

## Yet another of our natural treasures is in deep trouble

Lady's Island Lake's status as a protected area for birds and wildlife has proved utterly ineffective

**Paddy Woodworth**

Nearly three years ago, I wrote about the chronic degradation of one of Europe's largest lagoon ecosystems, the Mar Menor in Murcia, Spain. It was being destroyed by agricultural freshwater run-off packed with excess nutrients, combined with climate change impacts.

Quick as a flash, Dr Cilian Roden and his colleagues on a major EPA research project on Lady's Island Lake, Co Wexford, wrote in to The Irish Times to say: "Unfortunately, there is no need to travel to Murcia to see a formerly magnificent lagoon all but destroyed by human foolishness."

Lady's Island (also important culturally as a pilgrimage site) was assessed by the National Parks & Wildlife Service in 2013 as "by far the largest and best example of this type of lagoon in the country and is in a relatively natural condition".

The EPA report has now been published, and it paints a much bleaker picture of this once biodiverse shallow and brackish lake. Yet another of our natural treasures is in deep trouble.

Like the Mar Menor, Lady's Island nominally has protected status under 1990s EU Directives – it is both a special protected area (SPA) for its birds, and special area of conservation (SAC) for its habitats – but this status has proved utterly ineffective.

Indeed, such designation may have come too late in the lagoon's degradation process to be any help, short of very radical actions, and challenging changes in local agricultural practices. Yet the lake was identified as a site of international scientific interest as far back as 1981.

So EPA Report 474, Coastal Lagoons: Ecology and Restoration (CLEAR), is not the story of a recent collapse. "This lake is not damaged," Roden says. "It is the most polluted lake in Ireland. It is already kaput." Such reports are now closer to "obituaries" than to analyses that can confidently prescribe remedial actions, he adds.

On one level, this could sound exaggerated. Roden is referring primarily to the lake's water quality. But it's true that the lake's islands are still good habitat as breeding grounds for the largest mixed tern colony in Ireland, including the very rare roseate tern.

A number of rare plants, including Ireland's only, and highly threatened, tiny colony of cottonweed, survive on the lake's margins or on the shingle banks that protect it from the sea, according to the county's highly regarded botanical recorder, Paul Green.

But birders with long memories will recall that the legendary ornithologist Oscar Merne counted thousands of wintering waterfowl – and a variety of wading birds – on the lagoon back in the early 1970s. The waterfowl included winter maximums of 5,130 widgeon and 1,850 pochard. These were very high numbers for a lake merely 3.5km long and 1km wide.

### Visible changes

They are described as "staggering" by Killian Mullarney, one of our foremost bird experts and illustrators, and a regular visitor to the lake more recently. "You would be lucky to see 20 pochard there any time over the last two decades at least," he says. So most of them had probably already gone by the time the lake was designated an SPA and an SAC in the 1990s.

Roden argues the waterfowl's collapsing numbers are linked to very visible changes in the lake's aquatic conditions.



■ Seagrass (*Ruppia maritima*), also known as widgeon grass, in clear water in a healthy lagoon.

Right: Lady's Island Lake, which would normally register as blue like the sea at the bottom of the image, registers as completely green due to the algal bloom.

PHOTOGRAPHS: CILIAN RODEN; GOOGLE MAPS

The water once used to be clear, so that sunlight fostered the growth of broad meadows of underwater seagrasses (*Ruppia spiralis* and *Ruppia maritima*), which provided rich winter pickings for the waterfowl.

But with the intensification of agriculture in south Wexford, nitrates and phosphates began to drain into the lake from surplus fertiliser. This produced the vast "blooms" of algae on the surface, which cut off light from the *Ruppias*. So the site flipped over, from being dominated by benthic – lake-bottom-based – vegetation to a scum of surface algae. Fish kills also resulted, and the lake is now almost empty of them, apart from a few sticklebacks.

"*Ruppias* are the defining plant of a healthy lagoon," says Roden. And as healthy lagoons are rare in Europe, their absence here now casts real doubt on the lake's continuing status as a "priority habitat" under the EU's Habitat's directive. And yet, he argues, that continuing status puts an absolute onus on the State to restore it to good condition.

Squaring this circle is going to be very difficult, if not impossible. It would require very big changes in agricultural attitudes and practices to reduce the nitrate levels by the kind of factor – 80 per cent – that the report states would be necessary to clear the water sufficiently to bring the *Ruppias* and the fish back.

At present, a massive 60 tonnes of nitrogen enters the lagoon annually, and 1,500 tonnes have accumulated in the lake bottom sediment. Roden metaphorically scratches his head: "That fertiliser costs money. Why put it in the bottom of a lake?"

The state of Lady's Island Lake reflects the conditions of many Irish la-



goots, and he is realistically pessimistic about the prospects for effective restoration: "Lady's Island Lake is not the only Irish lagoon in ecological decline; analyses show that most lagoons in agricultural catchments are also eutrophicated [saturated with excess nutrients]. Lady's Island Lake exemplifies the problems involved in managing Irish lagoons. A number of problems must be solved before habitat restoration is possible."

These will require the following measures:

- reducing the use of imported nitrogen on farmland;
- increasing measures designed to retain nutrients on farmland and forestry;
- removing or capping nutrient-rich bottom sediments [this could involve the radical measure of dredging];
- maintaining or restoring the salinity regime of Irish lagoons.

The report proposes that any restoration measures, such as integrated con-

structed wetlands and buffer zones to intercept nutrients before they reach the lagoon should not be implemented wholesale at first, but trialled on a demonstration site open to the public for information and discussion.

They also make the evident point that enforcement of the EU's Nitrates Directive would be highly effective in reducing inputs. But they say it is unfair to blame local farmers in a situation where the Government has five times sought a derogation from this directive, and it has been five times granted by the EU Commission.

So for any long-term solution, they say "society as a whole must address the conflict between the overuse of nutrients such as nitrogen and the impact this is having on our water resources". It is perhaps telling, in this context, that several local farmers contacted about the lake's condition for this newspaper all declined to comment.

### Breaching the bank to 'cut' the lake

Ladies' Island lies 4 km northwest of Carnsore Point in the southwest corner of the country. It is separated from the nearby sea by a shingle bank.

For centuries, this bank has been breached by excavation every spring, to reduce high water levels in the lake on agricultural land and on the nesting grounds on the islands.

Seawater then enters the lake on high tides, increasing its salinity, until the natural dynamics of sand, shingle and water plug the breach again.

This practice is known locally as "cutting the lake". Proposals that it be replaced by a drainage pipe are rejected in the EPA report, on the grounds that, while fresh water would still exit the lake, the salt water entering would be greatly reduced, below the levels of salinity essential to the marine lagoon ecosystem. A similar scheme at nearby Tacumshin significantly reduced the priority habitat there.

Local naturalist Jim Hurley, who produces a richly informative website on the natural resource values of the south Wexford coast says conditions in the lake are "regrettably" as bad as the report maintains, and notes that excessive nutrients there were first reported as early as 1984. So what way forward does he see?

"Chapter 5 of the EPA report suggests 11 remedial techniques for immediate consideration and two for future consideration. The south Wexford coast supports three lagoons that together comprise, by area, about one third of Ireland's stock of lagoon resources: Lady's Island Lake, Tacumshin Lake and the Ballyteige Channels.

"In my view, what needs to happen now is for some statutory authority to convene all stakeholders with a view to seeking agreement regarding a vision for the sustainable future of that unique cluster of priority habitats."