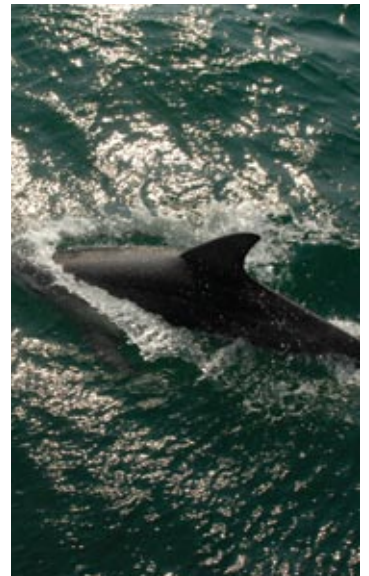


# POISONOUS POLICIES

JAPAN'S FAILURE TO STOP  
THE SALE OF POLLUTED WHALE,  
DOLPHIN AND PORPOISE PRODUCTS

[www.eia-international.org](http://www.eia-international.org)







# EXECUTIVE SUMMARY

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## ACKNOWLEDGEMENTS

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**JUNE, 2008**

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Over the last decade, there have been many independent assessments of the levels of toxic chemicals present in cetacean (whale, dolphin and porpoise) products in Japan. Peer reviewed scientific papers have revealed dolphin meat with mercury levels several hundred times higher than government recommended levels.

The Government of Japan has taken some small steps to address this issue. In 2001 it became illegal to falsely label dolphin meat as whale meat. Two years later some cetacean species were listed on a seafood health advisory that warned pregnant women to limit their consumption due to mercury levels. The advisory was updated in 2005, but it remains wholly inadequate to protect consumers from high levels of pollution, and excludes several dolphin species found on sale in Japan which commonly exhibit high pollution levels.

Polluted whale, dolphin and porpoise products are still widely available in many parts of Japan; some products tested have been so polluted that they could cause acute mercury poisoning from a single meal. There is no legal provision to prohibit the sale of toxic whale meat, and inaccurate labelling of cetacean products is still common.

In 2006 and 2007, EIA researchers collected 67 cetacean products sold for human consumption and contracted independent scientists to carry out DNA and chemical analyses, with the following results:

- 52% of the products exceeded Japanese government regulatory limits for either mercury, methylmercury or PCBs;
- A packet of Dall's porpoise blubber revealed PCB levels of 4.02ppm, more than eight times higher than Japan's regulatory limit of 0.5ppm;
- The highest concentration of mercury was found in a whale product that was not labelled with the species name. It contained 6.9ppm mercury (more than 17 times higher than the regulatory limit) and 3.77ppm methylmercury (more than 12 times higher than the regulatory limit);
- More than 26% of the products were not labelled correctly with a species/common name;
- Of 33 products for which DNA analysis successfully identified species (or at least 'dolphin'), 63% were baleen whales as opposed to toothed whales. Despite this, average mercury and methylmercury levels over the 33 products were still in excess of regulatory limits.

For more than thirty years, legislation has existed in Japan that recommends the removal of seafood products with lower mercury and methylmercury levels than are routinely found in toothed whale, dolphin and porpoise products. Japan's entire coastal cetacean hunting industry, which is supported by the government, exists solely to provide food which is recognised as unfit for human consumption by that same government.

EIA urges the Government of Japan to phase out all toothed whale, dolphin and porpoise hunts, starting with the dolphin hunts in southern Japan which produce the most toxic food products, and giving due compensation for the livelihoods of the whale hunters involved.

The Government should also prohibit by law the sale of all products that contain, or are suspected to contain, toothed whale, dolphin or porpoise species.

Until the phase out is complete, the Government of Japan should:

- Require retailers to post prominent warning labels on all toothed whale, dolphin and porpoise products, advising of potentially high mercury levels;
- Update the current seafood advisory to recommend that pregnant women, women who may wish to become pregnant and children do not eat any toothed whale, dolphin or porpoise products, with a full list of the species caught in Japan as well as the generic term for toothed whales;
- Implement emergency regional food safety advice to all people in areas where high whale, dolphin and porpoise consumption exists.

**Environmental Investigation Agency  
June 2008**



# CETACEAN PRODUCTS ON SALE IN JAPAN

Whale and dolphin meat on sale in Japan originates from several different commercial hunts. The largest hunt is the government sponsored 'scientific research' hunt, which annually kills up to 985 whales in the Antarctic (minke and fin whales), and 380 whales in the North Pacific (minke, sperm, Bryde's and sei whales), including in coastal areas. The species taken are all protected by the 1986 International Whaling Commission (IWC) ban on commercial whaling. The hunts produce more than 5,000 tonnes of meat and blubber each year if quotas are met.<sup>1</sup>

In addition, four coastal whaling communities (Abashiri, Ayukawa, Wadaura and Taiji) hunt up to 112 toothed cetaceans each year in commercial hunts known as 'small-type coastal whaling', which target toothed whales that were not included in the IWC's moratorium on commercial whaling. In the last 20 years, over 1,000 Baird's beaked whales and almost 1,500 pilot whales have been killed in small-type coastal whaling hunts, producing in the region of 4,000 tonnes of meat.<sup>2</sup> The coastal whaling companies also take part in the coastal element of Japan's large scale North Pacific 'research' hunt.

