

2017/07: Should Victoria, New South Wales and Western Australia ban plastic bags?

What they said...

'We are not going to solve the problem of waste by focusing on plastic bags'

David Santillo, a senior biologist with Greenpeace

'It's really frustrating because these things are having an enormous impact on the environment'

Terrie-Ann Johnson, managing director of Clean Up Australia

The issue at a glance

On April 19, 2017, Channel 10's current affairs program, The Project, together with Clean Up Australia, called on the Victorian, New South Wales and Western Australian governments to ban lightweight, single-use plastic bags.

Viewers have been urged to sign a Change.org petition to show their support for a ban, as well as writing to each state premier. The petition attracted almost 6000 signatures in half an hour.

A similar petition calling for plastic bags to be banned in New South Wales, launched in February, 2017, attracted more than 15,000 signatures.

None of the state governments called on by The Project and Clean Up Australia has yet replied to the challenge.

On November 25, 2016, the Queensland government announced that it would introduce a ban on single-use plastic bags beginning in 2018. After this announcement the Queensland government instituted a consultation process to gauge community reaction.

On March 3, 2017, it was announced that 95 percent of the 26,000 submissions the Queensland government received on the issue favoured the banning of single-use plastic bags.

Background

(Much of the information below on bans and fees imposed on lightweight plastic bags in different countries around the world has been drawn from a Wikipedia entry titled 'Phase-out of lightweight plastic bags'

The full text, including information about many other nations, can be accessed at https://en.wikipedia.org/wiki/Phase-out_of_lightweight_plastic_bags)

Some of the more detailed Australian information comes from Clean Up Australia's Report on Actions to Reduce Circulation of Single-use Plastic Bags around the World: August 2015

The full text can be accessed at http://www.cleanup.org.au/PDF/au/cua_plastic_bag_usage_around_world_august-2015.pdf)

Fees and bans imposed on the use of lightweight plastic bags

In many countries of the world, there has been a phase-out of lightweight plastic bags. Single-use plastic shopping bags, commonly made from high-density polyethylene (HDPE) plastic, have traditionally been given free to customers by stores when purchasing goods—a popular method considered a strong, cheap, and hygienic way of transporting items. Problems associated with plastic bags include use of non-renewable resources (such as crude oil, gas and coal), disposal, and environmental impacts.

Governments all over the world have taken action to ban the sale of lightweight bags, charge customers for lightweight bags and/or generate taxes from the stores who sell them. The Bangladesh government was the first to do so in 2002, imposing a total ban on the bag. Such a ban has also been applied in countries such as Rwanda, China, Taiwan and Macedonia. Some countries in Western Europe impose a fee per bag. Bans, partial bans, and fees have been enacted by some local jurisdictions in North America, Australia, the United Kingdom, and Myanmar. Concurrently with the reduction in lightweight plastic bags, shops have introduced reusable shopping bags.

Lightweight plastic bags in Australia

Although there is no nation-wide ban on lightweight bags, the states of South Australia, Tasmania, and the Australian Capital Territory and the Northern Territory, along with some cities have independently banned the bag. Coles Bay, Tasmania was the first location in Australia to ban the bag. The introduction of the Zero Waste program in South Australia led to its lightweight bag ban in October 2008. It is estimated that 400 million bags are saved each year. South Australia was the first Australian state or territory to ban lightweight plastic bags beginning in May, 2009. As of July 2015, a Boomerang Alliance Survey found that 81 per cent of respondents were highly supportive of the ban. The Northern Territory began a ban on single-use lightweight plastic bags in September 2011. The Australian Capital Territory introduced a ban on lightweight plastic bags in November 2011. Tasmania introduced a ban on lightweight plastic bags in 2013. In Australia, 6 billion HDPE bags were used in 2002. Usage reduced to 5.6 billion in 2004 and to 3.9 billion in 2007.

Lightweight plastic in bags New Zealand

Despite various attempts, as of 2015, no laws have been passed in New Zealand to ban or charge for plastic bags.

Lightweight plastic bags in England

England introduced a five pence minimum charge for single use plastic bags on 5 October 2015. It applies to retailers with more than 250 employees. Unlike the rest of the United Kingdom, the English charge does not apply to paper bags or bags made from other natural materials. As with the other nations, VAT raised on sales will be collected by the Government. Retailers can choose how the money raised from bag sales is used. The Government is, however, planning on publishing information yearly on the scheme, encouraging retailers to donate the proceeds to charities.

In the first 6 months, 640 million plastic bags were used in seven major supermarkets in England, which should have raised £32 million, for which no recipient charities have yet been identified. England reported to have distributed .6 billion single-use bags during the first half year of the charge. That is 7 billion bags less than the amount of bags that were distributed in 2014.

The Climate Change Act 2008 served as the legislative framework for the regulation of plastic bags in the United Kingdom. To promote the growth of new businesses in England, retailers with less than 250 employees are exempt from the charge. Opponents to the exemption of small retailers argue that this exemption will diminish the environmental impact of the charge.

England is the last country in the United Kingdom to adopt the 5 pence charge. Prior to the introduction of plastic bag regulations, various retailers participated in voluntary actions to reduce plastic bag consumption.

Lightweight plastic bags in the United States

There is no national plastic bag fee or ban currently in effect in the United States. However, the state of California, and the territories of American Samoa and Puerto Rico have banned disposable bags.

Over 200 counties and municipalities have enacted ordinances either imposing a fee on plastic bags or banning them outright, including all counties in Hawaii.

Other attempts at banning plastic shopping bags statewide (for example in Massachusetts) have not succeeded mainly due to plastic industry lobbying.

A few jurisdictions have chosen to implement a fee-only approach to bag reduction by imposing a tax or a fee, such as Washington, D.C. and adjacent Montgomery County, Maryland.

