-100%
50-74%
25-49%
1-24%

[a] "Likely" indicates a forensic assessment based on material characteristics to infer probable sources of plastics. For example, microfibres are categorized as wastewater because they primarily originate from clothing, even though some may also come from the atmosphere.
[b] Because animals eat different types of plastics based on their foraging habits, we compared birds, fish, and seal against each other: they were all similar to one another, and to the numbers for all animals combined. There is variation within a species, but not within a class. This species variation may be due to a good sample size, but a small number of plastics ingested. To see individual species' numbers, see Appendix Table 1.
[c] To determine locality, we consider a number of factors, including morphology, particle erosion, duplication in samples, and buoyancy. See Appendix Figure 14
[d] Snow, ice, freshwater, and drinking water are not included here because their plastic particles are too small to be robust in source analysis.
[e] These figures include only plastics whose characteristics (such as intact condition) suggest short-range transport or local sources; many plastics, including microfibres, cannot be reliably classified as local or long-range. Even though we only identify 56% of plastics as likely local, we expect that a higher proportion of plastics originate locally given that some plastics, like microfibres, aren't included in this analysis.

Usually, baseline measures are given for overall levels of pollution. But a baseline is a reference point used to measure *any* change, so relying only on total pollution levels can hide whether a *specific* intervention is working. For example, if a community filters waste water to reduce microfibres in the environment, we would want to track microfibres in particular. This might be masked if we only look at overall levels of plastics, because while wastewater microfibres go down, another form of plastic might increase.

By reporting baselines for individual *types* of pollution, we can distinguish if a reduction comes from our targeted efforts. This granular approach ensures we see the true impact of actions on the specific problem we aim to solve, rather than just watching aggregate numbers over time.

Table 8: Summary of plastic morphologies (shapes)[a] in animals, surface water, and shoreline quadrats from Nunatsiavut, 2017-2025

Type of sample[b]	Microfibre	Fragment	Thread	Film	Foam	**Total plastics[c]**
iKaluk (Arctic char)	64 (51%)	45 (36%)	8 (6%)	6 (5%)	2 (2%)	**125**
natsik (Ringed seal)	51 (47%)	36 (33%)	12 (11%)	8 (7%)	2 (2%)	**109**
aKiggik (White partridge)	6 (23%)	13 (50%)	4 (15%)	2 (8%)	1 (4%)	**26**
pitsiulâk (Black guillemot)	4 (21%)	11 (58%)		3 (16%)	1 (5%)	**19**
mitik (Common eider)	10 (91%)	1 (9%)				**11**
Ogatuinnak (Atlantic cod)	4 (40%)	5 (50%)		1 (10%)		**10**
appak (Thick-billed murre)	1 (10%)	3 (30%)	6 (60%)			**10**
Suglutuk (Surf scoter)	2 (22%)	3 (33%)	4 (45%)			**9**
Matsojak (Scallop)	2 (50%)	2 (50%)				**4**
Nipisak (Lump fish)		2 (50%)	1 (25%)	1 (25%)		**4**
Natânnavak (Turbot)		3 (100%)				**3**
Appaliatsuk (Dovekie)		1 (33%)		2 (67%)		**3**
Ujagak Ogâtsuk (Rock cod)	1 (50%)				1 (50%)	**2**
kavaisitik (Salmon)	1 (50%)				1 (50%)	**2**
Ânâtlik (Brook trout)	1 (100%)					**1**
Pitsuilâppak (Brasswing)	1 (100%)					**1**
A-angik (Hound duck)		1 (100%)				**1**
Ânâtlik (Lake trout)		1 (100%)				**1**
niglik (Canada goose)	-	-	-	-	-	**0**
kanajuk (Sculpin)	-	-	-	-	-	**0**
All fish	**71 (47%)**	**56 (37%)**	**9 (6%)**	**8 (5%)**	**4 (3%)**	**148**
All birds	**24 (30%)**	**33 (41%)**	**14 (17%)**	**7 (8%)**	**2 (3%)**	**80**
All animals	**148 (43%)**	**127 (37%)**	**35 (10%)**	**23 (7%)**	**8 (2%)**	**341**
imaup Kângani (Surface water)	42 (22%)	93 (50%)	29 (16%)	20 (11%)	3 (2%)	**187**
sitjani (Shoreline quadrats)	2 (1%)	52 (30%)	57 (33%)	46 (20%)	18 (10%)	**175**

