

**Questions on coastal fish farm trash disposal
for meeting with AVA on 7 Mar (Fri) 2014 4.30pm**

What is the issue?

The government should look into providing daily door-to-door trash collection for all coastal fish farms. With this step, possibly 250 tonnes of industrial fish farm trash (or more) will no longer be dumped into our waters every year.

Daily door-to-door trash collection is now provided to all Singapore households and businesses, and [by the Marine and Port Authority \(MPA\) to all ships](#) parked in Singapore waters, about 300 ships per day. The only major exception appears to be the 119 coastal fish farms licenced by the the Agri-food and Veterinary Authority (AVA) (as at Aug 2013), with each farm required to produce at least 17 tonnes of fish a year.

Most of the 'approved waste containers' AVA said is provided for coastal fish farms do not seem to exist. [The Changi Creek skid tank](#) appeared for only a few days (11-16 Feb, 19 Feb) and has since disappeared. Without a way to easily dispose trash responsibly, hundreds of tonnes of industrial fish farm trash may have been dumped annually, and this has possibly been going on since the fish farm system was started in the 1970s.

Just because the cost of trash disposal is not paid doesn't mean fish farm trash doesn't incur a cost. Large amounts of government funds are used to clean up recreational beaches, while uncollected trash reduce water quality and impact the people and businesses using the water, including fish raised in the water. More government-funded programmes are in turn set up to deal with such impacts.

It seems more sensible for the government to simply provide daily door-to-door trash collection for all coastal fish farms.

Proposed agenda for the meeting

- (A) Understanding more about AVA's current coastal fish farm trash disposal processes
 - (A.1) Eastern coastal fish farms
 - (A.2) Western coastal fish farms
 - (A.1) Southern coastal fish farms
 - (A.4) General waste disposal support for all fish farms
- (B) Understanding more about AVA's current enforcement of anti-littering at coastal fish farms
- (C) Exploring the possibility of daily door-to-door trash collection for all coastal fish farms:
Eastern, Western, Southern

(D) Can AVA and related agencies take a “whole of government” approach to this issue?

=====To be updated live (if all goes well)=====

In attendance

Dr Wong Hon Mun, Group Director, Agri Establishment Regulation

Dr Anna Wong, Deputy Director, Surveillance and Inspection Department (Animal Section), Agri Establishment Regulation Group

Ms Michelle

Mr Poh Yew Kwang, Ag Director, Licensing Department, Agri Establishment Regulation Group

Mr Wong Tuan Wah, Director Conservation Division, National Parks Board

Preambles

Dr Wong started with background on what AVA is doing with fish farm waste disposal.

Currently in the East there is no designated fish waste disposal point. Because there is no exclusive area for a jetty.

Lor Halus jetty will be ready in May or June 2014. There will be a bin centre. Next step redevelop Lim Chu Kang with bin centre.

Eastern fish farmers have their own arrangements for waste disposal. Some of them do it at Punggol Marina. Some of them dispose at Punggol Jetty.

This is indeed what AVA said to [my first email to them](#). I did a [ground-truthing report](#) about this and sent it to AVA in Sep 2013. Dr Anna then sent AVA officers to Punggol Marina for a week. At the Marina, one or two farmers will leave their trash at Pier 5 at the jetty. Someone from the Marina will take it and throw it away for them. This probably happens every day as the fish farm owners bring back their daily rubbish to the mainland when they go home.

Punggol Jetty: AVA did not seem to know that the bulk bins (large rectangular green plastic bins) there were locked and paid for by Outward Bound Singapore. Dr Anna says the fish farmers use the small public bins provided by NParks at Punggol Park.

Dr Wong says fish farm everyday trash includes food containers, plastic bags for these food containers, feed meal bags, occasionally dead fish.

(A) Understanding more about AVA’s current coastal fish farm trash disposal processes

Background

From questions submitted to AVA by Ria Tan in [Nov/Dec 2013](#) following [AVA's Parliamentary reply](#) to NMP Faizah Jamal's question raised on 11 Nov 2013.

1. “Under AVA’s fish licence, fish farmers have to comply with the licensing condition to properly dispose the waste generated from their operations. Waste collection points are

available at the Lim Chu Kang jetty and at Changi Creek in the western and eastern straits respectively. Farmers can also send their trash to Senoko Fishery Port.”

1(a) Exactly where is the Changi Creek waste collection point located? For clarity, you may wish to provide the Google Earth latitude-longitude coordinates of the Changi Creek waste collection point.

1(b) What kind of waste container(s) are provided for fish farmers at the Changi Creek waste collection point? What are the dimension of these container(s)?