Some US states, such as Florida and Arizona, have passed laws prohibiting bans on plastic bags statewide in order to prevent local municipalities from passing their own bans.

Internet information

On April 19, 2017, The Sydney Morning Herald published a report titled 'The Project and Clean Up Australia campaign to ban plastic bags in three states'

The article outlines The Project and Clean Up Australia's challenge to the governments of Victoria, New South Wales and Western Australia to ban single-use plastic bags in these states.

The full text of the article can be accessed at <http://www.smh.com.au/entertainment/tv-and-radio/news-and-current-affairs/the-project-and-clean-up-australia-campaign-to-ban-plastic-bags-in-three-states-20170419-gvo111.html>

On March 28, 2017, The Age published an editorial titled 'Change is in the bag, but Australia's lawmakers lag on plastic bans'

The editorial argues for the Victorian, New South Wales and Western Australian government's to ban plastic bags and for consumers to change their habits.

The full text can be accessed at <http://www.theage.com.au/comment/the-age-editorial/change-is-in-the-bag-but-australias-lawmakers-lag-on-plastic-bans-20170328-gv8gwo.html>

On March 20, 2017, the Encyclopaedia Britannica updated its entry titled 'Plastic pollution'. The entry details the nature and causes of plastic pollution and gives detailed information on its negative effect on marine life.

The full text can be accessed at <https://www.britannica.com/science/plastic-pollution>

On March 17, 2017, The Star Tribune published a comment by Matt Seaholm, executive director of the American Progressive Bag Alliance, a lobby group which supports the continued manufacture and use of single-use plastic bags. The comment is titled 'Facts don't support column's call for ban on plastic retail bags'

The comment argues in favour of single-use plastic bags.

The full text can be accessed at <http://www.startribune.com/facts-don-t-support-column-s-call-for-ban-on-plastic-retail-bags/416476143/>

On March 3, 2017, The Brisbane Times published a report titled 'Shopping bag ban: Queenslanders send govt "clear message"'

The report notes that 95 percent of the 26,000 submissions the Queensland government received on the question of banning plastic bags favoured the proposal.

<http://www.brisbanetimes.com.au/queensland/shopping-bag-ban-queenslanders-send-govt-clear-message-20170302-guozoz.html>

On March 1, 2017, the Queensland government outlined some of the measures it would be taking to reducing plastic pollution as part of its waste and recycling strategy.

The full text can be accessed at <https://www.ehp.qld.gov.au/waste/plastic-bags-drink-containers.html>

On November 25, 2016, ABC News published a report titled 'Single-use plastic bags to be banned in Queensland from 2018'

The Queensland Environment Minister, Steven Miles, made the announcement and gave the reasons his government had taken this decision.

The full text of this report can be accessed at <http://www.abc.net.au/news/2016-11-25/queensland-to-ban-single-use-plastic-bags-from-2018/8056084>

On February 28, 2016, The Herald Sun published a comment by Patrick Carlyon titled 'Calls to ban the plastic bags carry very little weight'

The piece argues that human convenience is more important than environmental considerations.

The full text can be accessed at <http://www.heraldsun.com.au/news/opinion/patrick-carlyon/calls-to-ban-the-plastic-bags-carry-very-little-weight/news-story/17a84b0423ddb2a02ab64b32a5e976a1>

In February 2016, the state of New South Wales and the Environment Protection Authority published a report titled 'Plastic shopping bags: Options paper: Practical actions for plastic shopping bags'

The report considers ways of addressing the pollution problem posed by plastic bags.

The full text can be accessed at <http://www.epa.nsw.gov.au/resources/waste/160143-plastic-shopping-bags-options.pdf>

The October 2015 edition of Reason published a comment and analysis by Katherine Mangu-Ward titled 'Plastic Bags Are Good for You'

The article disputes many of the negative claims made about single-use plastic bags, questions the conservation status of alternative carry bags and highlights the efficiency of the single-use bags.

The full text can be accessed at <http://reason.com/archives/2015/09/01/plastic-bags-are-good-for-you>

On September 10, 2015, the Australian Government released the results of the 'Senate Inquiry: The threat of marine plastic pollution in Australia'

The report gives detailed information on the scope and impacts of marine plastic pollution in Australia.

A pdf of the report can be accessed at <https://tinyurl.com/mpkktdu>

In August 2015 Clean Up Australia published a report titled 'Report on Actions to Reduce circulation of Single-use Plastic Bags around the World'

The report considers the problem world-wide and then outlines measures that have been taken to address it in a number of countries, including Australia.

The full text can be accessed at http://www.cleanup.org.au/PDF/au/cua_plastic_bag_usage_around_world_august-2015.pdf

On May 13, 2015, MPR News published an expository report titled 'The debate over banning plastic bags explained'

The report gives a brief but thoughtful overview of the debate.

The full text can be accessed at <https://www.mprnews.org/story/2015/05/13/plastic-bags>

On April 10, 2015, Science News for Students produced an extensive article explaining the manner in which plastic particles in the ocean are believed to enter the marine foodweb.

The report is titled 'Tiny plastic, big problem'

The full text can be accessed at <https://www.sciencenewsforstudents.org/article/tiny-plastic-big-problem>

On October 8, 2014, Media Matters for America published a comment and analysis titled 'California's Plastic Bag Ban: Myths And Facts'

The article looks in detail at a number of the negative claims made about the ban and argues they are false.

