

BOLIDEN BERGSÖE

BIODIVERSITY STATUS REPORT 2022



This report is based upon material, reports and conclusions presented in Boliden Bergsöe permit application for production of 65 000 tons/year as presented October 2022.

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1 General information

Boliden Bergsöe AB is situated in Landskrona, Sweden. The company is the only recycling unit for lead scrap, mainly used lead acid batteries, in the Nordic countries and one of the major lead acid battery recyclers in Europe. The company was first started in Denmark 1902. The current site in Landskrona was established 1942.

Boliden Bergsöe is situated in the western industrial area in Landskrona close to the Lundåkra bay



Figure 1. Orientation map over the Industrial area and Lundåkra bay. The Boliden Bergsöe site is marked with red on the map.

2 Protected areas

The following protected areas have been identified as most significant for Boliden Bergsöe:

2.1 Natura 2000

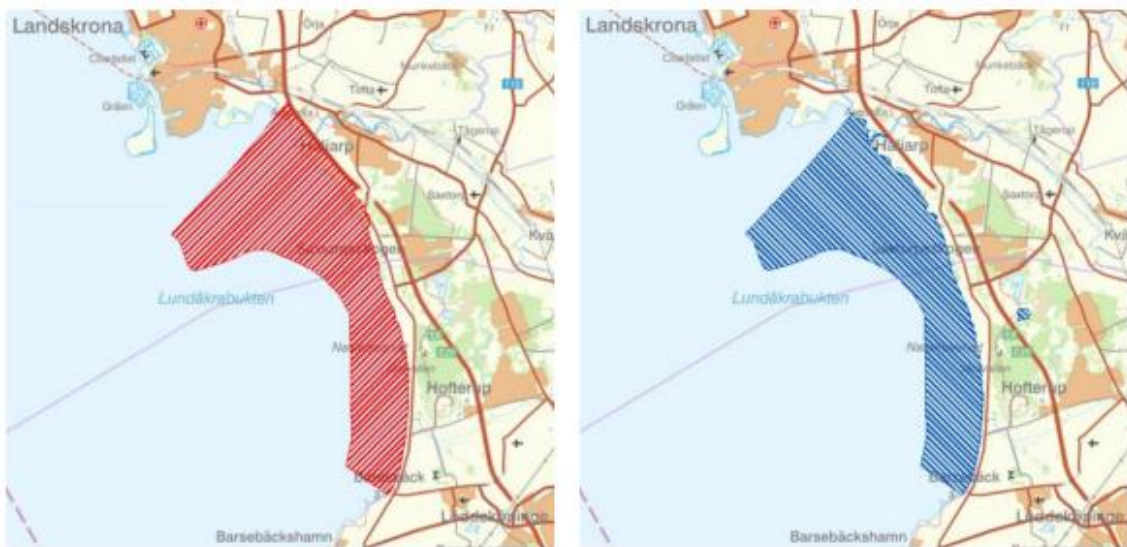


Figure 2. Natura 2000 areas in the Lundåkra Bay. Above left according to the Bird Directive SPA Lundåkrabukten (Lundåkra bay) and to the right according to the Species and Habitat Directive SCI Saxåns mynning - Järavallen (Saxån estuary – Järavallen.). Map from the Swedish Environmental Protection Agency (Naturvårdsverket).

The Natura 2000 sea area Lundåkrabukten includes two Natura 2000 areas:

- Lundåkrabukten (SE0430138) is a Natura 2000 area according to the Bird Directive SPA
- Saxåns estuary-Järavallen (SE430162) is a Natura 2000 area according to the Species and Habitat directive.

The areas, which overlap each other, lie roughly 1,5 km southeast of Boliden and stretch approximately half a mile south along the bay. Lundåkra Bay is classified as a Natura 2000 area according to the Birds Directive as it is of great importance to bird life throughout the year. In the Natura 2000 area's conservation plan from 2017-12-21, the area's purpose is described as protecting and nurturing its land and water environments, which, among other things, make the area an important resting, wintering, rearing and nesting place for birds. The purpose of the Natura 2000 area Saxån estuary-Järavallen is described in the conservation plan dated 2017-12-21 to be to preserve a deep-sea area with associated fauna and flora and the naturally dynamic geomorphology of the area. The priority conservation values are the occurring natural types sublittoral sandbanks including sub-grades, estuaries, clay and sandy bottoms exposed at low tide and reef- biogenic reef, mussel or oyster banks which with their abundant presence of food, including bottom-dwelling invertebrates, are a prerequisite for the area's importance for birds, fish and marine mammals.

2.2 Nature reserves

About 2 km northwest of the facility is the municipal nature reserve **Exercisfältet**. The purpose with the nature reserve is to preserve biological diversity and to have the area as research and/or reference area. The nature reserve also aims to meet needs for areas close to urban areas outdoor life.

About 1 km northwest of the operational area is the artificial island **Gråen**, which has been around since 1952 constitutes a nature reserve due to the island's rich bird life, which includes gray heron and great cormorant.