75-100%
50-74%
25-49%
1-24%

[a] See the "Guide to microplastic morphologies (shapes)" section for morphology descriptions.
[b] Species with fewer than 24 samples are greyed out, but are included insubtotals.
[c] Fifty-five plastics in the study are not included as they did not have morphology data.

Summary tables of plastic characteristics show what kinds of plastics are present and can help identify changes in their composition, even when the overall amount of plastic does not change. They summarize part of the baseline data, but are not themselves a baseline. The baseline provides the reference point against which future observations can be compared, while the summary table highlights particular characteristics within that reference data.
Blank cells mean there is nothing to record in that part of the table. They do not mean zero: a zero means that an observation was made and the thing being measured was absent.

Table 9: Summary of plastic polymers (types)[a] in animals and surface water from Nunatsiavut, 2017-2025

Type of sample[b]	PET	PE	PAN	PP	Alkyd	Acrylic	Nylon	PU	PVA	PS	ABS	CA	PVC	NC	Total plastics[c]
iKaluk (Arctic char)	35 33%	5 5%	23 22%	5 5%	9 8%	13 12%	4 4%	3 3%	5 5%	1 1%	2 2%	1 1%			**106**
natsik (Ringed seal)	28 34%	7 9%	14 17%	8 10%	7 9%	1 1%	7 9%	1 1%		4 5%	2 2%			3 4%	**82**
aKiggik (White partridge)	6 25%	3 13%	2 8%	9 38%	1 4%	1 4%				1 4%	1 4%				**24**
pitsiulâk (Black guillemot)	3 16%	2 11%	2 11%	1 5%	4 21%	5 26%			2 11%						**19**
mitik (Common eider)	7 70%		3 30%												**10**
appak (Thick-billed murre)		8 80%	1 10%					1 10%							**10**
Ogatuinnak (Atlantic cod)	2 25%		1 13%	1 13%	2 25%		1 13%		1 13%						**8**
Matsojak (Scallop)	1 33%		1 33%					1 33%							**3**
Suglutuk (Surf scoter)						1 33%				1 33%	1 33%				**3**
Natânnavak (Turbot)		1 33%		1 33%	1 33%										**3**
Nipisak (Lump fish)		1 25%		1 25%	1 25%	1 25%									**4**
Appaliatsuk (Dovekie)	1 33%			1 33%				1 33%							**3**
Ujagak Ogâtsuk (Rock cod)							1 50%	1 50%							**2**
kavaisitik (Salmon)	1 50%						1 50%								**2**
Ânâtlik (Brook trout)				100%											**1**
Pitsuilâppak (Brasswing)	100%														**1**
A-angik (Hound duck)												100%			**1**
Ânâtlik (Lake trout)		100%													**1**
niglik (Canada goose)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**0**
kanajuk (Sculpin)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**0**
All fish	**39 30%**	**8 6%**	**25 19%**	**9 7%**	**13 10%**	**14 11%**	**7 5%**	**5 4%**	**6 5%**	**1 1%**	**2 2%**	**1 1%**			**130**
All birds	**18 25%**	**13 18%**	**8 11%**	**11 15%**	**5 7%**	**7 10%**		**2 3%**	**2 3%**	**2 3%**	**2 3%**	**1 1%**			**71**
All animals	**85 30%**	**28 10%**	**47 17%**	**28 10%**	**25 9%**	**22 8%**	**14 5%**	**8 3%**	**8 3%**	**7 2%**	**6 2%**	**2 1%**		**3 1%**	**283**
imaup Kângani (Surface water)	29 19%	30 19%		33 21%	14 9%	4 3%	29 19%	1 1%		1 1%	6 4%	3 2%	4 3%		**154**