The full text can be accessed at <https://mediamatters.org/research/2014/10/08/californias-plastic-bag-ban-myths-and-facts/201064>

On September 15, 2014, Mother Jones published an analysis by Katie Rose Quandt titled 'California Just Passed a Plastic Bag Ban. Here's What You Need to Know'

The piece looks in detail at arguments for and against the ban. It can be accessed at <http://www.motherjones.com/environment/2014/09/california-bans-plastic-bags>

On March 14, 2014, the lobby group Fight the Plastic Bag Ban published a comment and analysis by Anthony van Leeuwen titled 'Plastic Bags in Landfill - Not a Problem'

The full text can be accessed at <https://fighttheplasticbagban.files.wordpress.com/2014/03/plastic-bags-in-landfill-not-a-problem.pdf>

On January 6, 2014, US Today published a report titled 'Eww, reusable grocery bags' germs can make you sick'. The

report considers studies that have found that a range of disease-causing bacteria can colonise inside re-usable carry bags.

The full text can be found at <https://www.usatoday.com/story/news/nation/2014/01/06/reusable-grocery-bag-germs/4341739/>

On October 27, 2013, the Telegraph published a report titled 'Tax on shopping bags "will lead to more food poisoning"' The report details findings that suggest re-usable carry bags are sources of bacterial contamination and can lead to food poisoning.

The full article can be accessed at <http://www.telegraph.co.uk/news/health/news/10407724/Tax-on-shopping-bags-will-lead-to-more-food-poisoning.html>

On August 22, 2013, The Ocean Health Index published a report by Dr. Richard Thompson, School of Marine Science and Engineering, Plymouth University, titled 'Plastic Entanglements Increase 40% For Marine Animals'

The report details the increasing impact of plastic debris on marine life.

The full text can be accessed at http://www.oceanhealthindex.org/news/Death_By_Plastic

On August 6, 2013, EcoWatch published a comment and analysis by Laura Beans titled 'Silent Killers: The Danger of Plastic Bags to Marine Life'

The article explains the harmful effect of plastic bags on marine creatures.

The full text can be accessed at <http://www.ecowatch.com/silent-killers-the-danger-of-plastic-bags-to-marine-life-1881783599.html>

In the March/April 2013 edition of Pennsylvania University's Gazette an article was published titled 'Getting to the Bottom of the Bag'

It details research which suggests an increase in deaths from food poisoning following a ban on single-use plastic bags.

The full text can be accessed at <http://www.upenn.edu/gazette/0313/gaz04.html>

On October 8, 2012, The Wall Street Journal published a feature titled 'Should Cities Ban Plastic Bags?'

The piece gives two detailed arguments by different authors, one supporting bans, one opposing.

The full text can be accessed at <https://www.wsj.com/articles/SB10000872396390444165804578006832478712400>

On August 2, 2012, the David Suzuki Foundation published an editorial titled 'Are plastic bags really necessary?'

The comment details some of the harm caused by plastic bags and questions the need for them.

The full comment can be accessed at <http://www.davidsuzuki.org/blogs/science-matters/2012/08/are-plastic-bags-really-necessary/>

On April 8, 2009, The Guardian published a comment by George Monbiot titled 'Plastic bag obsession is carrier for environmental ignorance'

The comment argues that the harm caused by plastic bags has been exaggerated and that preoccupation with them distracts from more significant environmental issues.

The full text can be accessed at

<https://www.theguardian.com/environment/georgemonbiot/2009/apr/07/plastic-bag-waste-carbon-emissions>

In 2009, The Marine Pollution Bulletin published a report by Nicholas Mrosovsky, Geraldine D. Ryan and Michael C. James of the University of Toronto, the University of Guelph, Ontario and the Dalhousie University, Halifax, Nova Scotia. Their report is titled 'Leatherback turtles: The menace of plastic' and was published in 2009. It states, 'The first mention of plastic in the GI tract was for 1968. Of the 371 autopsies from that year and onwards, 37.2% revealed the presence of plastics.' The survey terminated in 2000.

The full text can be accessed at http://foodweb.uhh.hawaii.edu/MARE494_files/Mirosowsky%20et%20al.%202009.pdf

On March 10, 2008, The Australian published an analysis and comment by Matthew Franklin titled 'Scientists trash plastic bag ban'

The report considers scientific studies which suggest that many of the claims made about the negative environmental impact of plastic bags are false or misleading.

The full text can be accessed at <http://www.theaustralian.com.au/news/nation/scientists-trash-plastic-bag-ban/news-story/823406fbb39198ca835d05b6718a6fcd>

In 2006 the British Government's Environmental Agency commissioned a report titled 'Life cycle assessment of supermarket carrier bags: a review of the bags available in 2006'

This report demonstrates that in terms of global warming potential the lightweight, single-use, plastic bag has the least impact of the nine types of carry bag considered (unless the other bags were used multiple times).

This report is the source of much of the data used by commentators supporting the continued use of the single-use plastic bag.

The full text can be accessed at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291023

</scho0711buan-e-e.pdf>

The animal welfare group Animal Friends Croatia has numerous instances of marine and terrestrial animals harmed through ingesting plastic bags.

This information can be accessed at <http://www.prijatelj-zivotinja.hr/index.en.php?id=934>

The United States lobby group Stop the Bag Ban has an Internet site which supplies 26 arguments in favour of retaining single-use plastic bags.

The site also disputes 21 of what it refers to as 'Lies, Myths and Distortions' about the effects of single-use plastic bags. The site supplies citations for the claims it makes.

The full site can be accessed at <http://stopthebagban.com/Home.php>

The Canadian pro plastic bag lobby group All About Bags has presented arguments and information on its Internet site supporting the continued manufacture and use of lightweight plastic bags.

The site can be accessed at <http://www.allaboutbags.ca/myths.html>

Arguments in favour of banning plastic bags

1. Plastic bags are an unnecessary item which is produced, used and dumped in enormous numbers

Critics of plastic bag use argue they are essentially a discretionary product which is produced in great numbers only to be thrown away.