Japan's Fisheries Agency also sets annual commercial quotas for 20,826 dolphins, porpoises and small whales, which are killed in hand harpoon and drive hunts.<sup>3</sup> The largest of these hunts is the Dall's porpoise hunt which takes place throughout the year from the north-east coast of Tohoku and from the coast of Hokkaido. These hunts supply in the region of 1,500 tonnes of cetacean products for human consumption each year.<sup>4</sup>

## Pollution in the marine environment

Many chemical pollutants are resistant to biological and physical degradation, and accumulate along food chains resulting in toxic concentrations. Top predators in aquatic food chains, including whales and dolphins, are especially at risk.<sup>5</sup>

Persistent organic pollutants such as polychlorinated biphenyls (PCBs) and pesticides are readily absorbed in fatty tissues (e.g. the blubber of a whale). Used in electrical equipment and the manufacture of many materials since the 1930's, PCBs have become widely distributed in the marine environment,<sup>6</sup> and can reach concentrations of up to 70,000 times higher in marine mammals than the background environmental levels.<sup>7</sup>

Mercury (Hg) is a highly toxic and persistent heavy metal which exists naturally and is also released due to man-made activities such as the combustion of fossil fuels.<sup>8</sup> Methylmercury is an organic form of mercury which is even more toxic, and readily bioaccumulates in marine animals, particularly in the muscle tissues and internal organs of top predators.<sup>9</sup>

Due to high levels of industrial and agricultural activity in Japan, the adjacent coastal areas and local marine food chains are heavily contaminated with pollutants. Whales and dolphins living around Japan are therefore exposed to contaminants in their diet, and often carry high levels in muscle, blubber and internal organs, particularly toothed whales which tend to feed at higher trophic levels.<sup>10</sup>







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# MERCURY CONTAMINATION THE HEALTH IMPLICATIONS FOR HUMAN CONSUMERS



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Pilot whales carry heavy mercury and PCB burdens.

The major exposure route of mercury to humans is via consumption of fish, shellfish and fish-eating marine mammals. Methylmercury is a well-known neurotoxicant that can have serious adverse effects on the development and functioning of the human central nervous system, especially when exposure occurs prenatally.<sup>12</sup> Methylmercury poisoning can cause serious disease in humans including degeneration of endocrine system, kidneys and other organs. Long term or heavy exposure can result in brain damage and in severe cases death, and has been well documented due to the pollution of Minamata bay in Japan in the 1950s. An increasing body of data also suggests that current levels of exposure to methylmercury may elevate the risk of cardiovascular disease and mortality in a significant proportion of the population.<sup>13</sup>

Up to 95 per cent of methylmercury consumed in marine food sources is absorbed by our bodies and, in pregnant women, it readily crosses the placenta causing significant adverse neurotoxic effects in the developing foetus.<sup>14</sup> A long-term study was carried out involving more than a thousand mothers and their children from the Faroe Islands, where there exists a diet high in fish and marine mammals. The study assessed mercury exposure through analyses of cord blood samples at birth and hair samples taken at ages 7 and 14. It clearly demonstrated that high levels of mercury passed from mother to child in utero produce irreversible damage to specific brain functions in children.

The Faroes study also found impacts on brain function from postnatal mercury exposure, with different targets in the brain affected. Even at methylmercury exposure

## Organochlorines and human health

Organochlorines such as PCBs have been linked to immuno-suppression, endocrine disruption, reproductive failure and developmental problems, as well as cancer in humans. PCBs build up and are stored in fatty tissues and fluids, such as breast milk, and are passed on to fetuses and infants during pregnancy and lactation. PCBs have been linked to increased rates of a number of cancers, including malignant melanoma, non-Hodgkin's lymphoma and brain, liver, and lung cancer. PCB poisonings in humans have caused fetal and infant death, birth defects, and brain damage in children exposed in the womb. PCBs are also associated with skin lesions and thyroid disruption as well as damage to the nervous, immune, and cardiovascular systems.<sup>11</sup>

levels currently considered to be safe, the researchers found subtle effects on brain function, especially in the area of motor function, language and memory.<sup>15</sup>

According to the lead author of the study, Philippe Grandjean, of the Harvard School of Public Health: *"The current focus on protecting pregnant women against this neurotoxin should be expanded to cover children and adolescents as well. Seafood is an important part of a healthy diet, and consumers should choose species low in the food chain caught in waters without mercury pollution."*<sup>16</sup>

# RECOMMENDED 'SAFE' LEVELS OF METHYLMERCURY

Following the outbreak of Minamata disease, Japan's Ministry of Welfare (now Ministry of Health, Labour & Welfare, MHLW), issued the 1973 KanNyu No. 99 advisory to provide a safety guideline for mercury levels in seafood.

The advisory sets provisional limits for seafood products of 0.4ppm (parts per million)<sup>17</sup> mercury and 0.3ppm methylmercury. The advisory recommends the removal of seafood exceeding the provisional limit from the market, in order to ensure that consumption of seafood will not result in injury to the human body.<sup>18</sup>

The provisional limits are documented in the current Standards and Specifications to the 2003 Food Sanitation Law, which states that "these provisional regulatory values of mercury shall not apply to tuna fishes (tuna, swordfish and bonito), fishes and shellfishes from rivers of inland water area and deep-sea fishes and shellfishes."<sup>19</sup> Although news reports suggest that whale, dolphin and porpoise products are subject to the regulatory limits, a 2004 MHLW document notes that, like tuna, whales are not included.<sup>20</sup>

