

## **THE COVE and Mercury Bioaccumulation.**

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Figure : IMDB poster

### **Introduction**

A secret has been uncovered. In 2009, a team of activists led by the famous dolphin trainer Ric O'Barry, revealed the truth about the horrific killings of over 20,000 dolphins that occurs annually near Taiji in Japan. Besides the inhumane treatment of these intelligent creatures, dolphin meat was found to contain very high levels of mercury which is harmful to human health. It is therefore being packaged and labelled as the healthier whale meat and sold to markets for human consumption. A documentary called 'The Cove' has been produced and released to the public in order to create awareness about the unethical actions of the people involved, however efforts to stop the dolphin massacre are still underway today.

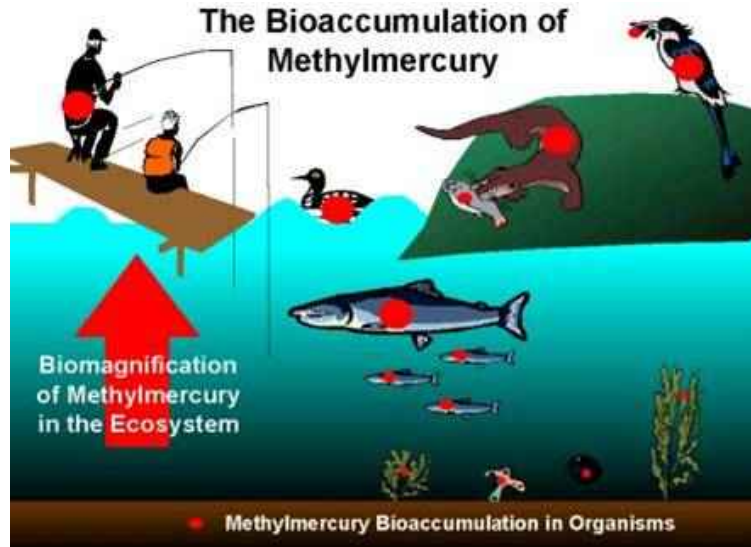
### **Bioaccumulation Of Mercury**

The major cause for concern is the high levels of toxic mercury found in the dolphin meat. Mercury gets into the environment via elemental mercury that was used to make an amalgam for silver and gold extraction in the 1900s. These silver and gold mines are no longer used today, however the mercury from these mines is thought to have leached out into the water, creating the beginning of this toxic chain. Mercury in the air released from power plants also gets into the water when it falls with rain or snow. It then reaches the oceans, where it is

thought to be converted into the very dangerous organic methylmercury by bacteria during the decomposition of algae after they die and sink to the bottom in a process called 'ocean rain' (Elsie Sunderland, Harvard University; John Moreau, 2010). A study in 2006 revealed that mercury levels in the Pacific Ocean were 30% higher than that measured in the mid-1990s and it was estimated that if mercury levels continue to rise at this rate by 2050 they will be 50% higher than they are today.

The methyl mercury is an organic substance and hence gets into the tissues of the body when ingested and cannot be metabolised. It therefore accumulates and increases in concentration from one trophic level to the next. The path for this bioaccumulation is as follows; toxic methylmercury becomes bound to tiny organisms called phytoplankton. Zooplankton eat these phytoplankton which in turn are eaten by small fish. The chain continues until we reach the top predator of the food chain. At each trophic level, the mercury concentration increases by approximately 10 times the original value and at the level of the top predator the concentration is so high that it becomes very harmful to health. The mercury in the fish or dolphins being consumed is present in all tissues including the muscle and there is no method of eliminating it.

Figure 2 Bioaccumulation of Mercury (courtesy of: Mercury Information for the State of Utah.)



Mercury in the body has been known to cause kidney malfunction and neurological damage to which young children and fetuses are particularly sensitive. Neurological damage results in the inability to hear, see, walk or speak. The activists filming the documentary discovered that the Japanese government began donating dolphin meat to elementary schools in Japan in order to promote its sale. Once the danger of dolphin meat was uncovered however, the consumption in schools was banned. It was found that the neurological damage can also cause dolphins to become disorientated and beach themselves. A recent study by the School of Biological Sciences has measured the mercury levels in 20 live and 8 dolphins which died after they became stranded on a beach, collected over 2 years. The study showed that mercury levels in the stranded dolphins was on average 3.45mgHg/kg body weight, while the living ones had 1.32mgHg/kg body weight. Supervisory researcher, Dr. Ross Thompson, said that the reason for dolphins becoming stranded "may be a direct consequence of mercury contamination" (Monash University, June 11th 2008).

