Habitat Analysis of migratory waterfowls using remote sensing and GIS technology

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Effect of environmental factors to the distribution and migration of waterfowls were evaluated at Ishikari lowland area (3300km2) in Central part of Hokkaido, using remote sensing and GIS technology.

First, point-count surveys focused on waterfowls and searching their roost were carried out at fifteen research lakes and ponds. Second, as environmental factors, the spatial fluctuations of snow cover in spring were mapped by the snow products of MODIS. And the land use of research areas was also classified by using the data from SPOT and ALOS.

In spring season, the obvious synchronizations were shown between the recessions of the snow covered area and the migration speed of the waterfowls. But, no clear relation was found between the number of birds and the land use, nor and the distance to roost. Those results show that the snowmelt is predominant factor to waterfowl's migration during spring season.

On the other hand, in autumn, there was strong relationship between crowd size and cultivated area surrounding research lakes. Moreover, the tendency that research sites close to roosts has large number of waterfowls was found.

Therefore, in autumn, it was indicated that land cover and distance to roost controlled waterfowl's selection of habitat.