

# Restoration from the Tsunami through Resilience of Ecosystem

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What kind of consideration is needed for the restoration from a great disaster of not only hardware but also software, a sustainable livelihood, of a devastated society? Here, we report our activity for restration from the Great East Japan Earthquake through resilience of ecosystem and biodiversity, which has led to a rapid restoration of rice paddies with less cost.

## Two Steps to Restore the Rice Paddies Damaged by the Tsunami

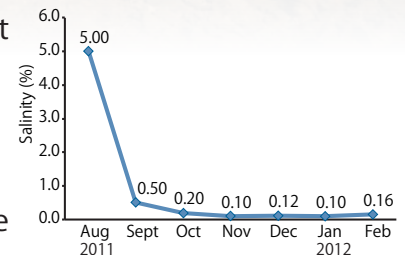
### (1) Removal of Rubbles

Heavy machines would damage the layer structure of the valuable soil and the surviving organisms. Thus, we have removed all the rubble remained in the rice paddies, including cars, only by human power. We used a sieve to filter out small pieced of glass and other artificial materials.



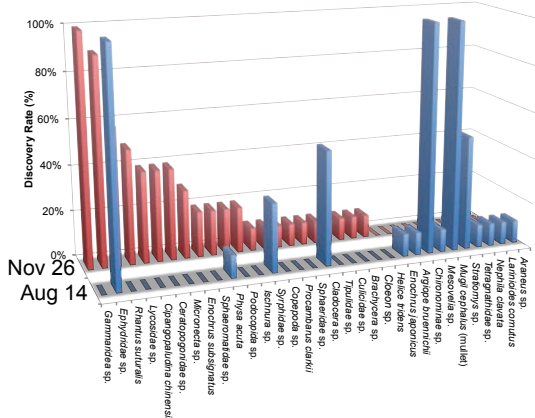
### (2) Desalination

Chemicals may affect the chemical state of the soil and the surrounding ecosystems. We have successfully decreased the salinity only with water. Water would dilute salt and push salty water below the plow layer.



## Recovery of Biodiversity and Rice Cropping

### Species Found Before (Aug. 14) and After (Nov. 26) Restoration Activity



With the process with care to ecosystem (1 and 2), we saw the drastic change in biodiversity; fewer species with marine organisms to more species with normal freshwater species.

Only a few percent of the damaged rice paddies was restored and cropped in the year of the disaster. Our activity was one of those rare cases.

### Successful Rice Cropping in the Year of the Disaster