**Dolphin intelligence and unethical treatment:**

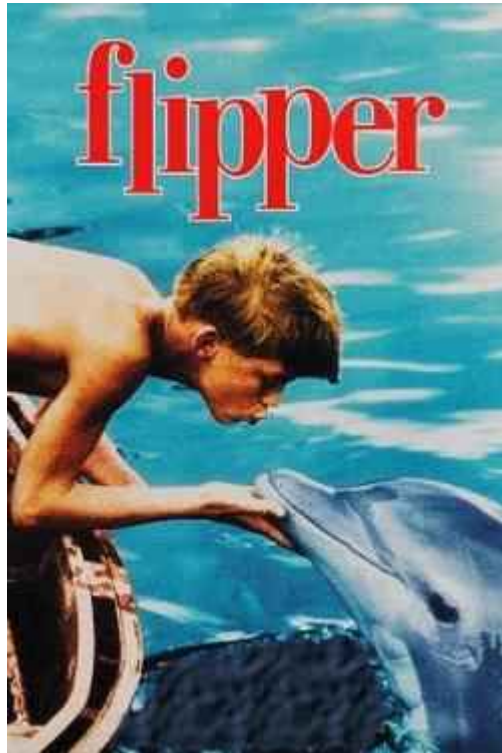


Figure 4 "A dolphin's smile is nature's biggest deception" (Ric O'Barry, The Cove)

Figure 3 Dolphin massacre in Taijii, Japan.



The second ethical issue that comes into play in the documentary 'The Cove', is the maltreatment of these creatures that are smarter beyond our understanding. Dolphins have been proven to have a brain that is the second largest on earth when compared to body weight and their behaviour shows remarkable intelligence. Studies have confirmed that they are highly sociable creatures capable of emotions such as fear, love, and sadness and are also self aware and capable of complex thinking. Bottlenose dolphins are able to recognise themselves in a mirror, something thought to be accomplished only by humans and great apes. For all these reasons dolphins have been called "non human persons" (Jonathan Leake, The Sunday times 2010). In the documentary 'The Cove', state of the art equipment was used and appalling footage was taken of the way the dolphins are trapped and murdered. After being rounded up they are speared at random and left to bleed out. Hundreds of them at a time are slaughtered and left to watch each other die.

Ric O'Barry started out as a dolphin trainer for the popular tv series 'Flipper'. Not one but five dolphins were actually trained for this programme, all of which died in captivity. Ric is convinced that one dolphin actually committed suicide in his arms due to depression. Every breath of air taken by a dolphin is a conscious effort and Ric recalls the moment when this particular dolphin swam up to him, looked him in the eye, took one last breath, and never took another one. He realised the true complexity of these creatures and began efforts to help release them. He blames the tv series 'Flipper', premiered in 1964, for the obsession the world has with dolphins and holds himself partly responsible for the multibillion dollar industry of captive show dolphins present today. Some of the dolphins captured in Taijii are actually selected by dolphin trainers and flown to all parts of the world to be used for the entertainment industry. One dolphin can be sold for up to 150,000 dollars and when used as a show dolphin, can make up to 1 million dollars a year.

**Thoughts and conclusion:**

The dolphin cull occurring in Taijii must be stopped by spreading awareness about the intelligence of these creatures and the harmful effects of eating dolphin meat. We must begin to accept that we have much to learn about the natural world, and it is our duty and in our best interest to protect it and respect the organisms that live amongst us. I believe that highly intelligent animals such as dolphins must not be used for our personal gain and we have to rise up as individuals and put a stop to this abuse.



Figure 5 " we have to start recognising that we are not unique, that there is consciousness, awareness in the world along a continuum that we had not imagined before and that that puts on us ethical obligations and new challenges to develop some sense of inter-species ethics" (Thomas White, All in the Mind, 2010)

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- Figure 3:

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