The levels set by the Government of Japan are based on a provisional tolerable weekly intake (PTWI) of 3.3 micrograms of methylmercury per kilogram of body weight per week (3.3µg Me-Hg/kg bw/wk), which was agreed in 1972 by the Joint FAO/WHO Expert Committee on Food Additives and Contaminants (JECFA).<sup>21</sup> In 2003, JECFA re-evaluated the risk of methylmercury, and reduced the recommended PTWI to 1.6µg/kg bw/wk, based on the most sensitive target of methylmercury exposure, the developing foetus.<sup>22</sup>

The new information prompted Japan's Food Safety Commission (a risk assessment body that makes recommendations to the MHLW and other ministries) to carry out a methylmercury risk assessment. As a result, in 2005 it

	FAO/WHO (JECFA) <sup>29</sup>	U.S. <sup>30</sup>	Japan <sup>31</sup>	E.C. <sup>32</sup>
Tolerable Human Weekly Intake µg/kg bw (ppb)	1.6	0.7	2.0 (pregnant or potentially pregnant women) 3.3 (rest of population)	1.6
Guideline level in fish products mg/kg (ppm)	0.5 / 1.0 (fish other than predatory fish / large predatory fish)	1.0	0.3 (excludes predatory fishes and fishes & shellfishes from rivers of inland water and deep-sea fishes and shellfishes)	0.5 / 1.0 (fish other than predatory fish / large predatory fish)

FIGURE 1 Summary of food safety advisory levels for methylmercury.

recommended a revised tolerable weekly intake of 2.0µg/kg bw/wk on the basis of the susceptibility of foetuses.<sup>23</sup> The PTWI of 3.3µg/kg bw/wk remains a standard for the rest of the population.<sup>24</sup>

The United States Environmental Protection Agency (EPA) has established a more precautionary level (termed 'Reference Dose') of 0.7 µg/kg bw/wk. The difference in the various evaluations results from their dependence on different studies as primary sources of epidemiological data, the chosen exposure biomarkers and the uncertainty factors used in the calculations.<sup>25</sup>

Guideline levels for seafood products of 1.0ppm in predatory fish and 0.5ppm in other fish have been established by the World Health Organisation (WHO, Codex guideline level)<sup>26</sup> and the European Commission.<sup>27</sup> The US Food and Drug Administration (FDA) sets an 'action level' of 1.0ppm, indicating that legal action to remove products exceeding this level from the market can be taken by the FDA.<sup>28</sup>

Some current guidelines for maximum acceptable methylmercury levels in fish and intake levels are summarised in Figure 1.

## PUBLISHED POLLUTION LEVELS FOUND IN CETACEAN PRODUCTS IN JAPAN

An extensive survey of toothed whale and dolphin meat products sampled from 2000 to 2003 was published in 2005 by a group of Japanese scientists. All 160 products tested (originating from nine different species) exceeded Japan's provisional regulatory levels for mercury and methylmercury in seafood. One bottlenose dolphin meat product had mercury levels of 98.9ppm, almost 250 times higher than the regulatory limit and higher than the levels commonly found in the fish that caused Minamata disease. The levels of contaminants prompted the scientists to

conclude that "the consumption of red meat from small cetaceans [whales, dolphins and porpoises] could pose a health problem for not only pregnant women but also for the general population."<sup>33</sup>

In an earlier study, PCB concentrations were measured in whale products (bacon, blubber, red meat, liver, intestine and tongue) purchased across Japan. The average concentration of PCBs was 1.14ppm in the 61 products, with a range from zero to 8.94ppm. Japan's maximum limit for PCBs in seafood is 0.5ppm.<sup>34</sup>

## Mercury Rising

**2005** MHLW updates food safety advice to pregnant women - many dolphin species still not included

**2005** Japan's MHLW carries out methylmercury risk assessment and revises PTWI for pregnant women to 2.0µg/kg bw/week

**2003** WHO/FAO revises PTWI of methylmercury to 1.6µg/kg bw/week based on new evidence of risk to unborn children

**2003** MHLW carries out an investigation into mercury levels in whale products. As a result, it advises pregnant women to limit consumption of some whale and fish products

**1999** A group of Japanese, English and American scientists release data on high levels of mercury in whale and dolphin products

**1978** National Institute for Minamata Disease established in Japan

**1973** Ministry of Health & Welfare (MHLW) introduces guideline levels (provisional regulatory limits) for mercury and methylmercury in seafood of 0.4 and 0.3ppm

**1972** World Health Organisation (WHO) and Food & Agricultural Organisation (FAO) establish Provisional Tolerable Weekly Intake (PTWI) for methylmercury of 3.3µg/kg bw/week

**1968** Government of Japan announce that Minamata Disease was caused by the consumption of fish and shellfish contaminated by methylmercury discharged from a chemical plant

**1956** Minamata disease, a disorder of the central nervous system) discovered

**1932** Chisso Corporation began to pump mercury compounds into Minamata Bay, Japan.



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# ESTIMATED LEVELS OF MERCURY IN JAPANESE PEOPLE

Intake of mercury via food can be estimated by measuring quantities found in human hair. A study of hair mercury levels in Japanese people from 1999 to 2002 involving 8,665 individuals across nine prefectures in Japan found average hair mercury levels in males of 2.42µg/g and in females, 1.37µg/g. The highest levels were seen in Chiba (4.75) and Miyagi

(3.31), where higher fish consumption and a preference for tuna exists. According to the study, the JECFA PTWI of 1.6µg/kg bw corresponds to a hair mercury level of 2.2µg/g. This was exceeded in 25% of Japanese females of child-bearing age, while 74% of females of child-bearing age exceeded the US recommended safe limit.<sup>35</sup> A different study estimating mercury

intake in the Japanese population found that Japanese people typically consume around 126µg of methylmercury per week. For a 50kg person this equates to a PTWI of 2.52µg/kg bw, which is in excess of the US and JECFA guidelines as well as the Japanese guideline for pregnant women.<sup>36</sup> Lower intake levels were reported in a long term diet study, which estimated stable intakes of

mercury ranging from 48.3µg and 77µg per week between 1979 and 1994.<sup>37</sup> Despite the knowledge for decades that cetaceans accumulate high quantities of mercury, there are no studies estimating or measuring methylmercury levels in Japanese people that consume large quantities of whale and dolphin meat.

