



Do fish feel pain?



Fish are fish - not humans or mammals, they live in a completely different physical and mental world. Yet there are still groups claiming that fish feel pain and experience fear when they are angled. An OFAH analysis of the literature on this topic found a recent scientific review which exposes the deficiencies and misinterpretations of claims that fish feel pain.

The review found that studies claiming to have found that “fish feel pain” have failed to do so, often because the studies were unable to distinguish between unconscious detection of noxious stimuli (technically known as “nociception”) and conscious pain. Understanding the terminology and difference between the two, is the first critical step in addressing this issue:

Nociception: the unconscious sensory detection of injurious stimuli



Pain: an unpleasant sensory emotional experience associated with actual or potential tissue damage; pain is always subjective; pain can be reported in the absence of tissue damage and the definition of pain should avoid tying pain to an external eliciting stimulus (*according to the International Association for the Study of Pain*)



Pain is a result of specific patterns of activity in certain well-studied regions of the brain (the cerebral cortex). Pain is not felt at the level of sensory receptors, peripheral nerves, or pathways within the spinal cord or brain. The fish brain does not contain a true cerebral cortex.

Fish provide us with food and recreation.

Any official guidelines for treating them should be based on sound science, neurological realities, and objective indicators of well-being, NOT feelings.

Key Points for Anglers

- Studies claiming to have found that “fish feel pain” haven’t been able to distinguish between nociception and conscious pain.
- Nociception is not pain. Pain is a psychological state and occurs in regions of the cerebral cortex.
- Studies claiming to demonstrate that “fish feel pain” showed selective use of evidence, used poor definitions and had inconsistent and trivial results, that were often un-repeatable.
- The structure of the fish brain also provides little reason to believe that fish are conscious - which is a precondition to being able to **feel** pain. Their brains and nervous systems aren’t built like ours, lacking both the number and type of nerves and regions of the brain responsible for pain.
- Even if fish were conscious, there is no evidence to suggest that they would have human or even mammal-like pain experiences.
- Evolution would not favour fish being vulnerable to suffering from pain, as they are unable to take action to deal with the pain. Any changes to behavior resulting from pain would also make them more vulnerable to predation and other threats. Evolution would instead favour rapid, unconscious reactions in the hostile environment of fish.
- There is a larger body of more conclusive research based on actual injury (ie: surgery on fish, catch and release studies) that shows fish returning to normal feeding and activity quickly after release. This research also shows that fish sustaining injuries can recover and still live a long life.
- Fish regularly eat prey that should be painful to eat (ie: zebra mussels, crayfish, spiny-rayed fish) without any apparent effect; some fish even eat sand and stones while feeding.
- Catch and release studies have shown over and over again that angled fish experience long-term survival. Tagged fish are frequently caught multiple times. Physiological changes in angled fish were within normal tolerance limits, again suggesting the fish were not experiencing pain-related stress.
- Studies show that stress levels in fish can increase from being chased by predators, spawning or being angled. These are normal reactions to stimuli, not conscious fear, and do not affect the fish’s long-term survival.
- Fish have “reflexes” that unconsciously react to stimuli to help them escape, and they can learn to avoid situations leading to such stimuli, but the learning is not based on pain or fear.

Please use this information as a tool, if and when confronted by anti-fishing activists claiming fish experience pain from angling. Fish are a natural and renewable resource in Ontario, and overall populations are well managed and remain quite healthy. They can be used for wholesome and healthy food or for catch and release fishing by anglers without inflicting pain. Fish should not in any way be compared to or be given human characteristics. **The way we treat and manage fish should be based on respect for them as fish. Sound science, realities and objective views on their well-being should inform management, not human emotion or feelings.**

Research cited:

Rose, J.D., R. Arlinhaus, S.J. Cooke, B.K. Diggles, W. Sawynok, E.D. Stevens, C.D.L. Wynne (2014) Can Fish Really Feel Pain? Fish and Fisheries (15) 97 - 133