

The Effect of De-icers on Water Quality, Plants, and Aquatic Life



➔ Types of de-icers

- Chloride based- tend to be very mobile and last a long time
- Acetates- requires large amounts of oxygen to decompose
- Carbohydrates- usually made from the fermentation of grains or the processing of sugar



➔ Water Quality

Once de-icers are used they quickly infiltrate groundwater, and runoff with surface water. In general, there are very few natural methods that remove the de-icers. Dilution tends to be the only way to reduce the concentration. Contamination leads to a higher water density, and stratification within the body of water. This limits the movement of nutrients to the upper layers of water, and oxygen reaching the bottom layers.



➔ Plant Life

De-icers limit the growth of grass, shrubs, and other foliage that is close to the road. They cause severe dehydration, as well as osmotic stress that limits growth, uptake of nutrients, and seed germination.



➔ Aquatic Life

Many de-icers are toxic to aquatic life such as macroinvertebrates, fish, insects, and amphibians. Food sources and dissolved oxygen levels tend to be lower in areas with high de-icer concentrations. De-icers in general also increase turbidity which further limits which species can survive in some areas.