## PUBLIC HEALTH ADVICE ISSUED BY THE GOVERNMENT OF JAPAN

The MHLW released food safety advice to consumers regarding the consumption of whale and dolphin products for the first time in 2003. Rather than implement a thorough investigation to determine accurate consumption levels, the analysis assumed an even spread of whale meat consumption throughout Japan, concluding that there was little risk to the Japanese population.<sup>38</sup>

Specific recommendations were given only for pregnant women, advising that they should limit consumption of bottlenose dolphin to no more than a single portion of 60-80g in a two month period and Baird's beaked whale, short-finned pilot whale and sperm whale to no more than a single portion of 60-80 g in a week.<sup>39</sup> The advice did not consider many other species of toothed whales and dolphins available on the market (e.g. the most widely caught species in Japan, the Dall's porpoise).

In 2005, in response to the reduction of the JECFA consumption guidelines for methylmercury, a further risk assessment was undertaken and the public health advice was updated.<sup>40</sup> The advice now splits cetaceans and some fish species into four categories, and recommends a total allowable consumption for each category (see below). It is presumed, although it is not clear, that pregnant women should eat from only one out of the four categories – e.g. 10g of bottlenose dolphin per week or 40g short-finned pilot whale per week etc.

1. Bottlenose dolphin	1 meal per 2 months (10g/week)
2. Short-finned pilot whale	1 meal per 2 weeks (40g/week)
3. Baird's beaked whale, sperm whale, bluefin tuna, bigeye tuna, swordfish	1 meal per week in total (80g/week)
4. Dall's porpoise, southern bluefin tuna, marlin, other fish species	Two meals per week in total (160g/week).

The new advice includes Dall's porpoises, however it does not include other polluted cetacean species (namely striped dolphin,

Risso's dolphin and false killer whales) which are sold for human consumption in Japan.<sup>41</sup>

The advice has been criticised by the Japanese Consumer Cooperative (JCCU), the largest consumer union in Japan for viewing the effect of mercury too lightly, and for being difficult to understand and impractical. JCCU also point out that there is no advice for infants, which are also highly susceptible to the impacts of mercury exposure. The JCCU recommend further calculation of 'intake guidelines' to suit different groups of people.<sup>42</sup>

By comparing published pollution levels in the cetacean species outlined in the advisory, it is clear that the advice is wholly inadequate to protect pregnant women. According to EIA calculations, a pregnant woman would exceed the PTWI set by Japan (and the more precautionary JECFA and US advisory levels) by following the advice in three out of the four categories. Consumption of Dall's porpoise and short-finned pilot whale at the guideline levels would result in methylmercury intake 1.6 and 2.6 times higher than Japan's PTWI. Only consumption of 10g bottlenose dolphin (one-eighth of a meal) would result in a weekly methylmercury intake that is lower than Japan's PTWI of 2µg/kg bw (providing no other mercury containing seafood was consumed). It would still exceed the more precautionary US advisory level (see Figure 2).

A comparison of the methylmercury levels in the various coastal whale and dolphin species found on the market with the advisory levels shows clearly that the consumption of even limited quantities of toothed whale, dolphin and porpoise meat pose a significant health risk. Figure 3 shows the methylmercury intake from just one 80g meal for each of the species legally killed in Japan's coastal waters. The horizontal lines show the weekly methylmercury intake recommended by Japan, the US and the World Health Organisation (JECFA). One meal of any of the cetacean species exceeds the US advisory level and is equal to or higher than the global JECFA standard. Japan's less precautionary standards (for all consumers, not just pregnant women) are exceeded with a single meal of six out of nine of the coastal species.

Category	Species	Max consumption according to 2005 advisory (g)	Av methylmercury (MeHg) level (µg/g) found in meat <sup>43</sup>	Estimated MeHg consumption in 1 week (µg) per kg for a 50kg person
1	Bottlenose dolphin	10	6.83	1.37
2	Short-finned pilot whale	40	6.45	5.16
3	Baird's beaked whale	80	1.25	2.00
4	Dall's porpoise	160	1.02	3.26

FIGURE 2 Estimated weekly intake of methylmercury for a pregnant woman following the 2005 health advisory.



© Mia Strickland / EIA

80g of Baird's beaked whale meat exceeds an entire week's safe intake level according to the World Health Organisation.