NMP Faizah Jamal’s [Parliament Question on 18 Feb 2014](#): “immediately after the Parliamentary Question (PQ) response that I received in November, I checked at Changi Creek and I found there were no skids there at all. Up until only when the fish deaths happened that a skid was actually provided. And even then, it disappeared yesterday – it is no longer there. So my question is: how was the fish trash disposed of previously from the eastern shores and what happened to the disposal now with the fish deaths?”

The reply by MOS MND Dr Mohamad Maliki Bin Osman was: “On the skid at Changi Creek, we will ask AVA to investigate on what happened. If the Member’s observation is right, we have to find out exactly who is responsible for that.”

In his reply to Ms Faizah’s supplementary questions, MOS Dr Maliki also said: “The Western and Southern they have the Lim Chu Kang jetty that has facilitated a more controlled fish waste disposal system. They dispose the waste at the jetty and there is a central disposal system available there. And the Eastern farms we don’t have a system at this point in time.”

Earlier, MOS Dr Maliki also said: “With the new AVA jetty at Lorong Halus ready later this year, the eastern fish farmers can bring their farm waste to the waste collection centre at the jetty to help facilitate proper waste disposal. This is similar to the arrangement for the western fish farmers who use the waste disposal services at the Lim Chu Kang jetty.”

(A.1) Eastern coastal fish farms

A.1.1: How many Eastern coastal fish farms are there?

64

A.1.2: What are the outcomes of AVA’s investigations as mentioned by the Minister on the skid tank at Changi Creek following Ms Faizah’s Parliamentary query on 18 Feb 2014?

After Feb mass fish deaths, AVA activated Changi Creek skid tank for farmers to throw dead fish. 11-16 Feb, and one day on 19 Feb because one farm reported fish kill. The skid tank is not a permanent feature for Eastern farmers.

A.1.3: Besides the period of 11-16 Feb 2014 and the single day 19 Feb, has there ever been a

skid tank at Changi Creek?

No, never.

A.1.4: If yes, exactly where is the Changi Creek waste collection point located?

A.1.5: If yes, what kind of waste container(s) are provided for fish farmers at the Changi Creek waste collection point? What are the dimension of these container(s)?

A.1.6: If yes, how much waste was collected from the Changi Creek waste collection point in 2012?

A.1.7: If no, what are the reasons why a skid tank is not provided for Eastern fish farmers when one is provided for Western fish farmers?

There is no designated jetty site for the Eastern fish farmers.

A.1.8: If no and AVA mentions the new AVA jetty at Lorong Halus; How are Eastern fish farmers expected to dispose of fish farm trash responsibly between now and when the new Lorong Halus jetty is ready later this year?

They will throw into public bins at Changi Creek (I was shown photo of small trash bins that are normally provided at parks).

A.1.9: When the new AVA jetty at Lorong Halus is up, exactly how does AVA intend to monitor the use of waste collection centre there by the Eastern fish farms?

Jetty will allow fish farmers to moor, they will then throw into the bin. AVA can't stop them if they decide to throw at Changi Creek. Farmers will have to pay to use the jetty, AVA has not decided how much this will be.

A.1.10: Exactly how have Eastern fish farmers been collecting and disposing of trash all this time?

As at A.1.8

Additional comments

(A.2) Western coastal fish farms

A.2.1: How many Western coastal fish farms are there?

41

A.2.2: What does the waste collection centre at the Lim Chu Kang jetty comprise of?

A skid tank and 2 bulk bins (large rectangular green plastic bins)

A.2.2: Exactly how have Western fish farmers been collecting and disposing of trash at the the waste collection centre at Lim Chu Kang jetty all this time?

Farmers collect and bring to the skid tank. Each on their own (there isn't a system to collect from the farms and bring back to the mainland). Owners will go back to the mainland every day.

A.2.3: Exactly how does AVA monitor the use of the waste collection centre at Lim Chu Kang jetty by the Western fish farms?

AVA does keep tabs.

A.2.4: What is the cost per month of the waste collection centre at the Lim Chu Kang jetty?

As at A.2.5. multiply by farmlots (which AVA didn't provide, even later on).

A.2.5: What is the cost per month to Western fish farmers for collecting and disposing of trash at the waste collection centre at Lim Chu Kang jetty?

Farmers pay \$57.50 for waste disposal per month per farmlot 5,000m². They pay for jetty TOL - do not have the figures. Will let me know later, this is charged by SLA.

Additional comments

AVA said other people use the skid tank that's why it looks so full, e.g., people using jetty on weekends.

(A.3) Southern coastal fish farms

A.3.1: How many Southern coastal fish farms are there? And where are these located exactly?

Two fish farms: One on Semakau Landfill, one off Pulau Semakau's southern end.

The floating farm between Lazarus Island and St John's Island is AVA's R&D experimental farm. I told AVA about the many times I have seen large equipment from this farm dumped on seagrasses at Lazarus or jammed into old rare trees growing on the coast. Here's [a blog post](#)

[of one such encounter.](#)

A.3.2: MOS Maliki said in Parliament on 18 Feb 2014 that the Southern coastal fish farms are required to use the Lim Chu Kang jetty for trash disposal? Do they actually do so?

