

Seaweed, industrial salts, and iodine: Booms and busts in Scottish seaweed industries and the implications of harvesting rights.

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The Political Ecology of Coastal Societies

17-19 June, 2019

Traditional uses: human food, animal fodder, and fertilizer.

Seaweed unlike animal dung or terrestrial plant waste does not need a long period of composting and can be dug directly into the soil.

There is evidence of early forms of aquaculture to promote the growth of seaweed along parts of the coast where it was not easily available.





Burning seaweed on the mainland of Scotland, Western Isles, Shetland and Orkney to produce 'kelp ash' (primarily potassium carbonate – potash; and sodium carbonate -- soda) from the early-mid 18th century until the mid 19th century.

These potassium and sodium salts were highly valued in the production of many new industrial goods including fertilizers, explosives, washing and bleaching agents, but the main consumer seems to have been the clear glass industry.

Highland Clearances: mid 18th century until mid 19th century.

Differing experience of this industry depended on land tenure and access rights.

Large, often absentee, landholders on mainland Scotland and the Western Isles shifted their remaining tenants labour away from a mixed farming, fishing economy and into the intensive production of kelp ash. As a consequence the landowners profited heavily but at the expense of their tenant farmers who suffered tremendous hardship and were not able to produce their subsistence crops to the same degree they had in the past, nor were they able to use the sea weed for their own purposes. The ecological impact is a matter of on-going research.

Small landholders in Shetland and Orkney practicing rights under customary Udal law maintained an ability to profit from this market but in a less intensive way. However the profit was more evenly distributed and seemed to be done in ways that fit the mixed economy sensibilities of local people.

The discovery of iodine, 1811

- French chemist Barnard Courtois interested in the containments in kelp ash and isolate the element iodine.
- Quickly realised that iodine was what was keeping coastal people from suffering from thyroid problems and became a food additive.
- It also had a host of other industrial uses as an oxidizer and anti-septic.
- Lead to the second sea-weed ash boom from the mid 19th century but had collapsed by the first year of the 20th century.

Both the iodine and potassium and sodium salts industries collapsed for the same reason

- Mineral deposits in the Americas were discovered that made the production of seaweed ash uneconomical. Chemical production from petroleum distillation also had its effect.
- Today the industrial production of fertilisers, explosives, clear glass, and iodine are dependant on these mineral reserves and petroleum. Both of which are under production declines and eyes are once again turning to seaweed for its industrial applications.
- Perhaps the industries that changed the world and that had their beginnings in the potash beds of coastal Scotland may return to those aquatic roots, but there are many other new applications as well.
- What can we learn from the past and how might these new uses of seaweed create benefits to local people that accord with their own sensibilities are both questions going forward among many others...