## LABELLING ISSUES AND LEGISLATION

Labelling of whale and dolphin meat in Japan is subject to several laws, including the Food Sanitation Law and the JAS Law (Law Concerning Standardisation and Proper Labelling of Agricultural and Forestry Products).<sup>44</sup> These laws are under the jurisdiction of MHLW and Ministry of Agriculture, Forestry and Fisheries (MAFF) respectively, and allow the respective bodies to issue orders to offenders, publicly announce offences and charge penalty fees. The Food Sanitation law gives additional powers to shut down operations, dispose of food stuffs and imprison offenders for less than six months, however in practice penalties are usually very lenient or absent for smaller companies.<sup>45</sup>

The mislabelling of whale and dolphin products has been recognised for some time. Since April 2001, retailers have been required to label processed seafood (including cetaceans) with the common species name and place of origin.<sup>46</sup> According to the Fisheries Agency, the system includes penalties that would apply to the mislabelling of dolphin meat.<sup>47</sup> The MHLW investigation in 2003 identified that only 16 to 25% of whale products were correctly labelled,<sup>48</sup> however there are no known cases of penalties being applied with respect to cetaceans.

In recognition of the problem of mislabelled seafood products, Japan's Fisheries Agency produced a guideline on naming seafood

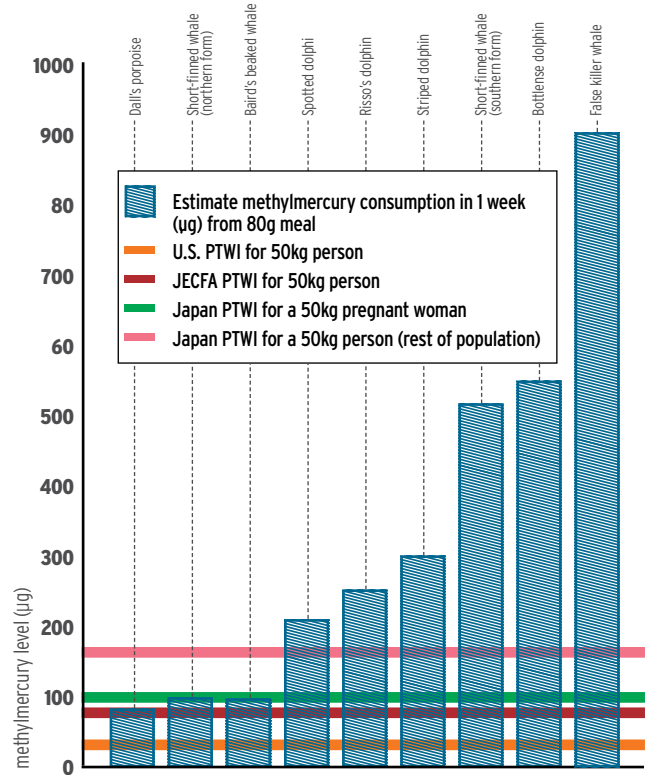


FIGURE 3 Current advisory levels compared to methylmercury intake from 80g (1 meal) of dolphin, porpoise or toothed whale meat

in July 2007 in order to aid retailers in the labelling and correct information distribution according to the JAS Law. The guideline details the common name for each whale, dolphin and porpoise species caught legally in Japan.<sup>49</sup>

EIA's investigations indicate that while there has been some improvement in labelling of cetacean products, mislabelling or inadequate labelling is still common. In addition, whale products containing significant levels of pollutants are sometimes advertised as 'special', or 'healthy' products, which likely contravenes the Act against Unjustifiable Premiums and Misleading Representations, which aims to prevent improper advertising and labelling.<sup>50</sup>



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Bottlenose dolphins exhibit some of the highest mercury levels found in Japanese cetacean products





© David Doubilet

# ANALYSIS OF EIA CETACEAN PRODUCT SURVEYS IN 2006 AND 2007

Sixty-seven cetacean products were purchased from markets, supermarkets and online retailers in Japan for analysis. Levels of organochlorines, mercury and methylmercury were ascertained and species identification through DNA analysis attempted for each product.<sup>51</sup> The results are detailed in Figure 4.

Twenty-five of the products were purchased in 2006, in the prefectures of Tokyo and Miyagi. Forty-two products were purchased in 2007, mostly in Kyushu (Fukuoka, Nagasaki, Saga) and Shimonoseki, but also from internet retailers.

Of the 67 products, 35 products (52.1%) exceeded Japan's seafood regulatory guidelines for either mercury, methylmercury or PCBs (0.4ppm, 0.3ppm and 0.5ppm respectively). Thirty-one products exceeded mercury and methylmercury limits, seven exceeded acceptable PCB limits and three products (EIA06-45, EIA07-16 and EIA07-37)

exceeded limits for all three chemicals (see Figure 5).

The highest concentration of PCBs was in sample EIA06/10; Dall's porpoise blubber which had a concentration of 4.02ppm PCBs, more than eight times higher than the regulatory limit of 0.5ppm.

The highest concentration of mercury was found in a whale product labelled as 'toothed whale' (EIA07-35); DNA analysis identified it as a dolphin, although individual species identification was not possible. This product contained 6.90ppm mercury (more than 17 times higher than the regulatory limit) and 3.77ppm methylmercury (more than 12 times higher than regulatory limit).

The average concentration of mercury in all 67 products was 0.79ppm, almost double the regulatory limit of 0.4ppm. The average concentration of methylmercury in the 67 products was 0.51ppm, 1.7 times higher than the regulatory limit of 0.3ppm.

