**Biodiversity Offsetting Case Study**

<table>
<thead>
<tr>
<th>Location</th>
<th>United States, Utah</th>
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<tr>
<td>Year</td>
<td>May 1996 – February 1997 + 8 years monitoring</td>
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<tr>
<td>Project description</td>
<td>Kennecott Utah Copper mine’s tailings expansion and wetland offset to mitigate habitat losses</td>
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| Actors active in the case | Kennecott Utah Copper mine
In the wetland mitigation plan involved:
  - Technical Advisory Committee (TAC)
  - Utah Division of Wildlife Resources
  - U.S. Fish and Wildlife Service
  - Environmental Protection Agency
  - Nature Conservancy
  - National Audubon Society
  - US Army Corps of Engineers |
| Background and activities involved | Background:

Subject of the case: Bingham Canyon Mine. It lies 28 miles southwest of Salt Lake City. Kennecott Utah Copper mine is the largest copper mine in North America. The company needed additional storage capacity for tailings wasters.

The company purchased an area of degraded saltpans and industrial land near to its main tailings along the south shore of the Great Salt Lake. This area contained a wetland habitat. The company was required by U.S. law to offset the loss of wetlands by creation of an agreed number and value of habitat units (HU). Its regulatory obligations would be to create 1011 hectare shorebird and waterfowl refuge.

427 hectares of wetlands were impacted by the tailings expansion project.

Much of the nearby habitat had deteriorated from over-grazing, salt evaporation ponds, off-road vehicle use and illegal waste dumping. Restoration and creation of water bird habitats was necessary for successful offsets.

Activities:

- A wetland mitigation plan was developed.
- A habitat evaluation procedure was conducted.
- The Inland Sea Shorebird Reserve (ISSR) created. For this aim:
  - the trash was removed
  - fences were constructed to keep out cattle and trespassers
  - ponds and water conveyance canals were constructed

The components of the ISSR site:

- 5 ponds (legally required to offset the loss of wetlands from tailings project)
- So called ‘bank’, consisting of 4 additional ponds, to offset future impacts on wetlands (584 ha)
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<th>Costs</th>
<th>Mitigation site costs: 20 million US $ (70% of this was the cost of the land purchase). Annual monitoring costs: 90 000 US $ per year (over required 7 year period).</th>
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<td>Results of the offsetting activities (including environmental, social and economic)</td>
<td>Environmental: A net gain for biodiversity. Results from a five-year monitoring compared to initial data indicate that the mitigation plan has increased wildlife values significantly. Bird surveys point to a 1000-fold increase in bird use over the baseline numbers for the same site. In 1997 the site was expanded from 1011 hectares to 1460 hectares, because of the initial success, four ponds were added as bird reserve. In 2004, Great Salt Lake-Gilbert Bay was identified as an Important Bird Area. Economic and social: Kennecott has improved relations with the state and federal regulators, local environmental groups, and with local residents.</td>
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<td>Was there a long term conservation management and monitoring? (offsets are required to have funding set aside for long-term management)</td>
<td>Yes. 8 years of monitoring (1995-2002).</td>
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<td>Measurability of offsetting success (metrics used)</td>
<td>• Habitat Units (HU) - as the currency of project/mitigation exchange • Hectares (1460 ha bird reserve designated) • Bird population (150 000 migratory birds and waterfowl visit refuge each year)</td>
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<td>Type of offset in terms of environment (same functions restored?)</td>
<td>The site was chosen by geographical and ecological similarity to the impacted area. Created a 1011 hectare - although project impacted just 427 hectares and a one-to-one compensation ratio was agreed - wader and waterfowl refuge (to less than 1 kilometer from the project site). (This area was named officially to: Inland Sea Shorebird Reserve). The mitigation plan was based upon providing similar or enhanced wetland habitats as compensation for impacts to wetlands covered on the tailings impoundment project site. Nesting and migratory shorebirds and waterfowl were identified as the key elements requiring mitigation due to the project site’s proximity to Great Salt Lake.</td>
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<td>Type of offset in terms of compensation payment</td>
<td>One-off offset. “Credits from the bank can be used by Kennecott or sold to others for wetlands mitigation in accordance with the terms of the Bank Agreement with the US government” (source). (e.g. US model: One-off offset/ Compensation Fund/ Mitigation Bank) Read definitions here.)</td>
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Kennecott Copper Mine is the largest man-made ditch on earth:


American avocet:

The Inland Sea Shorebird Reserve is an important area for the bird.
Photo Source: http://www.kennecott.com/inland-sea-shorebird-reserve

Sources

Biodiversity offsets: Views, experience, and the business case, IUCN (2004):
The Inland Sea Shorebird Reserve: a wetland offset to mitigate on-site habitat losses associated with Rio Tinto's Kennecott Utah Copper mine

The Kennecott Inland Sea Shorebird Reserve- Utah