75-100%
50-74%
25-49%
1-24%

[a] See Table 11 for a summary of polymer descriptions.
[b] Species with fewer than 24 samples are greyed out, but are included in the fish/bird subtotals.
[c] Plastics which have no polymer result from FTIR analysis are not included as they were lost in the visual identification process in the lab (for example while weighing or measuring, or when using heat to see if the particle wiould melt like a plastic).
Polymers with an abundance less than 2% (SBR, epoxy, PC, PVB and POM) are also not included since their abundance is too low to reliably compare the relative concentrations.
Summary tables of plastic characteristics show what kinds of plastics are present and can help identify changes in their composition, even when the overall amount of plastic does not change. They summarize part of the baseline data, but are not themselves a baseline. The baseline provides the reference point against which future observations can be compared, while the summary table highlights particular characteristics within that reference data.
Blank cells mean there is nothing to record in that part of the table.

An aKiggik (white partridge) walking across the snow at sunset. Photo: Eldred Allen

Table 10: Summary of plastic polymers (types) descriptions and common uses for polymers found in Nunatsiavut 2017–2025

Polymer Type	Description	Common Uses
PET (Polyethylene terephthalate)	Common polyester that accounts for ~10% of all plastic production and ~70% of polyester/polyamide/acrylic fibre production.	Plastic bottles, food packaging, polyester fabrics, Mylar, insulation.
PE (Polyethylene)	Made from polyolefin ethylene that accounts for ~36% of global non-fibre plastic production. Available in rigid and flexible forms.	Pipes, plastic furniture, oil bottles, plastic bags, food packaging, garbage bags, stretch wrap, fishing line/rope, shotgun wadding, skidoo oil bottles, kamutik runners.
PAN (Polyacrylonitrile)	Polymer made from acrylonitrile, primarily used as fibres for textiles and as a precursor to carbon fibre. Clothing labelled "acrylic" contains >85% PAN.	Acrylic textiles, clothing, carbon fibre.
PP (Polypropylene)	Widely used polymer accounting for ~21% of global non-fibre plastic production. Used in rigid products and textile fibres.	Furniture, pipes, laboratory tubes, rigid containers, non-woven textiles, fishing line/rope, chip packets, industrial textiles.
Alkyd	Generic term for polyester resins used primarily as binding agents in coatings.	Oil-based paints, varnishes, enamels, flexible coatings.
Acrylic	General term for polymers derived from acrylic acid.	Acrylic paints, adhesives, resins, acrylic glass.
Nylon (Polyamide)	Family of polymers that are used as moulded plastics and fibres.	Clothing, textiles, fishing lines, guitar strings, moulded plastic components.
PU (Polyurethane)	Polymer class formed from diisocyanates and diols; accounts for ~8% of global non-fibre plastic production.	Flexible foam (sponges, furniture padding), rigid insulation foam, Spandex, Lycra, elastane fibres
PVA (Polyvinyl acetate)	Polymer commonly used as an adhesive, paint binder, and resin. Combined with ethylene to form PEVA.	Adhesives, latex and water-based paints, PEVA foams, padding, furniture, clothing materials
PS (Polystyrene)	Accounts for ~8% of global plastic production. Available as rigid plastic or expanded foam.	Disposable cutlery, packaging, insulation, fishing buoys, Styrofoam.