## Species labelling and the pollution risk

Around 1,400-1,700 tonnes of toothed whale, dolphin and porpoise products enter the market each year in Japan.<sup>52</sup> As a proportion of the total market, these 'small cetacean' products have commonly made up around one-third of the total whale meat market (e.g. 34% in 2002). In recent years, the proportion of small cetaceans has decreased (to around 22% in 2005/06) with the expansion of the Antarctic large whale hunt which now includes fin whales and an increased quota of minke whales.<sup>53</sup>

Of the 33 EIA samples for which DNA analysis successfully identified species (or at least 'dolphin' versus large whale), 63% (21) were baleen whale products. Despite the fact that baleen whales tend to show significantly lower pollutant levels than toothed whales and dolphins, average mercury and methylmercury



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Advertised as 'toothed whale', this dolphin meat contained mercury levels more than 17 times higher than government regulatory limits.

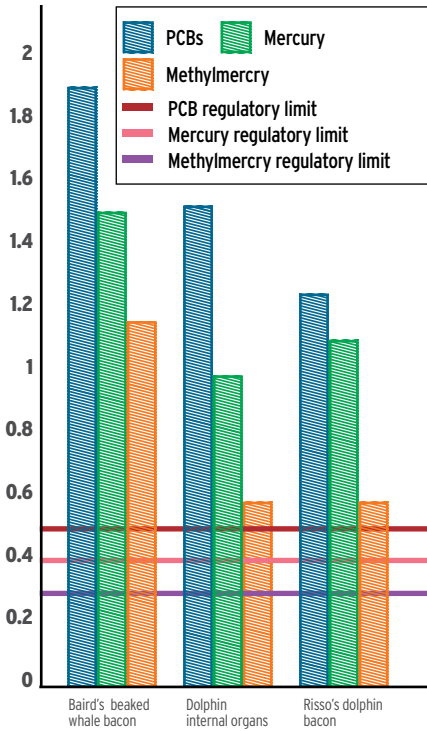
The blubber in this pack of Dall's porpoise contained more than 4ppm PCBs, more than 8 times higher than the regulatory limit.

This product was labelled as minke and sei whale - DNA analysis revealed that it was actually Baird's beaked whale, with PCB levels more than 5 times higher than regulatory limits.