Clean Up Australia has stated, 'Australians use 3.92 billion plastic bags a year, that's over 10 million new bags being used every day. An estimated 3.76 billion bags or 20,700 tonnes of plastic are disposed of in landfill sites throughout Australia every year. Australians dump 7,150 recyclable plastic bags into landfills every minute or 429,000 bags every hour.

It is estimated that around 50 million bags enter the Australian litter stream every year. Unless they are collected, they remain in the environment and accumulate at a staggering rate. If these 50 million plastic bags were made into a single plastic sheet, it would be big enough to cover the Melbourne CBD.'

Critics claim that the mass production and dumping of plastic bags is a problem that exists world-wide. Clean Up Australia has declared, 'It is estimated that the world consumes 500 billion to 1 trillion plastic bags every year.'

In a comment published on August 2, 2012, Canadian environmentalist David Suzuki stated, 'Canadians use between nine- and 15-billion plastic bags a year, enough to circle the Earth more than 55 times, according to the Greener Footprints website. (U.S. citizens use about 100 billion a year!) Few plastic bags are recycled. Most are used for a short time to carry groceries, and then maybe re-used as garbage bags or to wrap dog poop before ending up in the landfill or the ocean.'

Suzuki argues that, though this is only a small portion of the total plastic pollution human beings produce and an even smaller proportion of the total pollution human beings create, it is still a vast and concerning quantity.

Suzuki argues that the quantities are concerning because plastic bags are not a necessity. He states, 'Plastic bags are bad and for the most part unnecessary. Many of us older folks remember a time, only a few decades ago, when we didn't have them. Sure, they're convenient, but is that an excuse to damage the environment and the life it supports?'

Opponents of plastics bags argue that short-term convenience is not sufficient justification for inflicting long-term harm upon the planet. Plastic bags are seen as a prime example of a product which is not strictly necessary and which despite this is produced in enormous quantities for temporary expediency.

In a comment published in Futurarc in 2016, Vaidehi Shah, Projects Manager, Singapore Environment Council, stated, 'Plastic bags are symptomatic of a much larger problem of a "disposable culture", characterised by a rise in the consumption of single-use products, often made of plastic and paper. Plastic bags, plastic cutlery, paper towels and disposable food containers are just a few of the things that make our life more convenient, but unfortunately, also more harmful to the environment.'

2. Lightweight plastic bags endanger marine species, land-based species and birds

Lightweight plastic bags have been claimed to harm many species in the oceans and waterways and on land.

There is a variety of ways in which lightweight plastic bags can injure marine species. One of these is that larger animals often ingest plastic bags mistaking them for a natural food source. An information sheet on marine debris produced in 2003 by the Australian Government's Department of Environment and Energy stated, 'Marine species confuse plastic bags, rubber, balloons and confectionery wrappers with prey and ingest them. The debris usually causes a physical blockage in the digestive system, leading to painful internal injuries. Turtles frequently eat plastic bags, confusing them with jellyfish, their common prey.'

The information sheet lists the Loggerhead Turtle (an endangered species), the Leatherback Turtle (a vulnerable species), the Hawksbill Turtle (a vulnerable species), the Flatback Turtle (a vulnerable species) and the Green Turtle (a vulnerable species) as particularly compromised by the risk posed by plastic bags in the ocean as these species' numbers are already in decline. The information sheet notes 'Marine debris is a hazard for all sea creatures, and an added danger to the survival of species already listed as threatened or endangered under the Environment Protection and Biodiversity Conservation Act 1999.'

In addition to turtles, whales and dolphins have been identified as animals that may choke through ingesting plastic bags mistaken for jelly fish. In August 2000, an eight metre Bryde's whale died soon after becoming stranded on a Cairns

beach. An autopsy found that the whale's stomach was tightly packed with six square metres of plastic, including many plastic check-out bags. Such obstructions in animals can cause severe pain, distress and death.

Writing for EcoWatch in August, 2013, Laura Beans explained, 'One in three leatherback sea turtles have plastic in their stomach, most often a plastic bag, based on a study of over 370 autopsies. Once in these animals' bodies the plastic bioaccumulates, and the chemicals can cause excess oestrogen to be produced, which has led to discoveries of male fish with female sex organs. For sea turtles, the plastic blocks their digestive tract and the food that is trapped releases gases that render them buoyant, and unable to dive for food.'

In a comment published on August 2, 2012, David Suzuki stated, 'A University of British Columbia study [published in 2012] found that 93 per cent of beached northern fulmars (migratory seabirds related to the albatross) had bellies full of plastic - a substantial increase from the last time they were tested, in 1980.'

In 1998, a pelican was found dead in Kiama, New South Wales, after eating 17 plastic bags. The pelican presumably thought the plastic bags were food. The pelican was preserved and named Pete. Since then he has been standing in front of a sign at Fitzroy Falls that informs visitors of how he died and the problems of plastic bags and ocean pollution. Not only does ingesting plastic bags cause harm and often death to marine animals and seabirds, the broken down by-products of plastic debris (including that derived from plastic bags) is also extremely harmful.

Environmentalists note that plastics do not easily degrade; they may break down, but only into smaller pieces which as they degrade further reach a point where they form what is termed microplastic.

Researchers have indicated that microplastic is consumed by many sea creatures including zooplankton, tiny animals toward the bottom of the food chain. This is significant as zooplankton are consumed by larger animals and the microplastic within them is concentrated in the tissues of these larger animals.

Andrew Watts, a marine biologist at the University of Exeter, has explained that eating microplastic causes some species to store less fat, protein and carbohydrate. Also of concern is that microplastics attract a range of toxins which then accumulate in the tissues of marine animals. The Encyclopaedia Britannica states, 'In addition to being non-nutritive and indigestible, plastics have been shown to concentrate pollutants up to a million times their level in the surrounding seawater and then deliver them to the species that ingest them.' There is concern that this process is poisoning the marine food chain.