Background image: tow headed babies, Hopedale, 2024. Photo: Alex Bond

Table 10: Summary of plastic polymers (types) descriptions and common uses for polymers found in Nunatsiavut 2017-2025 (continued)

Polymer Type	Description	Common Uses
ABS (Acrylonitrile butadiene styrene)	Tough block copolymer made from acrylonitrile, butadiene, and styrene. Susceptible to UV degradation.	Toys, helmets, keyboards, pipes, automotive parts, appliance housings, corrugated plastic sheets.
CA (Cellulose acetate)	Semi-synthetic polymer produced by modifying natural cellulose with acetate groups	Film stock, cigarette filters.
PVC (Polyvinyl chloride)	Common polymer made from vinyl chloride; accounts for ~12% of global plastic production. Can range from rigid to highly flexible.	Pipes, construction materials, vinyl flooring, stretch wrap, banners, electrical insulation, clothing, inflatables.
NC (Nitrocellulose/ Celluloid)	Semi-synthetic cellulose derivative produced by nitration of cellulose.	Old film stock, gun-cotton, lacquers.
SBR (Styrene-butadiene rubber) / Crumb rubber	Synthetic rubber copolymer of styrene and butadiene. Crumb rubber is recycled SBR from used tires.	Automotive tires, shoe soles, gaskets, coated paper, construction sealants, recycled rubber products.
Epoxy	Class of polyepoxides commonly based on bisphenol A (BPA). Used as durable thermosetting resins.	Adhesives, powder coatings, fibreglass, carbon fibre composites.
PC (Polycarbonate)	Transparent, durable polymer class based on carbonate linkages, commonly made from BPA.	Roofing sheets, CDs, reusable bottles, safety goggles, windows, windscreens, lighting canopies, lenses.
PVB (Polyvinyl butyral)	Polymer commonly used as a tough, transparent interlayer with strong adhesive properties.	Laminated safety glass, automotive windshields, architectural glass.
POM (Polyoxymethylene, Acetal)	Engineering plastic produced by polymerisation of formaldehyde; valued for high strength and low friction.	Gears, ball bearings, plumbing fittings, laboratory equipment, K'Nex toys.

Background image: Hopedale flowers, 2024. Photo: Max Liboiron

Table 11: Summary of plastic size classes[a] in animals and surface water from Nunatsiavut, 2017-2025

Type of sample[b]	Micro (<5mm)	Meso (5-25mm)	Macro (>25mm)	Total plastics
iKaluk (Arctic char)	111 (89%)	14 (11%)		**125**
natsik (Ringed seal)	93 (87%)	14 (13%)		**109**
aKiggik (White partridge)	22 (85%)	4 (15%)		**26**
pitsiulâk (Black guillemot)	19 (100%)			**19**
mitik (Common eider)	9 (90%)	1 (10%)		**11**
Ogatuinnak (Atlantic cod)	9 (90%)	1 (10%)		**10**
appak (Thick-billed murre)	2 (20%)	8 (80%)		**10**
Suglutuk (Surf scoter)	6 (67%)	3 (33%)		**9**
Matsojak (Scallop)	4 (100%)			**4**
Nipisak (Lump fish)	3 (75%)	1 (25%)		**4**
Natânnavak (Turbot)	3 (100%)			**3**
Appaliatsuk (Dovekie)	3 (100%)			**3**
Ujagak Ogâtsuk (Rock cod)	2 (100%)			**2**
kavaisitik (Salmon)	2 (100%)			**2**
Ânâtlik (Brook trout)	1 (100%)			**1**
Pitsuilâppak (Brasswing)		1 (100%)		**1**
A-angik (Hound duck)		1 (100%)		**1**
Ânâtlik (Lake trout)	1 (100%)	0%		**1**
niglik (Canada goose)				**0**
kanajuk (Sculpin)				**0**
All animals	**290 (86%)**	**48 (14%)**	**0%**	**338**
imaup Kângani (Surface water)	157 (84%)	26 (14%)	4 (2%)	**187**
sitjani (Shoreline quadrats)	23 (10%)	36 (16%)	169 (74%)	**228**

75-100%
50-74%
25-49%
1-24%

[a] Microplastics are smaller than 5mm, the size of a grain of rice. Macroplastics are larger than 25mm, which is the width of a quarter coin.
[b] Species with fewer than 24 samples are greyed out, but are included in the fish/bird subtotals.

