

are now fed largely by machine, not by cheerful lads with a bin and a scoop. Although fish-farm output increased by 12 per cent between 2000 and 2009, in the same period a quarter of full-time jobs and 65 per cent of part-time posts disappeared.

**W**ORSE, the more mechanised an industry becomes, the more its human element is reduced. It takes longer before disease within a cage is even noticed, and its treatment can be belated, slapdash and desperate.

Moreover, as the importance of the industry to real people in the Hebridean economy recedes, locals are taking a beadier look at what it actually involves.

Despite decades of intense study on behalf of a new industry, the Atlantic salmon, *Salmo salar*, remains a very mysterious fish. It has long been driven to Britain's fringes by industrial pollution and salmon still only run very clean rivers to spawn in remote mountain

faecal matter, mucus and tissue and blood build up, the seabed becomes like a septic tank.

Then caged salmon in sheltered water are vulnerable to sea-lice infestation and disease. Accordingly, they need incessant medication – antibiotics, pesticides, chemical baths – and meanwhile the sea-lice themselves, in insane concentration, become a menace to wild fish passing by.

The impact is especially serious on sea-trout, which hang around the coast rather than forging up into the Wild North. In the West Highlands, over three decades, sea-trout stocks have crashed.

**M**OREOVER, the farmed salmon must be fed – and fed a lot. It has been calculated that it takes a ton of wild sand-eels, the species most harvested for feed-processing, to raise just one farmed salmon – and the sand-eel is a vital food resource for many fish we eat.

Finally, farmed salmon can and do escape. People make mistakes, seals damage cages, storms break them up. It is too early to judge what impact the interbreeding of wild fish with these blundering, escaped refugees may have, but one doubts it is good.

Worse, though, is the general poisoning. Late last year, the Scottish Environment Protection Agency (SEPA) tested sediment from nine well-known Highland inlets, including Loch Linnhe, Loch Fyne and Portree bay. All harboured salmon cages and the mud from every one of them was contaminated with pesticides from sea-lice treatment –

teflubenzuron, diflubenzuron, emamectin and ivermectin.

Since then, SEPA has targeted 40 of the worst-offending fish-farms and demanded action. But the authority was of little help to 43-year-old Donald MacLeod, a Lewis fisherman who had long set creels for prawn in remote Loch Shell.

Then along came a fish-farm, and in 2009 Mr MacLeod began to find more and more dead or dying prawns in his creels. A colleague in the same area landed five dead lobsters. Even the tiny inedible crabs, routinely crawling over their creels, were fast disappearing.

SEPA tests found heavy fish-farm pesticide traces in the local silt. Mr MacLeod also gave them dead prawns for analysis, but the Stornoway office could not itself conduct the tests and, when pressed months later, admitted it had simply thrown the specimens away.

By the summer of last year, Mr MacLeod's business had collapsed. He has since sold his boat and moved to Wales. On the wrecking of his livelihood, he said: 'The worst thing is not knowing for sure, not being able to prove anything.'

'But I'm convinced the prawns were killed by the chemicals used by fish-farm workers to treat sea-lice. It has become obvious the fish farmers can do almost anything they want, and no one has the ability to deal with the mess they can create.'

Too often, in any event, the most frantic efforts of fish-farm managers to save infected stock can simply fail. During the recent Harris disaster, tons of dead salmon have been borne by the truckload to the local dump. Early last year, two Shetland workers were charged

with animal cruelty after 6,000 salmon in their care died in August 2010.

To make things worse, there is increasing evidence that new strains of sea-lice, immune to conventional pesticides, are fast expanding. Yet the infuriating thing is that all these problems are wholly unnecessary.

There are perfectly ocean-friendly ways to farm salmon – for instance, in cages in the open sea, with ample surge of tide, friendly little wrasse added to munch all the sea-lice, and a flat ban on all the pharmaceutical nasties.

Alternatively, salmon can be raised perfectly well in big tanks ashore, with fresh and salt water pumped in as required – and the product is far tastier. But those means cost too much for an ill-policed, foreign-dominated industry with considerable political muscle and little tax liability.

**N**OW, with the Scottish Nationalists desperate to see yet more production, there will soon be scarcely a bay on the whole western seaboard without salmon-cages and the associated dubious soup – even as Norway's Directorate for Nature Management, alarmed by the mounting threat to wild fish, has called for a 50 per cent cut in salmon-farm output.

Yet the SNP continues to turn a blind eye, as Andrew Flitcroft, editor of the angling periodical *Trout and Salmon*, points out: 'Given these problems, it is galling that the Scottish Government continues to trot out the tired mantra that salmon farming is "sustainable" and there is no proven damage to

streams. A fish that returns after just one winter at sea is called a grilse. One coming home after two years – bigger, distinctly marked – is a full-blown salmon.

Through thousands of miles she will brave untold hazards to mate at last by the very pebbles where she herself was born. Only a few survive to spawn again – fewer to spawn repeatedly.

It is now very difficult – and expensive – to buy wild salmon in the shops, since the old licensed-netting stations were largely bought up (and closed) by angling interests. So salmon-farming, from its beginnings in the 1960s, has tried to replicate Nature. Spawn is fertilised in onshore hatcheries. Parr are grown to smolts in freshwater cages. In due time, smolts are transferred to the sea sites – all in sheltered sea-lochs. Meanwhile, artificial lighting is used to discourage early sexual maturity – a 5lb grilse does not have the value of a 12lb salmon.

In due time, the farmed salmon are netted, stunned in tanks of fizzy water, killed by cutting their gills, gutted, packed at once in ice, and borne away for sale – which is why these days, pound for pound, salmon is cheaper than cod.

But while a noble, far-travelled wild salmon 'has the lean and glossy look of a sportsman', according to one chef, the farmed salmon has 'that of a fat and pasty businessman'. It is rounder in appearance, its fins and tail worn and ragged from the stresses of a crowded cage, and the flesh is subtly soggy.

And there are huge environmental problems, too. Under a fish-farm, much rotting gunk steadily builds up. The authorities have an Orwellian phrase, 'permitted zone of effect', but in a few years, as uneaten food and

wild fish populations, aided and abetted by the nauseating spin peddled by the Scottish Salmon Producers' Organisation – the front for the Norwegian companies that dominate the industry in Scotland.'

Indeed, in 2010 these industry bosses moved quickly to gag the Scottish Government itself, successfully preventing publication of fish-farm inspection reports by Marine Scotland, though not horror-stories of water fizzing with sea-lice and entire cages of salmon desperately slaughtered.

But this week the Scottish Government would concede nothing, with a spokesman insisting: 'Fish-farming is a key food sector for Scotland with production worth a record £585million in 2011.'

'The Scottish Government supports the industry's ambitions for sustainable growth –

as demonstrated by our intention to bring forward an Aquaculture and Fisheries Bill – and we are working with them to keep the focus on the marine environment.'

'Salmon farming relies on pristine, clean waters in which to produce a healthy and tasty product. The industry is regulated and licensed by SEPA, who undertake regular inspections and can take enforcement action if required.'

To understand how such claims can be made, one must go back two Christmases to the elegant surroundings of Alex Salmond's Bute House residence in Edinburgh, where over a glass of something warming Vice-Premier Li Keqiang was in avuncular mood.

'You know, if only one per cent of the Chinese eat Scottish salmon,' the despot purred seductively in the First Minister's ear, 'your production would have to double...'