Finally plastic bags in oceans and waterways are an entanglement hazard for marine creatures and seabirds. On August 22, 2013, the Ocean Health Index noted that 'All known species of sea turtles, about half of all species of marine mammals, and one-fifth of all species of sea birds are affected by entanglement or ingestion of marine debris. The frequency of impacts varies according to the type of debris; but over 80 % of the impacts were associated with plastic debris.' Though much of this plastic is not from plastic bags, these bags make a significant contribution. A United Nations Environment Programme report released in 2009 noted that the bags accounted for about 8.5 percent of trash found in the Mediterranean Sea.

Critics claim that not only do plastic bags endanger marine creatures and seabirds, they also harm on land animals and birds. Animal Friends Croatia includes numerous instances of Australian terrestrial animals harmed by plastic bags. Their internet site states, 'Discovered in agony, a calf that was recently put down in Mudgee, New South Wales, was found to have eaten eight plastic bags. The loss of this calf cost the farmer around \$500. Birds get caught up in them, too. Unable to fly they die of starvation. Turtles have also been rescued with plastic bags lodged in their throat - and part of the bag hanging out of their mouth.'

3. Lightweight plastic bags may endanger human health

It has been claimed that microplastics in the oceans (some of which come from plastic bags) pose a potential threat to human health.

A United Nations report released in 2016 indicated that more than a quarter of all fish now contain plastic, according to a recent analysis of the guts of fish sold at markets in Indonesia and California.

The United Nations Environment Project report expresses concern that chemicals in plastics and also toxic chemicals which attach themselves to plastic in the natural environment could cause poisoning, infertility and genetic disruption in marine life, and potentially in humans if ingested in high quantities.

Tamara Galloway of the Bioscience Department of the University of Exeter has stated, 'In terms of human health risks, microplastics as contaminants in the wider environment represent a concern because it has been shown that they can be ingested by

a wide range of aquatic organisms, both marine and freshwater, and thus have the potential to accumulate through the food chain.'

Of particular concern is the capacity for the chemicals in some plastics to interfere with the human endocrine system.

This is the system that produces and delivers chemical messengers or hormones throughout the human body, helping to regulate virtually all bodily processes.

Carol Kwiatkowski, executive director of The Endocrine Disruption Exchange has stated, 'Anything that interferes with hormone action potentially has an effect at a very low dose, because the endocrine system is designed to function at very small doses. So it's possible this pathway could bring some exposure. You'd have to find some evidence that the chemicals were being carried through marine organisms and making it into people.'

Despite the current lack of evidence that human health has been compromised by microplastics ingested from marine food sources, critics note that the potential exist for this to be happening now or to happen in the future. They argue that protecting human health is another reason to ban single-use plastic bags.

4. Lightweight plastic are difficult to recycle

It has been claimed that lightweight plastic bags are difficult and expensive to recycle leading to more of them ending up as litter and finally as pollution in the oceans.

An ABC Science feature has explained some of the difficulties associated with recycling plastic bags in Australia. It states 'Recycling your plastic shopping bags is one of the most obvious courses of action; however, only 10% of Australian households take their plastic bags to a central collection point for recycling. This could be due to the fact that HDPE bags cannot be put out for collection with other household recyclables, and there is no separate kerbside collection for them as the volume does not support the cost. Instead, bags must be taken to central recycling collection points, such as supermarkets, where there are special bins to collect the bags. Even at these central collection points there is a risk that the bags may end up unsuitable for recycling due to a range of contaminants such as LDPE bags, ink, food, even supermarket dockets if they are left in the bags.'

Planet Ark's Recycling Plastic Bags factsheet states, 'Some council's now accept plastic bags in their kerbside recycling bins. Check with your council first if they accept plastic bags, otherwise keep them out of the recycling bins as they can get caught up in the processing machinery and contaminate other recycling streams.'

Most supermarkets have a front of store bin that accepts single use plastic shopping bags and reusable 'green bags' for recycling.'

The Planet Arc site further states, 'Working out what to do with some types of plastic bags can be tricky as some are labelled "Biodegradable", "Compostable" and "Degradable". These types of bags unfortunately cannot be recycled.'

In the United States less than 1 percent of plastic bags are recycled each year, according to the Clean Air Council. The council also states that recycling one ton of plastic bags costs \$US4,000, while the recycled product can be sold for only \$US32.

An article published in The Huffington Post on August 18, 2013 stated, 'Recycling the bags can prove difficult, even for the industry itself. Plastic bags are typically placed in recycling bins with other plastics, and the bags jam and damage sorting machines, which can be expensive to repair.'

An article published in Mother Jones on September 15, 2014, referring to the situation in California stated, 'Designated plastic bag recycling facilities exist, but the EPA estimates only 12 percent of bags make it there. CalRecycle puts the statewide number even lower at 3 percent. Even when bags are returned to the proper bin, they aren't truly recycled, but downcycled. "Because plastic bags have a variety of dyes and other additives, it's hard to know exactly what you're getting if you melt down a bunch of bags that consumers have used," explains Larsen [the Earth Policy Institute's director of research]. Instead, used bags "generally get turned into something else, such as park benches or flooring material."

The ABC Science feature No Bags, Thanks, concludes, 'Given the costs and inconvenience associated with recycling, and the fact that reuse only delays the plastic entering the environment, the most sensible option is to cut down on the number of plastic bags that you use, or stop using them altogether.'

5. Single-use lightweight plastic bags are a major economic cost to governments, municipalities and consumers

Opponents of plastic bags argue that they impose economic as well as environmental costs.

It has been noted that the cost of apparently free plastic bags given to customers at supermarkets and other stores is actually added on to the cost of the products sold as a hidden impost.