Saxån-Braån (N49), about 3 km southeast of Boliden, is of national interest for nature conservation. The area is a spawning and rearing area for sea trout and also harbors greenling and sandcreeper, which are two vulnerable species fish species.

Since 2022, the sea area forms the **Lundåkra Bay** with the Osen and Saxån outlets, approximately 1.5 km southeast about Boliden's area of operation, in addition to Natura 2000 area also nature reserve. This then the area's geomorphological and hydrological values as well as existing bird species and others plant and animal species worthy of protection are large.

2.3 National interests and animal and plant protection areas

About 1.6 km south of Boliden's area of operation stretches an area of national interest for nature conservation. The **coastal stretch Häljarp-Lomma with inland (N51)**. The area consists of a well-developed glacial delta with a rich bird life.

About 1.5 km south of the operational area is **Skabbarevet**, which is designated as an animal and plant protection area. The area is of great importance for coastal and seabirds as well as seals, especially harbor seals. The area and surrounding sea area are of national importance for the wintering of several bird species.

Just over 5 km from the operational area is the municipal nature reserve **Saxtorpskogen**. The purpose with the nature reserve is to preserve biological diversity and meet the need for an area for outdoor life.



Figure 3. Protected natural areas in Boliden's vicinity. Green hatching shows nature reserves, light green hatching shows national interest for nature conservation, yellow hatching shows animal and plant protection area, red hatching shows Natura 2000 area according to bird directive, blue hatching shows Natura 2000 area according to the species and habitats directive (is under red marking).

3 Impact, effect and consequence

On behalf of Boliden, consultants at Ekologigruppen and WSP have carried out an investigation with the aim of investigating how activity has a significant impact on the marine water environments in the Natura 2000 area Saxåns estuary-Järavallen/Lundåkrabukten (according to the SCI species and habitat directive and SPA bird directive), the nature reserve Lundåkrabukten and the adjoining animal and plant protection area Skabbarevet.

In the investigation, lead has been used as a dimensioning substance, which means that the substance has been judged to be the most relevant to assess with regard to the potential for negative environmental effects. Boliden Bergsöe is currently building a unit for desulphurization of lead paste, that will result in an increased release of sodiumsulphate to water and therefore the impact from this substance has also been assessed separately. As support for assessing the activity's impact on the water environments in Lundåkra Bay, there are several specific investigations of environmental toxins in sediments and biota.

A clear local impact of above all elevated levels of heavy metals can be seen in the harbor area. The sources of these heavy metals are multiple because they are several different metals that cannot be explained as coming from just one source within the industrial area on the Varvsudden industrial area where Boliden is situated. However, it has been established that Boliden's operations are a source of lead levels in the recipient. In a larger geographical perspective, Boliden's emissions of lead, on the other hand, are judged to be relatively moderate, partly compared to other point sources and partly compared to the waterways that open into Lundåkrabukten and other parts of the Öresund.

Furthermore, the investigation shows that in case of long-term releases of lead, there may be risks of accumulation in the environment, for example in bottom sediments, but in the bottom areas of Lundåkrabukten there are no conditions for such accumulation, because the bottom environment is constantly affected by water movements.

Some general tendencies towards increasing lead levels in the water environment are difficult to decipher. Variations between different years and between different nearby exam rooms occur, but these do not show any clear development trend over time. The variations seem to mainly reflect continuous changes or local variations in sediment conditions, for example regarding organic content. The Ekologigruppen/WSP investigation includes an assessment of the impact of the applied for activity on nearby Natura 2000 areas consisting mainly of two parts.

The investigation partly includes an assessment of the risk of significant impact on the environment, as well as an assessment of how the activity can affect the conservation status of nature types and species within Natura 2000 areas.

It appears from the investigation that the recipient investigations that have been carried out on sediment and biota in Lundåkra Bay up to today do not show any levels of lead that deviate from several other investigated locations in Öresund. The lead levels in sediments

are far below the limit values and environmental quality standards that exist for the classification of chemical status within Swedish water management (HVMFS 2019:25), which are developed to specify levels with a safety margin for known environmental effects. There is therefore no risk that the activities at Boliden, alone or together with other activities, will significantly affect the environment within the Natura 2000 areas.

The Ekologigruppen/WSP investigation also shows that Boliden's operations are not judged to negatively affect the nearby Natura 2000 area in any significant way. The report states that in the many investigations of lead in sediments and biota that have been carried out in Lundåkra Bay, there is nothing to indicate that lead or other pollution from the activity has any impact that can cause damage to habitats or significantly hinder the achievement of good conservation status for species within Natura 2000 areas. It can also be noted that occupied Natura 2000 nature types are reported with satisfactory conservation status.

For occupied bird species and porpoises, for which status is not reported to be satisfactory, these species, or larger populations, are assessed generally, i.e. the deficiencies in conservation status are not specifically linked to Lundåkra Bay. There is also no significant impact from the activity on the conservation status of nature types and species within the Natura 2000 areas. For the natural types concerned, full status is reported, and for species that do not achieve full status, this is mainly due to problems that have nothing to do with pollution or water quality.

