



ALIEN INVASION

Ackers investigates...

In south-west Scotland, where I am now living, the American Signal crayfish *Pacifastacus leniusculus* is headline news at the moment. Local businesses around Loch Ken are reporting a significant downturn in trade as visiting anglers stay away because, it is claimed, of the vastly increased numbers of crayfish in the Loch.

My own observations support this; there do seem to be very few anglers on the loch this year. Signal crayfish were first recorded in Loch Ken in the early nineties and have since multiplied greatly. The local MP is now involved and there are cries of “*something must be done*”. I suspect that licences will soon be granted for large-scale trapping to take place on Loch Ken. Will it do any good? Almost certainly not, in fact it could make the situation worse. The Invasive Species Specialist Group, in a report published on the net have stated:

“**There are no documented control agents for the successful management of *P. leniusculus* available at this time (Holdich et al. 1999)**

”
“Trapping is size selective and the smaller individuals remaining take advantage of the lack of competition to grow rapidly (Sibley, 2000). Preventing the further introduction of this species into new bodies of water is one of the few options available.”

A very similar situation to what happens when you try to remove pike from a water!

The Environment Agency’s own advice sheet on trapping crayfish states that:

- *If you are planning to reduce the number of signal crayfish by either trapping them yourself or employing a company to do it for you there are a number of things you should consider first. These are:*

- *Once trapping is stopped numbers of crayfish will increase. Can you afford to keep up the trapping effort?*

- *The number and size of the crayfish caught must be monitored to ensure the trapping does not increase the size of the population. Can this be done if there are lots of people trapping on one stretch of water?*

- *Hundreds of kg if not tonnes of crayfish may have to be removed to have any noticeable benefit, especially on rivers and canals. Can you dispose of this quantity of crayfish both humanely and safely?*



- *These points should also be taken into consideration when permitting people to harvest crayfish for food from your waters.*

In this article, I want to share my own experiences of pike fishing waters where crayfish are present and to consider the question, "What effect on pike and pike angling does the introduction of Signal crayfish have?"

First, a little background information which I have researched from the net. Signal crayfish were introduced into this country in the 1970s from Sweden. They were reportedly used in fish farms to control waste matter, from where they escaped and have spread rapidly. They are now widely distributed, particularly in southern England and are spreading all the time. In Scotland, Signal crayfish are found in river systems from the Kirkcudbrightshire Dee in Galloway and the River Clyde in Lanarkshire to the River Nairn near Inverness. Populations have also been recorded in the catchments of some of Scotland's most famous river systems, such as the Tay, Tweed and North Esk.

“New populations are now being reported in Scotland at a frequency of two or three per year.”

Signal crayfish feed on both animal and vegetable matter though they have a preference for animal material if this is present. They are also cannibalistic. Mating and egg laying take place in October and November and hatching takes place in the spring. The eggs hatch into miniature crayfish, which are carried by the mother for some time. The Signal crayfish can breed at age two and can lay

up to 500 eggs. They can reach a size of 15 cm plus and live for up to 16 years. *P. leniusculus* has been reported to be able to spread at a rate of 0.2 to 2.8 km/year (Peay and Rogers 1999).

So what is it like pike fishing a water with a significant population of Signal crayfish then? Well, as many of you will know, deadbaiting is a bit of a nightmare. I fish a small gravel pit in Yorkshire that is infested with crayfish and deadbaits fished on the bottom don't last much time at all. The crayfish find the bait within minutes and most deadbaits are stripped to nothing within two hours or so. It is not uncommon on this water to reel a deadbait in with half a dozen crayfish hanging on the bait. Crayfish activity on this water takes place all year round, regardless of temperature, through day and night. On Loch Ken I have had similar experiences, though on some days I have not been bothered by the crayfish.

Popping up or paternostering a deadbait does put the crayfish off, but a popped up bait has to be really mega buoyant or they just walk on the trace and pull the bait down. They can also chew through rig tube and I have heard reports of them chewing through line.

“The sheer number of Signal crayfish that can exist in an infested water, can, at times be mind-boggling.”

One "Trapping and Research Feasibility Study" on the River Lark in Suffolk resulted in a catch of 100,000 crayfish from a "short stretch of river" in just two months!

Signal crayfish are very easy to trap. I have seen a home-made trap baited with a single boilie produce 20 plus crayfish after being left in the water for only half an hour.

“However, it should be stressed that the trapping of crayfish without a licence in England and Wales is prohibited.”

It is also a criminal offence to release or allow to escape, Signal and other crayfish species into the wild anywhere in England and Wales without a licence. Furthermore, it is against the law to use crayfish as bait for angling in England and Wales. This is alive, dead, liquidised, cooked or raw. In Scotland it is a criminal offence to set a trap of any kind to catch crayfish or to transport them alive without an appropriate licence. The council website in Dumfries and Galloway states that on Loch Ken, "No crayfish are to be returned alive to the loch."

So what then, is the effect of a Signal crayfish population on the pike population in a water?

“There does seem to be limited, anecdotal evidence to suggest that in the first few years of a crayfish infestation, the upper size of pike in the water can increase.”

Longer term, I have no idea. I would be very interested to hear other people's views on this.

I don't know if this could be said to be happening on Loch Ken. There do seem to be a few bigger pike being reported from Ken these days, though the jack population is still vast.

Pike do certainly eat crayfish. One report I read from Spain concluded that:

"Pike in the Ruidera Lakes (central Spain) chiefly ate the recently introduced crayfish Procambarus clarkii. It was the dominant prey in occurrence, number and biomass for every size class and season. Likewise, number (up to 27) and total weight of ingested crayfish were directly related with pike size."

A number of studies have noted that perch are an important predator on Signal crayfish. A study on Brugnato Lake in Italy concluded that *Perca fluviatilis*, was, on that lake the most important predator for Signal crayfish. This ties in very much with the reports from the Great Ouse of the perch feeding and growing large on the abundant crayfish population in that water. Other species that eat Signal crayfish include chub, eels, carp and otters. Interestingly, I have heard many reports from France about the big French carp eating crayfish, but certainly on the gravel pit I fish in Yorkshire, the carp don't seem to eat them. I say this because the carp really seem to struggle in this water, I

think due to the intense competition with the crayfish for food. If they were eating the crayfish they should do a lot better than they are doing. Carp moved from this lake to the lake next door, which does not have a crayfish population, have shown dramatic weight gains in a short period of time.

“What most of the experts are agreed on is that Signal crayfish have a significantly adverse impact on native freshwater flora and fauna in both running and stillwaters.”

This is because of the large quantities of plants, invertebrates and fish eggs that crayfish consume. Signal crayfish can also modify aquatic environments by burrowing into the banks, leading to erosion and bank collapse.

Signal crayfish are carriers of a fungal disease called *Aphanomyces astaci* aka 'the crayfish plague' which has caused great mortality in our native crayfish population. Another problem causing pressure on our native crayfish is that they do not compete very well with

the larger, more aggressive Signal crayfish for both habitat and food. Some authors have predicted that Signal crayfish will cause the extinction of our native crayfish within 30 years.

“All in all, Signal crayfish are, in my opinion, a major threat to our water courses and to angling in general in the UK and are a problem that most of us are going to encounter first-hand in the years to come.”

Pacifastacus leniusculus. Coming soon, to a water near you...

Mark Ackerley

Footnote – since writing this article, I have now read that Scottish Environment Minister Mike Russell has agreed to license the capture and sale of Signal crayfish on Loch Ken.



You've been crayed...