	Sample no.	Product	Species displayed	Origin	Species according to DNA analysis	PCBs ppb (ng/ wet g)	Total Hg ppm (ug/wet g)	Methyl Hg ppm (ug/wet g)
1	EIA-06/1	Canned whale stew	minke, BBW, pilot whale	-		5.97	1.29	0.94
2	EIA-06/2	Meat	minke, BBW, pilot whale	-		102	1.38	0.82
3	EIA-06/4	Red meat	Dall's porpoise	-		40.7	1.11	0.75
4	EIA-06/7	Canned whale stew	none advertised	Antarctic		0.18	0.07	0.05
5	EIA-06/9	Fresh whale meat	none advertised	-	common Bryde's	3.25	0.09	0.08
6	EIA-06/10a	Whale meat	Dall's porpoise	Iwate		60.5	0.84	0.56
7	EIA-06/10b	Whale blubber	Dall's porpoise	-		4024	0.11	0.064
8	EIA-06/11	Canned yakinuki	none advertised	North West Pacific	N Pacific minke	12.9	0.14	0.11
9	EIA-06/14	Canned whale stew	Bryde's whale	-		9.61	0.07	0.05
10	EIA-06/15	Canned whale stew	minke, BBW, pilot whale	-		39.2	3.20	2.52
11	EIA-06/18	Canned whale stew	minke, BBW, pilot whale	-		18.3	1.72	1.25
12	EIA-06/19	Fresh bacon	minke, BBW, pilot whale	-	Antarctic minke	181	0.04	0.02
13	EIA-06/21	Canned whale stew	Antarctic minke	Antarctic Ocean		0.2	0	ND
14	EIA-06/23	Canned whale steak	none advertised	coastally caught		99	1.22	1.00
15	EIA-06/25	Canned whale chopped	none advertised	coastally caught		70.3	1.81	1.30
16	EIA-06/29	Whale meat sashimi	Minke	Antarctic & N Pacific	Antarctic minke	1.8	0.05	0.03
17	EIA-06/30	Fresh whale meat	minke	-	Antarctic minke	0.48	0.07	0.03
18	EIA-06/31	Canned whale stew	BBW	-		36.6	1.84	1.32
19	EIA-06/33	Whale bacon	BBW and minke	Antarctic & N Pacific	Antarctic minke	115	0.93	0.65
20	EIA-06/34	Canned whale stew	minke	Antarctic Ocean		2.68	0.14	0.10
21	EIA-06/36	Canned whale stew	BBW	-		30.5	1.53	1.14
22	EIA-06/41	Frozen whale meat	BBW	-	Baird's beaked	142	0.70	0.57
23	EIA-06/43	Canned whale curry	none advertised	-		72.8	0.72	0.58
24	EIA-06/45	Frozen bacon	BBW	Chiba	Baird's beaked	1888	1.49	1.15
25	EIA-06/46	Whale bone	none advertised	-	Antarctic minke	0.05	0.06	0.03
26	EIA07-01	Grilled whale meat can (yakijiku)	Sei whale	North West Pacific		1	0.10	ND
27	EIA07-02	Canned minke whale stew	minke whale, Antarctic	Antarctic		0	0.07	ND
28	EIA07-03	Whale jerky (tare)	Baird's beaked whale	-	Baird's beaked	4	0.82	0.60
29	EIA07-04	Aged' minke whale	minke whale Antarctic / NWP	NW Pacific	Antarctic minke	2	0.04	ND
30	EIA07-05	Whale bacon	Minke whale Antarctic or NWP	NWP or Antarctic	Antarctic minke	6	0.02	ND
31	EIA07-06	Whale heart	minke whale	Miyagi	N.Pacific Minke	33	0.10	ND
32	EIA07-07	Whale jerky (tare)	Baird's beaked whale	Chiba	Baird's beaked	166	1.13	0.63
33	EIA07-08	Whale jerky (tare)	Baird's beaked whale	Chiba	Baird's beaked	51	1.02	0.73
34	EIA07-09	Fried whale	Baird's beaked whale	Chiba	Baird's beaked	10	2.39	1.42
35	EIA07-10	Fine sliced boiled whale (sarashi kujira)	Antarctic minke	Antarctic	Antarctic minke	0	0.14	ND
36	EIA07-11	Boiled whale meat (can)	BBW on internet, not on can	-		31	0.83	0.58
37	EIA07-12	Boiled whale meat (can)	BBW on internet, not on can	-		94	1.55	1.12
38	EIA07-13	Grilled meat (yakiniiku) can	baleen whale, sei whale	NW Pacific		5	0.08	ND
39	EIA07-14	Boiled meat (yamaton) can	sei whale	-		1	0.08	ND
40	EIA07-15	Tongue of minke whale	minke whale	NP or Antarctic	N.Pacific Minke	45	0.06	ND
41	EIA07-16	Whale	Risso's dolphin	Wakayama	STD dolphin	1512	0.98	0.58
42	EIA07-17	Miso flavoured whale skin	minke whale	NW Pacific or Antarctic	Antarctic minke	100	0.06	ND
43	EIA07-18	Dried whale	Baird's beaked whale	Ayukawa	Baird's beaked	5	3.40	2.05
44	EIA07-19	Boiled whale stew can	minke whale, Antarctic	Iwate		294	0.08	ND
45	EIA07-20	Whale bacon for sashimi.	Antarctic minke	Antarctic	N.Pacific Minke	331	0.04	ND
46	EIA07-21	Salted whale skin	sei whale, BBW	North West Pacific	Antarctic minke	0	0.03	ND
47	EIA07-22	Fine sliced boiled whale (sarashi kujira)	minke whale, sei whale	-	Baird's beaked	2625	0.08	ND
48	EIA07-23	Salted whale	BBW	Honshu	Baird's beaked	45	2.24	1.52
49	EIA07-24	Grilled whale (can)	Antarctic minke	Antarctic		1	0.07	ND
50	EIA07-25	Red whale meat for sashimi (FROZEN)	Antarctic minke	Antarctic	Antarctic minke	0	0.06	ND
51	EIA07-26	Salted whale	Dall's porpoise	Sanriku or Ohotuku		5	1.03	0.66
52	EIA07-27	Salted whale skin	Dall's porpoise	Sanriku or Ohotuku		1114	0.27	ND
53	EIA07-28	Ancient salted whale	Small cetacean	Nagasaki		7	1.02	0.72
54	EIA07-29	Yukake whale	none advertised	-	Antarctic minke	34	0.09	ND
55	EIA07-30	Whale skin	none advertised	-	Antarctic minke	19	0.07	ND
56	EIA07-31	Sliced skin	Small cetacean, Dall's porpoise	Sanriku		595	0.13	ND
57	EIA07-32	Block whale for sashimi	none advertised	Antarctic	Antarctic minke	4	0.05	ND
58	EIA07-33	Oba kujira - boiled whale	sei whale, N pacific	NW Pacific	Sei whale	3	0.02	ND
59	EIA07-34	Boiled whale bacon	minke whale	Antarctic		100	0.06	ND
60	EIA07-35	Whale kakuru (stewed)	toothed whale	-	dolphin	134	6.90	3.77
61	EIA07-36	Sarashi whale	minke, sperm, Bryde's, pilot whale	Antarctic		9	0.18	ND
62	EIA07-37	Whale bacon for sashimi.	toothed whale	-	Risso's dolphin	1243	1.09	0.58
63	EIA07-38	Whale meat menchikatsu (burger)	whale meat, beef	Fukuoka	Antarctic minke	4	0.04	ND
64	EIA07-39	Salted whale	none advertised	Miyagi or Iwate		20	1.32	0.88
65	EIA07-42	Salted whale	small cetacean	Sanriku		4	1.40	1.02
66	EIA07-43	Salted red meat	Dall's porpoise	Sanriku		81	0.96	0.58
67	EIA07-44	Canned whale stew	BBW and pilot whale	Shimonoseki		55	2.15	1.53
<b>AVERAGE</b>						<b>232</b>	<b>0.79</b>	<b>0.51</b>

**FIGURE 4** Pollutant levels in 67 cetacean products purchased in Japan by EIA. Highlighted in RED are those above Japanese government limits of 0.4ppm mercury (Hg), 0.3ppm methylmercury (MeHg) and 500ppb (parts per billion) PCBs. STD dolphin means a dolphin from the Stenella, Tursiops or Delphinus genus - in this case likely striped, spotted or bottlenose dolphin. ND = not determined because of low concentration of total mercury



**FIGURE 5** Chemical levels in the three products from the EIA survey that exceeded mercury, methylmercury and PCB government guidelines in Japan.

levels over the 33 products were still higher (0.74ppm and 0.44ppm respectively) than Japan's regulatory limits.

