Sellafield Particles in the Environment Update (End of Year 2025)

1 Progress and areas monitored

During 2025 a total area of 117 ha of the beaches along the Cumbrian coast were monitored against a programme target of 105 ha. A total of 49 particles and 3 larger objects[1] were detected and recovered, details are given in Table 1. Further details of the programme can be found in the annual report series[2].

2 Find rates

Average find rates were compared with find rates over the last two calendar years in Table 2 and the last four years in Figure 1. For clarity of presentation, the find rates in Table 2 were rounded to the nearest significant figure.

Table 2 and Figure 1 shows that find rates for alpha-rich[3] particles, beta-rich particles and beta-rich larger objects were comparable with the average find rates from previous years.

Find rates in 2025 did not require any form of intervention through the Environment Agency (EA) Notification and Intervention Protocol[4].

3 Find activities

Figure 2 shows the activities of alpha-rich particles and beta-rich particles were comparable to the activities measured since May 2014 (when the current version of the monitoring equipment was introduced).

None of the finds recovered in 2025 were of sufficient activity to require characterisation through the EA Notification and Intervention Protocol[4].

4 Summary of programme

Table 3 presents a summary of the beach monitoring programme since it started in 2006. Overall, a total of 3,062 ha of beaches have been monitored and 3,672 particles and larger objects have been recovered and analysed.

5 Conclusion

The UK Health Security Agency risk assessment for radioactive particles and larger objects on West Cumbrian beaches reported that:

- “overall health risks for beach users are very low, and significantly lower than other risks that people accept when using the beaches.”; and that
- “measures to control these risks are not warranted on public health grounds.”

[1] "Particles" are finds less than 2 mm in diameter and "larger objects" are finds greater than or equal to 2mm in diameter (includes: granules, gravel, pebbles, stones etc.)
[2] https://www.gov.uk/government/collections/sellafield-ltd-environmental-and-safety-reports
[3] "Alpha-rich" are finds with ^{241}Am activity greater than ^{137}Cs activity, "beta-rich" are finds with ^{137}Cs activity greater than ^{241}Am activity and "Co-60 rich" are finds with positive ^{60}Co activity greater than the ^{137}Cs activity.
[4] https://www.gov.uk/government/publications/sellafield-radioactive-objects-notification-and-intervention-plan/sellafield-radioactive-objects-notification-and-intervention-plan

Table 1: Beach finds in 2025.

Beach location	Area covered (ha)	No. of particles found				No. of larger objects found				Total finds
		Alpha-rich	Beta-rich	Other	Not analysed	Alpha-rich	Beta-rich	Other	Not analysed	
Allonby	5	0	0	0	0	0	0	0	0	0
Northern beaches	35	15	0	0	0	0	0	0	0	15
Sellafield	55	32	2	0	0	0	3	0	0	37
Southern beaches	22	0	0	0	0	0	0	0	0	0
All	**117**	**47**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**52**

Note 1: Proportion of particles as % of total finds = 94%.

Table 2: Find per hectare and area monitored for main beach areas to end of year 2025.

Beach location	Year	Area covered (ha)	Find category & Type (finds per hectare)			
			Alpha-rich particle	Beta-rich particle	Beta-rich larger object	Other finds
Allonby	2023	5	IA	0	0	0
	2024	5	0	0	0	0
	2025	5	0	0	0	0
Northern beaches	2023	34	<1	0	0	0
	2024	35	<1	0	<0.1	0
	2025	35	<1	0	0	0
Sellafield	2023	59	<1	<0.1	<0.1	0
	2024	56	<1	<0.1	<1	0
	2025	55	<1	<0.1	<0.1	0
Southern beaches	2023	22	<0.1	0	0	0
	2024	22	<1	0	0	0
	2025	22	0	0	0	0

Note 2: IA – Finds have been recovered however there is insufficient area coverage to estimate finds rates (<10 ha area covered).
NA - No monitoring to date.
"<1" denotes values between 0.1 and 0.99.
"<0.1" denotes values between zero and 0.099.

Table 3: Summary of beach monitoring data since programme began in 2006 to end of year 2025.