In an opinion piece published in The Wall Street Journal on October 8, 2012, Daniella Dimitrova Russo, co-founder and executive director of the United States lobby group, Plastic Pollution Coalition, has stated, 'Grocery stores embed 2 cents to 5 cents per plastic bag in the cost of food. A ban would save approximately \$18 to \$30 per person annually.'

The cost of managing the waste that results from large scale use of plastic bags is also a substantial burden on local governments. Russo notes, 'Communities don't have much of a choice if they leave things as they are: They either drown in plastic bags or spend millions of dollars to clean up the mess-tax dollars that should go toward infrastructure, education and libraries.' She gives the example of San Jose, California, where 'it costs about \$1 million a year to repair recycling equipment jammed with plastic bags'. She further cites, 'San Francisco estimates that to clean up, recycle and landfill plastic bags costs as much as 17 cents a bag, or approximately \$8.5 million a year.'

In a survey the conducted in 2012, 70 percent of Washington recycling companies indicated they wanted plastic bags out of the waste stream. Some recycling plants in Washington estimated spending 20 to 30 percent of their labour costs removing plastic bags from their machinery -in the order of US\$1000 per day.

Planet Ark has estimated that it costs Australian governments, businesses and community groups over \$4 million per annum to clean up littered plastic shopping bags. Figures released in 2015, indicated that the annual cost of Clean Up Australia day alone was \$35,216,437.00 . Over 14 percent of the litter cleaned up on this day comes from single-use plastic bags.

Arguments against banning plastic bags

1. Plastic bags are much less prone to bacterial contamination than reusable carry bags

Reusable carry bags have been persistently linked with a number of diseases as the bags are believed to be prone to bacterial contamination.

A 2011 study conducted by the University of Arizona and Loma Linda University found only 3% of shoppers with multi-use bags said they regularly washed them. The same study found bacteria in 99% of bags tested; half carried coliform bacteria while 8% carried E. coli, an indicator of faecal contamination.

The researchers found that bacteria thrived and multiplied on bags stored in the trunks of cars. A separate study

published in 2012 traced a norovirus outbreak among a girls' soccer team from Oregon to a reusable bag stored in a hotel bathroom used by an ill team member.

On October 27, 2013, The Telegraph quoted Hugh Pennington, emeritus professor of bacteriology at Aberdeen University, who has chaired two major enquiries into E. coli. Professor Pennington stated that re-using grocery bags could result in 'an increase in the number of cases of food poisoning'.

Professor Pennington warned, 'We have to be careful about being too strict in forcing people to re-use bags. There are some bags you should only use once... Any bag that's carrying meat, wrapped or unwrapped, shouldn't be used again. I would be very surprised if many people washed bags and even if they do they won't necessarily get rid of all of the bugs. The bag may look clean but you can still easily find these bugs.'

Professor Kofi Aidoo, a leading expert on bacterial toxins and food-borne diseases at Glasgow's Caledonian University, has claimed that bags would 'have to be cleaned and disinfected on a regular basis to avoid the risk of food poisoning.' Professor Aidoo further stated, 'The warm environment of cars make them the worst place as far as bacteria is concerned. One bacteria cell will quickly become thousands.'

If people are going to have to pay for bags and re-use them my concern is we're creating a high risk of food poisoning. At the very least people have to be given advice to clean these bags every time they use them.'

It has been claimed that these issues do not arise with single-use plastic bags. Because single-use plastic bags are not re-used to carry food shopping, bacterial contamination acquired after their first use does not contaminate any subsequently purchased foodstuffs.

Critics of plastic bag bans note that the consequences of food contamination can be fatal. In 2013, Pennsylvania University Law Professor Jonathan Klick and Joshua Wright of George Mason University's Law School conducted a study of deaths due to food poisoning following San Francisco placing a ban on single-use plastic bags. Their study suggests that hospitalizations and deaths from food-borne illnesses like E. coli nearly doubled.

2. Banning plastic bags will have a negative impact on some businesses and on consumers on low incomes

It has been claimed that requiring customers to use their own reusable bags will have a negative impact on some businesses.

A small business lobby group in the United States claimed, 'If a customer has reusable bags it takes additional time for them to organize and hand them to the cashier. They are also typically at the bottom of their basket, which takes additional time. Add to that the situations where they do not have enough bags and then need to argue or discuss with the clerk if the bags can be repacked, some items can be hand carried, or if they will purchase bags.'

The same lobby group also argues that businesses are likely to lose sales because of a ban on single-use plastic bags. It states, 'The very inconvenience of customers hurts small businesses. Customers buy less if they "forget" their reusable bags.'

Further, it has been claimed that consumers on low incomes will be disproportionately affected by a ban on single-use plastic bags. Single use plastic bags are currently free in Victoria, New South Wales and Western Australia. It has been claimed that requiring shoppers to purchase their own heavier weight reusable bags will be an unfair imposition on the poor who will find this more difficult than do those on higher incomes.

When California banned single-use plastic bags in 2016 Industry groups such as Hilex Poly and Formosa Plastics criticised the ban as an unnecessary tax on low-income shoppers that, they claimed, would have little impact on reducing overall pollution.

It has further been suggested that banning plastic bags will hit those on low incomes harder because they are the group least likely to own a car and therefore the group most likely to have to carry their groceries some distance. The need to carry groceries makes it more important that the lowly paid have access to cheap or no-cost carry bags.

The United States Stop the Bag Ban lobby group has stated, 'Let's face it, any time an ordinance forces people to spend more money on something, it affects the poor in a more significant manner. But aside from just the cost to go out and purchase a large number of "reusable" bags, the fact is that the poor are more reliant on the convenience of plastic bags than anyone. They take public transportation or walk in much greater numbers. They shop at smaller stores, and buy a few items more often. Are they expected to walk around with handfuls of reusable bags all the time?

