

End-of-life scenarios for plastic materials used within aquaculture in Norway

42 046 ± 11 712 tons of plastic waste is generated annually in the aquaculture sector (Winkler, 2024).

What happens to the waste?

Scenario 1: Recycling

- 33% is recycled.
- Two ways of recycling: mechanical (in Norway) or chemical (abroad).

Scenario 2: Incineration

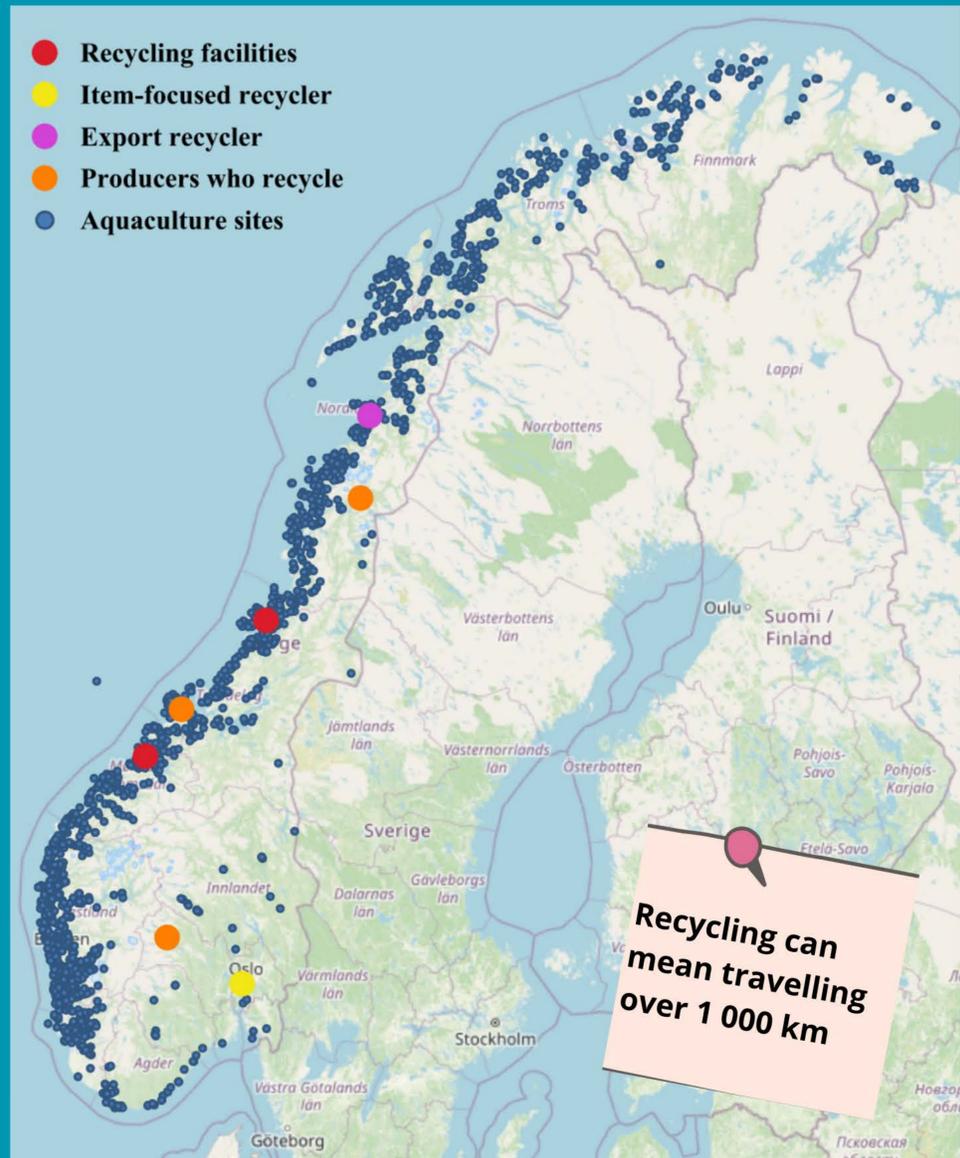
- 42% goes to incineration.
- The second best option after recycling.
- Used for energy recovery e.g. excess heating or cement production.
- Sent to facilities within Norway and abroad.

Scenario 3: Landfilling

- 21% goes to landfilling.
- The least favorable option.
- Non-recyclable, unsorted, dirty materials.
- Plastic materials may end up in landfills due to lack of recycling facilities, poorly sorted materials or high recycling costs.

Scenario 4: Lost-and-found

- 6 765 ± 1 247 tons are lost annually.
- Causes of loss: weather conditions, poor mooring systems, biofouling etc.
- Plastic removed from the Norwegian coast:
 - In the same boat: 1 700 tons of plastic (since 2017).
 - Rydd i Tide: 4 075 tons of plastic and other waste (since 2020).
 - Rydde: 11 770 tons of plastic and other waste (since 2015)
- Collected materials are then handled according to one of the three scenarios.



Costs regard to waste handling

- The map shows that waste handlers and fish farms are unevenly distributed, which means some farms might choose the closest and cheapest option rather than recycling farther away.
- Landfilling or incineration may then become a cheaper option than recycling for low-quality or mixed waste.
- Well-sorted plastic can be handled at low or no cost, while unsorted waste is much more expensive.
- Costs depend mainly on sorting quality and material condition. For exceptionally good quality you might even get paid. (e.g. copper wire)

Table 1: Transport Distances Covered by Waste Handlers [km]

	min	max
Company 1	3	1 500
Company 2	10	1 700
Company 3	550	550

Table 3: Costs of bad quality material (nets) [NOK/tonne]

Recycling	6 500
Landfill	3 500

Table 2: Costs for disposal of waste at different facilities [NOK/tonne]

Incineration	2 000
Landfill	2 700
Recycling	10 000

Table 4: Costs of good quality material (ropes) [NOK/tonne]

Recycling	500
Landfill	3 500