The nature types and species that are the basis for the decisions on the Natura 2000 areas are found in the areas today and have probably existed for a long time. The natural values have developed and/or persisted during times when operations at Boliden have been running in parallel and during periods where the environmental burden from the company has occasionally been greater than it is today. There are also no recipient investigations that indicate that the pollution load of lead shows any long-term trends that mean that the impact on protected water areas would gradually increase. The available results rather indicate that lead levels in sediments in the northern part of the bay have decreased in recent decades. As far as the impact linked to the applied production is concerned, this does not affect the assessment. This is because in modern times there is a very small correlation, or sometimes even a negative correlation, between production and emission quantities. The emissions that occur are mainly controlled by measures for improved purification and other emission limitation or spread prevention measures. This applies to both direct and indirect emissions to air and direct emissions to water. The conclusions regarding Boliden's environmental impact on the Natura 2000 areas are also deemed to apply to the affected nature reserves and animal and plant protection areas. There is also no risk of negative impact of planned sulfate discharge on protected areas in Lundåkra Bay.

4 Protective measures

The most important action to reduce impact on surrounding environment and protected areas is to reduce emissions. Boliden Bergsöe works actively with preventive measures to minimize emissions from operations. The most important protective measures and monitoring programs are listed below:

4.1 Treatment and control of emissions

4.1.1 Emissions to water

Boliden Bergsöe currently have two water treatment plants. One is suited for cleaning acidic process water and the other is suited for cleaning of rainwater as well as doing a secondary cleaning of treated process water. The stability of the water treatment plants is very high as well as the results of the cleaning process. As part of the ongoing desulphurization project, new state-of-the-art water treatment equipment is being installed, that is specifically suited for water from the desulphurization process.

4.1.2 Emissions to air

Air from the process of separating plastics from battery boxes from the lead containing constituent, done in the “breaker”, is evacuated through a wet scrubber to wash out particulates containing metals.

Air from the shaft furnace and lead handling processes is evacuated through textile filters before exiting through the chimney. The process gases from the shaft furnace is also treated by lime injection reduce emissions of SO₂. Another measure used to reduce emissions of SO₂ is the use of iron to bind sulphur in the melting process.

4.2 Monitoring and measuring of emissions

4.2.1 Emissions to water

Boliden Bergsöe monitor emissions to water by continuously sampling outgoing water from the operations. The sampling is linked to effluent and samples are collected to weekly samples that are analyzed by external accredited laboratory for metal content.

Boliden Bergsöe takes monthly samples in the recipient (Lundåkra harbor + Lundåkra bay) that are analyzed for salinity and sulphate content. There is also regular sampling for metals, including mercury, in both water and sediment in the Lundåkra harbor.

4.2.2 Emissions to air

Boliden Bergsöe has online measurements of some critical compounds, such as SO₂ and CO, to monitor and control the process. There is also quarterly measurements of metals and dust from the scrubber/filters that are evacuating process gases and ventilation from production.

To control diffuse emissions, there are measurements with “NILU-buckets” that collect falling dust at selected spots at and around the industrial area of Boliden. Several actions have been implemented to reduce the diffuse emissions, such as sweeping of the area, using sprinklers and re-organization of materials to reduce transports into and out of buildings (bringing dust from inside to outside and thereby reducing spreading of dusty materials).

5 Red list species

Red list species are followed by Swedish public database (<https://fyndkartor.artfakta.se>). Based on the results from area described below (Figure 4) the results from last 5 years period (2018-2022) have been the following:

Table 1. Red list species on last 5-years period (2018-2022)

Red list category	Number of species
CR, Critically Endangered	4
EN, Endangered	7
VU, Vulnerable	21
NT, Near Threatened	39

Critically Endangered species recognized on the area:

1. Anser Erythropus – Fjällgås
2. Acer Campestris – Naverlönn
3. Ulmus Glabra – Skogsalm
4. Anguilla Anguilla – Äl

Endangered (EN) species:

1. numenius arguata – Storspov
2. Somateria Mollissima – Ejder
3. Aythya Ferina – Brunand
4. Aythya Marila – Bergand
5. Apus Apus – Tornseglare
6. Hordeum Secalinum – Ängskorn
7. Limosa Limosa - Rödspov

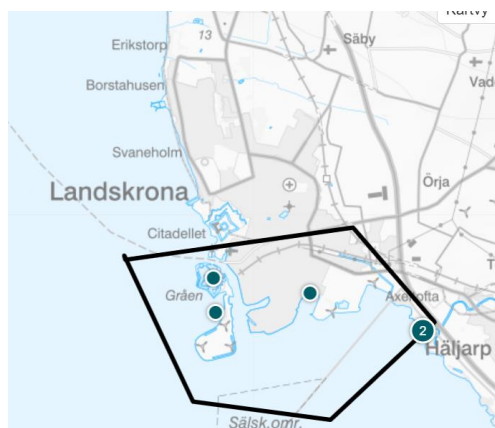


Figure 4. Area covered in red list species statistics