The proponents always try to portray someone putting a bunch of bags in their car (oh yea, we meant Prius...) and driving down to Safeway and buying \$100 worth of pre-planned groceries. They don't think about the poor person on public transportation, or walking on the street picking up a few items at the store on their way home. The poor are the most affected by bag bans.'

It is also noted that the poor are more likely to make use of supposedly 'single-use' supermarket bags for other purposes - to wrap household garbage, to scoop up pet droppings, as lunch bags, storage bags, toiletry bags and to carry small amounts of clothing.

It has been claimed that those on low wages will now have to buy purpose-specific plastic bags and other carry bags where currently they are able to use no-cost plastic bags supplied to them when they shop.

3. The extent of the pollution problem posed by single-use plastic bags has been exaggerated

Defenders of single-use plastic bags claim that these carry bags contribute relatively little to the overall pollution problem.

On February 27, 2017, Facility Management Magazine published a comment by Tiffany Paczek which stated, 'Australians use an estimated five billion single-use plastic bags per year. This sounds like a lot but this represents only about 20,000 tonnes of plastic or 0.04 percent of the waste generated in Australia per year. If all of these plastic bags go

to landfill they represent just 0.1 percent of waste to landfill.'

The Keep Australia Beautiful Litter Index for 2013/14 similarly showed that plastic bags constituted a small amount of the litter collected. The Index report stated, 'Australia wide, lightweight plastic shopping bags make up around 1.6% of litter based on the number of items.'

These two sets of figures suggest that, based on both total weight and numbers of items, plastic bags make a small contribution to Australia's total litter problem.

A similar situation has been claimed to exist in Canada where the pro bag lobby group All About Bags has stated, 'The 2011 City of Toronto Waste Audit confirms that plastic shopping bags are only a tiny fraction 0.6% of Toronto's total solid waste stream. This compares to glass at 7%, and paper at 9%.'

It has been argued that claims made about plastic bags blocking drains and waterways are generally an exaggeration. Referring to the United States situation, one United States pro plastic bag lobby group, Stop the Bag Ban, has noted, 'What plastic bag ban proponents do not tell you is that storm drain catch basins are maintained on a regular basis where all trash is removed from catch basins and trash excluder devices and properly disposed of in the landfill.'

It has also been claimed that plastic bags do not constitute a major problem in landfill. In an opinion piece published by the lobby group Fight the Plastic Bag Ban, Anthony van Leeuwen stated, 'Proponents of plastic bag bans claim that plastic carryout bags take up space in landfills. Plastic carryout bags used as trash bags or to dispose of litter take up less space than traditional plastic garbage bags. Plastic carryout bags that are empty should have been recycled rather than discarded in the landfill.'

Also, paper bags and reusable bags take up more space and landfill volumes than the plastic bags they replace and by a factor of more than 4...'

A similar point has been made by the Canadian pro bag lobby group, All About Bags, which has stated, 'Because they are so lightweight, plastic bags represent a very small fraction of landfill-less than 1% (by weight and when compacted, they occupy very little landfill space).'

4. Banning plastic bags will do little to preserve the marine environment

Many of the claims made about the impact of plastic bags on marine life and birdlife inhabiting oceans and waterways have been disputed.

It has been claimed that many of the assertions made about the impact of plastic bags on marine life and birdlife are exaggerated. Pro bag lobbies frequently cite the Ocean Conservancy 2010 Report. This report does not claim to present a total picture of wildlife deaths through plastic entanglement; however, it does claim to be the world's largest survey of the problem and to offer a representative snapshot of what is occurring.

The Report states a total of 336 wildlife animals were found entangled in Marine Debris worldwide in 2010. Out of these 336 entangled animals, 49 or 14.6% were entangled by plastic bags including 6 amphibians, 19 birds, 11 fish, 6 invertebrates, 6 mammals, and 1 reptile.

According to the Report's summary of its findings, the volunteers who conduct the survey found 138 birds, entangled in marine debris (that is, waste associated with shipping or fishing). Fishing line and nets were some of the most dangerous items, trapping over 200 animals. Thus, defenders of plastic bags argue that these carriers' impact on marine wildlife is minor relative to that of other waste products.

A similar point was made in a comment and analysis written by Matthew Franklin and published in The Australian noted, 'Questions have ...emerged over the accuracy of a claim in a report carried out for the Australian Government in 2002 which said plastic bags were responsible for the deaths of 100,000 animals a year.'

The report, later amended but widely quoted by environmentalists, actually attributed the deaths to all plastic debris, including fishing nets and equipment.'

The 2008 Australian newspaper comment and analysis stated, 'The claim that the bags kill more than 100,000 marine mammals every year is based on a misinterpretation of a 1987 Canadian study in Newfoundland, which found that, between 1981 and 1984, more than 100,000 animals were killed by discarded nets. The Canadian study did not mention plastic bags.'

However, in 2002, a report prepared for the Australian Government by Nolan-ITU in association with the RMIT Centre for Design and Eunomia Research and Consulting Ltd said the Newfoundland study attributed the deaths to "plastic bags".'

A number of environmentalists have been quoted suggesting that plastic bags are not a significant cause of the problem. The Times newspaper in Britain has cited scientists, including David Santillo, a senior biologist with Greenpeace, as claiming that plastic bags pose only a minimal threat to most marine species, including seals, whales, dolphins and seabirds.

David Santillo, has stated, 'It's very unlikely that many animals are killed by plastic bags. The evidence shows just the opposite. We are not going to solve the problem of waste by focusing on plastic bags. With larger mammals it's fishing gear that's the big problem. On a global basis plastic bags aren't an issue.'

A 1997 study titled 'Impacts of Marine Debris: Entanglement of Marine Life in Marine Debris Including a Comprehensive List of Species with Entanglement and Ingestion Records' conducted by David Laist of the Marine Mammal Commission, Bethesda, concluded, 'Plastic bags did not figure in the majority of cases where animals died from marine debris.'

