This research is concerned with waste minimization in seafood processing industries. The management of water consumption and wastewater in this type of industry is also investigated. A system for reduction of water consumption and for wastewater management is also recommended.

In general, food processing industries use high volume of water for processing activities, for reasons of hygiene. However, most of factories are located near a river or the sea. Some factories do not have any wastewater treatment facilities and discharge wastewater directly into the environment (sea or river). This kind of wastewater contains high concentrations of organic matter and affects the quality of water in river and the sea.

In the selected fish-freezing factory, approximately 7.2 M$^3$ of wastewater per ton of raw materials was produced. Wastewater in this type of industry was mainly produced from thawing of raw materials, washing activities, and cutting and butchering of raw materials (fish). Water consumption from these activities was 79.15% of total water consumption. But wastewater from cutting and butchering had the highest concentration of BOD$_5$ (2,347 mg/l). Water consumption from other activities such as office use was 2.76% of total water consumption. Water consumption in the cooling and boiler systems was only 9.47% of total water consumption.

The water saving systems could be applied for reduction of water consumption included a high pressure cleaning system, use of automatically closing valves, and reusing of thawing and cooling water. By such methods, water consumption could be reduced by about 46.06%.

The wastewater treatment plant in the selected fish-freezing factory used a combination of the anaerobic filter system and activated sludge system. However, the BOD$_5$ removal efficiency of these systems was 77.32% and 95.76%, respectively. When we introduced the above water saving systems to the factory, the volume of wastewater was reduced by 51.56% and the quality of effluent may now be in compliance with the industrial wastewater effluent standard of Department of Industrial Works of Thailand. This effluent may thus be reusable for agricultural proposes, subject to the recommendation of the Ministry of Science, Technology and Environment, Thailand.