Beach location	Area (ha)	Total		Alpha-rich		Beta-rich		Co-60 rich	
		Particle	Larger object	Particle	Larger object	Particle	Larger object	Particle	Larger object
Allonby	139	21	1	19	0	2	1	0	0
Northern beaches	1007	927	1	870	0	51	1	6	0
Sellafield	1169	1812	741	1465	6	338	733	9	2
Southern beaches	669	143	6	118	0	25	4	0	2
Other beaches	78	19	1	17	0	2	1	0	0
All	**3062**	**2922**	**750**	**2489**	**6**	**418**	**740**	**15**	**4**

Note: Northern beaches are St Bees and Braystones, Southern beaches are Seascale and Drigg. Allonby and Sellafield are included specifically. All other beaches (e.g. Whitehaven, Workington, Silecroft etc.) are incorporated into the "Other beaches" definition. A single additional particle (2.8 kBq Am-241; 02/04/2012) was recovered by seabed grab sampling and is not included in the above table.

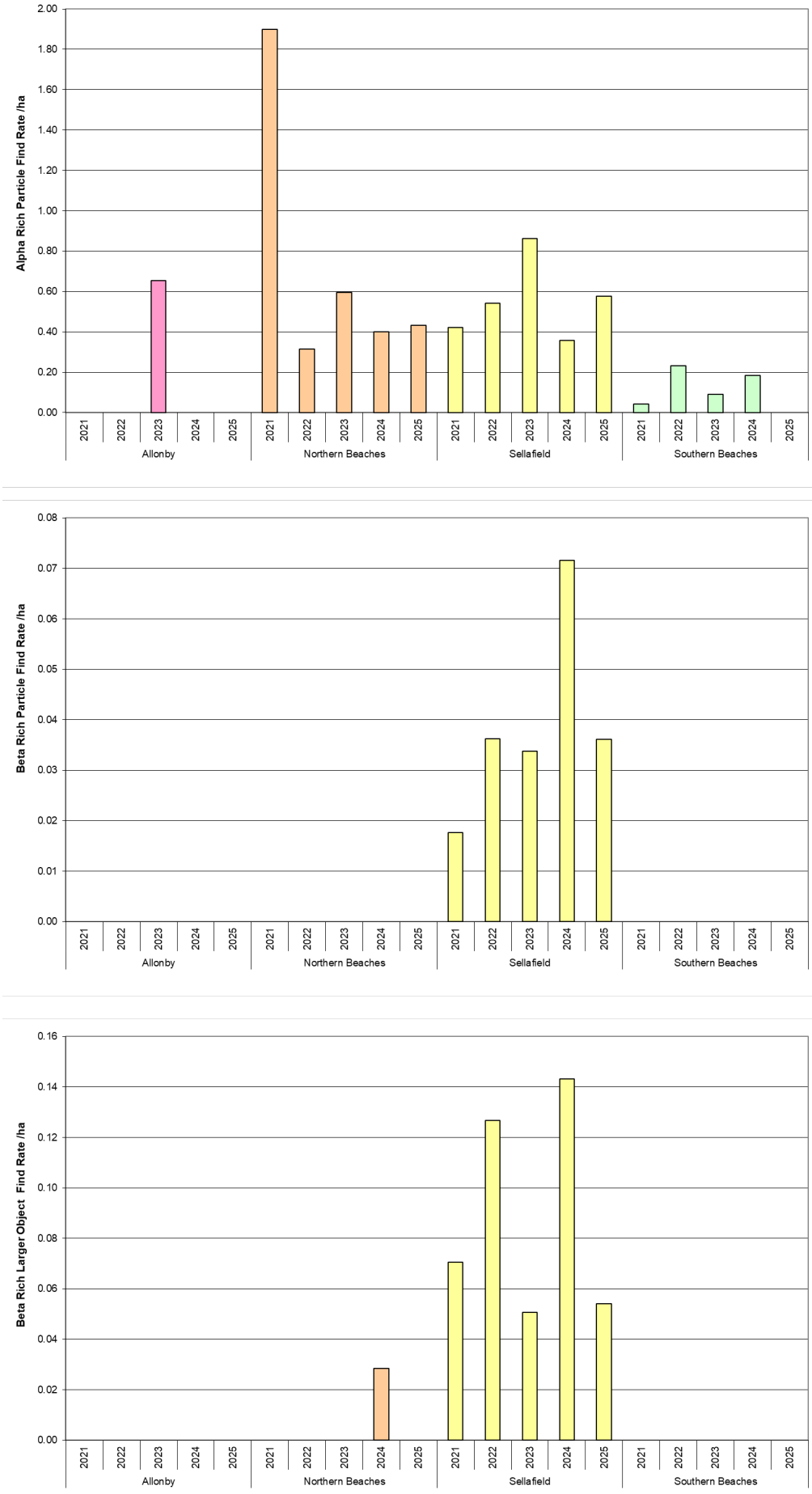
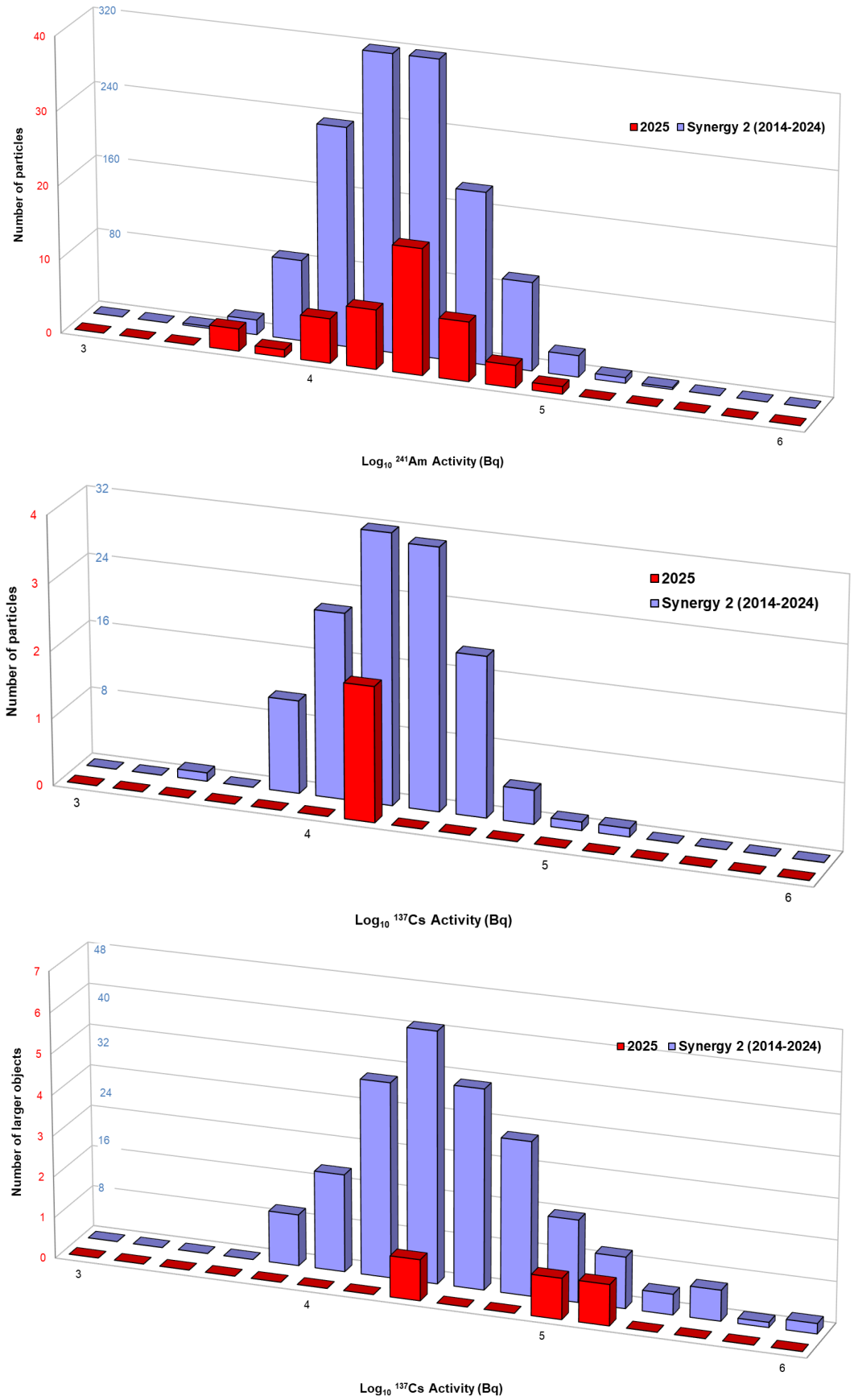


Figure 1: Find rates of alpha-rich particles (upper), beta-rich particles (middle) and beta-rich larger objects (lower) between 2021 - 2025.



Note 3: Different scales used for 2025 and Synergy2 datasets.

Figure 2: Radioactivity of finds classified as alpha-rich particles (top), beta-rich particles (middle) and beta-rich larger objects (lower) between May 2014 - December 2024 (termed "Synergy2" and shown in blue) compared to data from 2025 (termed "2025" and shown in red).