Of the 67 products, more than 26% (18) were not labelled correctly with a cetacean common name. The majority of these were not labelled with any name at all, rather than incorrectly labelled. Four products were incorrectly labelled according to the DNA analysis. Of these, one product (EIA07-22) was labelled as minke and sei whale but in fact was Baird's beaked whale; it contained PCB levels more than five times higher than the regulatory limits.

Many whale products on sale are mixed products of more than one species, such as the canned whale stew containing minke whale, Baird's beaked whale and pilot whale produced by Kinoya Company in Miyagi. Although DNA analysis to confirm species in these cans has not been successful, the pollution levels in the cans suggest that the content is likely

predominantly toothed whale. Chemical analysis of 13 individual cans tested over the period 2003-06 found average mercury levels to be 2.1ppm, more than five times higher than regulatory levels, and average methylmercury levels of 1.3ppm, more than four times higher than regulatory levels.<sup>54</sup> Kinoya's whale stew cans are labelled with minke whale as the first component.<sup>55</sup> According to the JAS Law, raw materials are supposed to be labelled in order of weight with largest component first, however retailers are not required to detail the estimated quantities of the various components. This may provide a route to market predominantly toothed whale and dolphin products as minke or other baleen whales.

Of 42 products which claimed to contain baleen whales (sometimes in mixes with other toothed whale species) or were just labelled as 'whale', almost one-quarter of the products exceeded government regulations for mercury or PCBs.



(Left to Right): 1. Baird's beaked whale bacon 2. Dolphin colon sold on the internet 3. Risso's dolphin, advertised as whale bacon  
 All these products exceeded regulatory limits for both mercury and PCBs

## The CO-OP

The Japanese Consumer Co-operative (JCCU) is the largest consumer union in Japan. It has 23.5 million members nationwide with a total turnover of around 374 billion yen and tens of thousands of employees. Retailing through Co-op stores and promoting Co-op brands is the mainstay of the JCCU business.<sup>56</sup>

The JCCU advises against the consumption of dolphins and has criticised the inadequacy of the Government of Japan's food advisory concerning mercury.<sup>57</sup> Despite this, EIA has discovered that Co-op stores in Miyagi sell Kinoya branded cans of whale meat stew, which have been found to contain high levels of mercury. A canned whale product purchased from the Co-op in 2006 (EIA06-15) contained 2.52ppm methylmercury. At this level of contamination, a standard sized can of 125g would contain approximately 315µg of methylmercury, nearly four times the amount that JECFA recommends can be safely consumed in a week. In 2007, EIA investigators also found Dall's porpoise blubber on sale in a Co-op store in Saga with high levels of PCBs.

According to the JCCU website, "Safety is the biggest premise of co-op products. We will positively keep working for the study of products' traceability and information provision, for the safety and trust in food." EIA recommends the Co-op institutes an immediate ban on all products known or suspected to contain toothed whale, dolphin or porpoise meat or blubber.



Polluted Dall's porpoise blubber and canned whale meat sold in Co-op stores in Japan.





# CONCLUSIONS & RECOMMENDATIONS

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Whale and blubber products from toothed cetaceans (toothed whales, dolphins and porpoises) routinely exceed Japan's regulatory limits for mercury, methylmercury and PCBs. Despite this, they are widely sold in Japan, often without adequate labelling to ensure that consumers are aware that they are purchasing such products.

According to the investigation into mercury and PCBs in whales by the Ministry of Health, Labour and Welfare in 2003, it was not deemed appropriate to regulate polluted whale and dolphin products too strongly, or appear too critical, for fear of damaging the industry beyond repair. The report also states that treating whale meat in the same way as standard foods is inappropriate, since whale is a specialist food.

What the report fails to note is that, while many people in Japan never eat cetacean products, some people may regularly eat large quantities of cetacean products. These areas of high whale and dolphin consumption are mostly in coastal areas, where people likely consume high quantities of fish and shellfish which may also exhibit high mercury levels, e.g. tuna. Therefore there is likely a proportion of the Japanese population that is at considerable risk from pollution in toothed whale and dolphin products.

For more than thirty years, legislation has existed in Japan that recommends the removal of seafood products with mercury and methylmercury levels in excess of 0.4ppm and 0.3ppm respectively. Toothed whale, dolphin and porpoise products caught in coastal waters routinely have levels far in excess of these limits. Therefore the entire coastal hunting industry, which is supported by the Government of Japan, exists solely to provide food which is recognised as unfit for human consumption by that same government.

**EIA recommends that the Government of Japan phases out all coastal whale, dolphin and porpoise hunts, starting with the dolphin hunts in southern Japan which produce the most toxic food products, with due compensation for the livelihoods of the whale hunters involved.**

**The Government should also prohibit by law the sale of all products that contain, or are suspected to contain, toothed whale, dolphin or porpoise species.**

**Until the phase out is complete, the Government of Japan should:**

- Immediately implement an amendment to the labelling law that obligates retailers to post prominent warning labels on all toothed whale, dolphin and porpoise products, advising of potentially high mercury levels;
- Immediately update the 2005 seafood advisory to recommend that pregnant women, women who may become pregnant and children do not eat any toothed whale, dolphin and porpoise products, with an informative list of species that includes all coastal whale, dolphin and porpoise species as well as the generic term for toothed whales;
- Further revise the seafood advisory to inform consumers that labelling of whale products is often inadequate and that dolphin products are sometimes mislabelled as minke or other large whales;
- Implement emergency regional consumer advice, based on total diet studies in areas where consumption of seafood, including whales and dolphins, is highest.

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