Background image: Hopedale harbour, 2024. Photo: Joby Razzel Hollis

Table 12: Baseline of plastics from shoreline quadrats in Nunatsiavut, 2017-2025

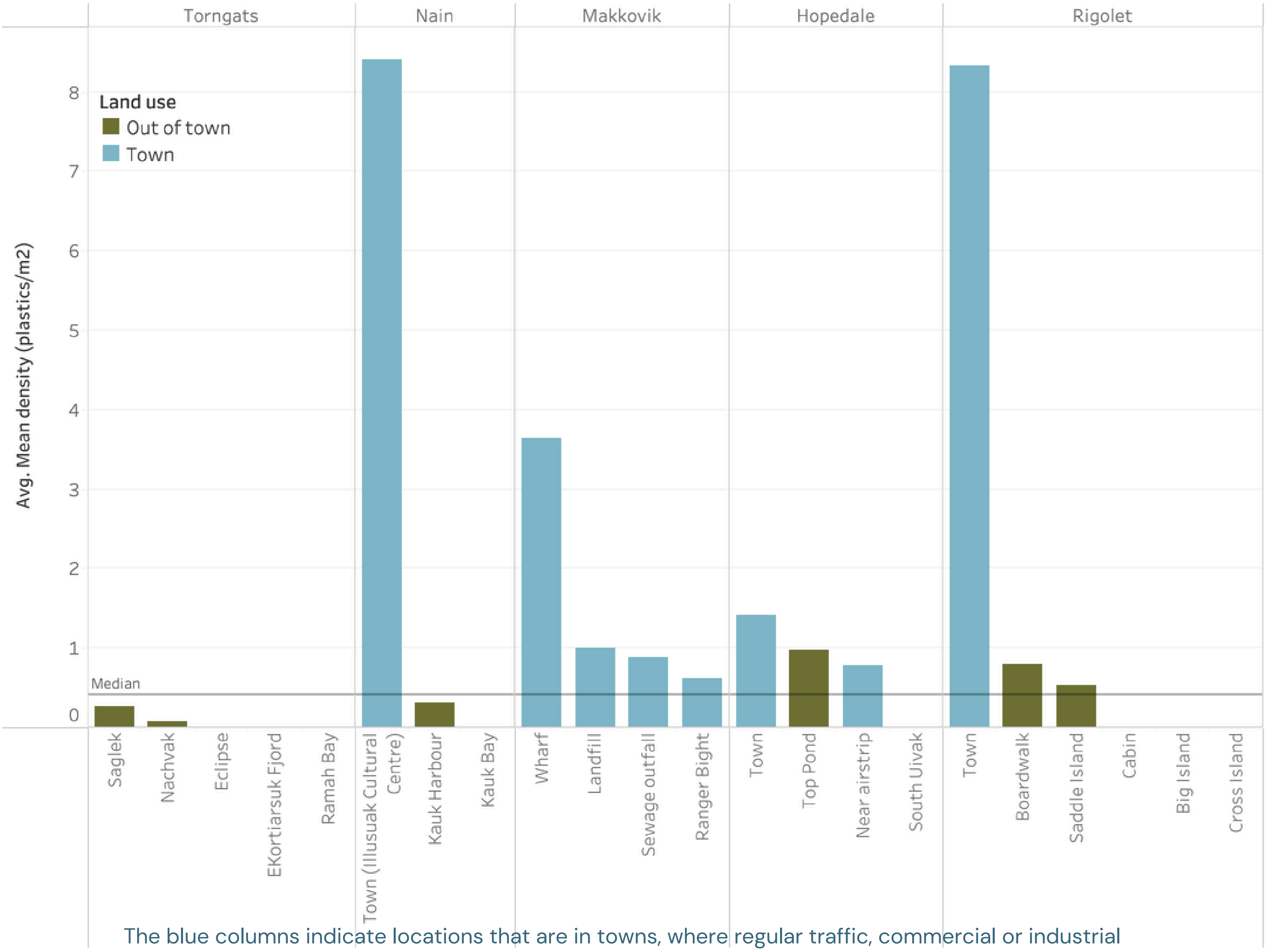
Region	Location	Sample size	% with plastic	Mean density (plastics/m^2)	Standard deviation	Median density (plastics/m^2)	IQR
Hopedale	Near airstrip	71	13%	0.79	2.50	0	0
	Town	85	21%	1.41	3.31	0	0
	South Uivak	8	0%	0.00	0.00	0	0
	Top Pond	62	11%	0.97	3.29	0	0
	Total	**226**	**15%**	**1.04**	**3.01**	**0**	**0**
Makkovik	Near landfill	2	50%	1.00	1.41	1	1
	Ranger Bight	21	29%	0.62	1.24	0	1
	Sewage outfall	17	47%	0.88	1.50	0	1
	Wharf	11	91%	3.64	3.98	2	3.5
	Total	**51**	**49%**	**1.37**	**2.45**	**0**	**2**
Nain	Town (Illusuak Cultural Centre)	5	100%	8.40	6.50	9	6
	Kauk Bay	8	0%	0.00	0.00	0	0
	Kauk Harbour	23	13%	0.30	0.82	0	0
	Total	**36**	**22%**	**1.36**	**3.67**	**0**	**0**
Rigolet	Big Island	14	0%	0.00	0.00	0	0
	Boardwalk	35	14%	0.80	2.34	0	0
	Cabin	10	0%	0.00	0.00	0	0
	Cross Island	5	0%	0.00	0.00	0	0
	Saddle Island	15	13%	0.53	1.41	0	0
	Town	12	15%	8.33	15.95	0	5
	Total	**91**	**11%**	**1.49**	**6.38**	**0**	**0**
Torngats	Eclipse	16	0%	0.00	0.00	0	0
	EKortiarsuk Fjord	19	0%	0.00	0.00	0	0
	Nachvak	38	8%	0.08	0.27	0	0
	Ramah Bay	14	0%	0.00	0.00	0	0
	Saglek	184	5%	0.26	1.23	0	0
	Total	**271**	**4%**	**0.19**	**1.02**	**0**	**0**
Nunatsiavut[a]	**Total**	**675**	**13%**	**0.80**	**3.21**	**0**	**0**
Nunatsiavut in towns	**Total**	**212**	**27%**	**1.73**	**4.94**	**0**	**1**
Nunatsiavut going off	**Total**	**451**	**6%**	**0.34**	**1.64**	**0**	**0**