Laist has further stated, 'The main culprits are fishing gear, ropes, lines and strapping bands. Most mammals are too big to get caught up in a plastic bag.'

5. Banning single-use plastic bags could lead to an increased rate of global warming

It has been claimed that the environmental advantages reusable carry bags are said to have over single-use bags are a

distortion of the full situation. Critics claim that the alternatives offered to replace lightweight plastic bags will actually worsen global warming.

A review conducted for the UK Government's Environmental Agency titled 'Life cycle assessment of supermarket carrier bags: a review of the bags available in 2006' concluded that the resources used in the bags' manufacture constituted its largest environmental impact and that this was true for all types of carry bag, single use and reusable. The environmental impact being considered here was primarily impact on global warming.

The review found that the lightweight single-use plastic bag required the least resources to produce. It concluded 'The conventional HDPE [lightweight, single-use, plastic] bag had the lowest environmental impacts of the lightweight bags in eight of the nine impact categories [considered]. The bag performed well because it was the lightest bag considered. The lifecycle impact of the bag was dictated by raw material extraction and bag production, with the use of Chinese grid electricity significantly affecting the acidification and ecotoxicity of the bag.'

Each of the alternative types of carry bag reviewed had to be used numerous times before its impact fell to that of the lightweight, single-use, plastic bag. The comparative figures were:

A paper bag had to be used three times before its global warming potential fell to that of a single-use lightweight plastic bag.

A bag made from low-density polyethylene had to be used four times before its global warming potential fell to that of a single-use lightweight plastic bag.

A heavier more durable bag, often with stiffening inserts made from non woven polypropylene had to be used 11 times before its global warming potential fell to that of a single-use lightweight plastic bag.

A cotton carry bag had to be used 131 times before its global warming potential fell to that of a single-use lightweight plastic bag.

Regarding cotton bags, The World Wildlife Fund has reported that while only 2.4 percent of the world's cropland is planted with cotton, it accounts for 24 percent of the global market for insecticides and 11 percent for pesticides. Cotton also has very high water demands.

It has further been claimed that reusable bags become even more environmentally questionable when the impact of washing them regularly is factored in.

It has been noted that frequent washing will reduce the number of times bags can be reused. As the reusable bags have to be used many times before their resource impact per use equals that of single use bags, regular washing may make them even less environmentally sound.

Professor Jonathan Klick of the University of Pennsylvania has stated, 'Reusable bags take so many more energy resources to make in the first place that to be environmentally effective they need to be used somewhere between 120 and 170 times. It turns out that if you end up washing your bags every time you use them, there's no way they're going to last for 120 uses.' It has also been noted that frequent washing of reusable plastic bags adds to the resources drain associated with their use.

Further implications

The debate around lightweight, single-use plastic bags is strongly contested. Some questions of fact are in dispute, but the larger issue appears to be one of focus, that is, which environmental issue is to be considered more important.

Opponents of lightweight plastic bags note the harm they cause marine life; supporters of these plastic bags stress that their carbon footprint is relatively small and that alternative bags are likely to have a greater effect on global warming.

In part the question is one of heightening public awareness. Banning plastic bags is seen by some as an element in educating a population about the environmental impacts of human actions.

In an opinion piece published in the Australian Humanities Review on May 1, 2009, Guy Hawkins stated, 'Campaigns to eliminate plastic bags have become a common fixture in countries where environmentalism is highly organised.

Sometimes run by governments, sometimes by green or activist organizations, these campaigns focus on reducing plastic bag use by urging consumers to choose more sustainable alternatives.'

Hawkins further explained, 'Using a range of scientific information about environmental impacts Say No campaigns frame plastic bags as hazardous. And, in the same moment, they invite shoppers to engage in self-scrutiny and reflect on their everyday conducts around them.'

Hawkins argues that such campaigns are intended to be important not only in their own right but as part of an attempt to alter how consumers think about their connection to the natural world. He explains that banning plastic bags is an attempt to 'extend the ethical imagination of the shopper... reveal 'disposability' as a myth, and establish a network of connections and obligations between ordinary habits and...nature.'

However, what the plastic bag debate reveals is that the issue is a complex one. Banning lightweight plastic bags will have valuable consequences in reducing plastic waste in the world's oceans and waterways, but it will not solve the problem. Plastic finds its way into marine environments in a myriad of forms and from a wide range of sources.

Banning plastic bags may also reduce their occurrence in the landfills; however, it will not solve the problem of how to reduce and better dispose of the vast quantities of waste that human populations produce.

Greenpeace biologist, David Santillo, has said of the part played by plastic bag bans in the total debate surrounding the impact of plastic on the world's oceans, 'We are not going to solve the problems caused by plastic wastes by focussing on plastic bags alone, but dealing with plastic bags would be a small step in the right direction.

Plastic bags are one of those wasteful uses of plastics which understandably come immediately to mind for most people when they think about the problems of plastic wastes, even if bags are not primarily responsible for killing seals or seabirds. So while efforts to tackle plastic bags are not going to solve the global problems of plastic waste, they can start

people thinking about the wider problems caused by plastic wastes in the oceans and on land, which result from our careless and wasteful use of plastics as materials.'

There is real concern that all banning lightweight plastic bags may do is change the weight of the plastic bag being dumped. What a number of jurisdictions that have banned lightweight plastic bags have found is that people simply use heavier bags.

The plastic bag debate needs to heighten popular awareness of the whole question of excessive consumption, short-term usage and the disposal and recycling of plastics in particular, but of waste in general.

Newspaper items used in the compilation of this issue outline

*This outline's sources, including newspaper items, are to be found in the **Internet Information / Web Links and Documents** section.*