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Cu, Fe, Pb, Zn and As Concentrations of Seaweed on The Tasmania Island and Ranging from Port fairy to Warrnambool in Victoria, Australia

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To clearly relationship between heavy metal concatenations of seaweed and geology, seaweeds are sampled at both the coast in the Tasmania Island and the coast from Port fairy to Warrnambool in Victoria, Australia in September to October 2018. The sampling points are divided into three types, mine, basalt and Non-contamination points. The mine point is at the mouth of Queen River. Waste water and tailing sediments from the big copper mine, Mount Lyell Mine with total production of more than a million tons of copper, 750 tons of silver and 45 tons of gold from the early 1890s at the west of Tasmania Island flows into the Queen River. The basalt point is located on the area near basalt rocks around Port Fairy, Victoria and the northwest and northeast coast of Tasmania Island. The non-contamination points covered areas excluding the mine and basalt points.

The four common species Ecklonia radiata, Durvillaea potatorum, Phyllospora comosa and Hormosira banksii were sampled and measured for concentrations of cupper, steel, manganese, lead, zinc and arsenic because of wide distribution. As a result, metal concentrations in seaweed were variable but their values varied within the world data as shown in table 1. Cupper and steel concentrations of Ecklonia radiata and Durvillaea potatorum at the mine points were a relatively higher than those at the other 2 types as shown in figure 2. Heavy metal concentrations of seaweed at the basalt and the non-contamination points were almost the same.

Table 1 Cupper and Steel concentrations of seaweed in the Queen River compared with global data

	site	Concentration(mg/kg-dry)
Cu	Queen River	0 ~ 20
	Kanayama	2 ~ 200
	Shizuki	10 ~ 1,000
	Non-Contamination	1 ~ 10
Fe	Queen River	10 ~ 1,000
	Kanayama	400 ~ 10,000
	Non-Contamination	20 ~ 3,000

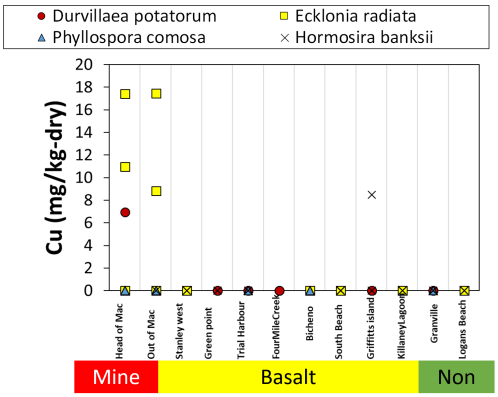

Figure 2 Cupper concentration of seaweed