0%	1-24%	25-49%	50-74%	75-100%

This table does not include a series of daily quadrats that Kayla Wyatt, Geraldine Andersen, and Caroline Nochasak did from May to Oct 2024, to see if plastics were loading onto shore after ice break-up; checking every day will result in fewer plastics than checking once or twice a year.

[a] As you can see from the variation within each site (such as the area in Nain by the Cultural Centre compared to Big Island in Rigolet, for example), that the average for all of Nunatsiavut is somewhat misleading. We recommend using one average measure for in communities and another for outside of communmities. "Town" is our measurements is somewhere waste can blow out of a yard or truck.

Figure 10: Baselines of plastics from shoreline quadrats in Nunatsiavut, 2017-2025



The blue columns indicate locations that are in towns, where regular traffic, commercial or industrial land use, and permanent settlement means higher numbers of plastics will blow or flow from local sources. They consistently have greater concentrations of plastics on shorelines.

This extreme variation is also why we do not provide a single baseline number for Nunatsiavut, which would average out the middle of town with areas that have no plastics. The median for the entire dataset is 0.4 plastics/m2, and the mean for just out of town areas is 0.3. Both measures are less impacted by the skew that a total average would create (1.3).

A quadrat in Kauk Harbour, checked by Max Liboiron and Frédéric Dwyer-Samuel, 2021. Photo: Max Liboiron

Eating mussels from the land during a sample gathering trip outside of Nain, 2024.
Left to right: Liz Pijogge, Debbie Lyall, Darrel Lyall, Max Liboiron. Photo: Paul McCarney.