No. It was a miscommunication.

A.3.3: Exactly how have Southern fish farmers been collecting and disposing of trash all this time?

They use NEA's disposal system on the Landfill.

A.3.3: What is the cost per month to Southern fish farmers for collecting and disposing of trash?

No payment.

Additional comments

(A.4) General waste disposal support for all fish farms

A.4.1: For mass fish death incidents, what is the standard operating procedure that AVA has worked out for proper disposal of dead fishes? Does this SOP apply to all fish farms: West, East, South?

The SOP only during an emergency: Activation of skid tank, salvage vessel by a private operator goes around to the fish farms to collect the dead fishes. AVA pays for it.

When I mentioned the video clip of a farmer burying dead fish on the shore, Dr Anna said that farmer was prosecuted.

A.4.2: Does this SOP apply to all fish farms: West, East, South?

Yes.

A.4.3: How does AVA oversee or help fish farmers dispose of large and bulky items, such as disused fish farm platforms, blue drums, furniture, refrigerators, TVs?

Dr Anna referred to the meeting with other volunteers which discussed claims that fish farmers are throwing their bulky items. She said it was the volunteers who suggested an inventory of movable items, and AVA has started doing this. AVA started marking large items, now improved from spray painting to using a stencil.

Dr Wong said the "army of volunteers" can then monitor the shores and report the markings

on large items found ashore. I reiterated my points in box below and suggested that this forensics approach is not likely to deter dumping. AVA didn't respond to these points.

Dr Wong said that as part of the Lorong Halus jetty, there will be a concrete platform. Farms can bring bulky items to the platform, where the farms can hire a crane lorry to dispose of large trash properly.

I suggested AVA should seriously look into incentivising responsible disposal of bulky items. Just like the way Town Councils provide free disposal of a limited number of bulky items so people do not dump these. AVA agreed to consider it.

If AVA refers to their action in Jan 2014 to spray paint "items that tend to fall in the sea" including "container drums, sofas, television sets and refrigerators" as in this [media report](#):



I will give these comments -

- The spray painted figures are non-standard (anyone can make vaguely similar markings on any object)
- The spray painted figures can be obliterated or changed, deliberately or naturally by the elements.
- For this to have the slightest deterrent effect, AVA will need to regularly police the long shorelines near the farms, and find and conduct forensic effort on fish farm trash found there.
- Wouldn't it be less costly and more effective to provide daily door-to-door trash collection to fish farmers, including a service to collect and responsibly dispose of large trash?

Additional comments

AVA briefly mentioned trash from ships, and I reiterated the points (listed in full below) that vessels, even large ones, are generally manned by a small crew and mostly probably produce domestic household-type waste in much smaller quantities. MPA has [publicly shared](#) data and the processes in its trash collection and marine debris cleanup programmes. I urged AVA to

do likewise.

**(B) Understanding more about
AVA's current enforcement of anti-littering at coastal fish farms**

Background

From questions submitted to AVA by Ria Tan in [Nov/Dec 2013](#) following [AVA's Parliamentary reply](#) to NMP Faizah Jamal's question raised on 11 Nov 2013.

3. "AVA carries out routine inspections including night raids to monitor the fish farms and will take enforcement actions against farms caught illegally dumping their trash into the waters or on Pulau Ubin."

3(a) What is the frequency of AVA routine inspections to monitor the fish farms?

3(b) Is every fish farm included in these routine inspections? Including the Western coastal fish farms? And coastal fish farms in the Singapore Straits in Southern Singapore?

Questions 3(a) to (b) also asked by NMP Faizah Jamal [in Parliament on 18 Feb 2014](#). Reply by MOS MND Dr Mohamad Maliki Bin Osman: "AVA carries out quarterly inspections and ad-hoc night raids on all fish farms, including those in the southern and western coastal areas, to check for compliance with its licensing conditions. During the inspections, AVA officers will check that farmers use proper waste disposal methods. In addition, night raids deter farmers from illegally towing fish farm trash to the shore under the cover of darkness."

B.1: What does AVA consider "proper waste disposal methods"?

There are bins for trash on the farm. No trash lying around that can fly off into the sea.

B.2: Does AVA consider open burning of trash a "proper waste disposal method"?

Missed asking this question, oops.

B.3: Does AVA also monitor and enforce proper storage of items? For example, from the shore we can easily see farms with items such as plastic bags, styrofoam, drums placed close to the edge of platforms where they could easily fall into the water.

Yes. This is part of the farmers' duty to "maintain the farm in a good condition".

B.4: How often have these night raids been conducted?

Also every quarter.

B.5: In how many of these night raids have AVA found "farmers illegally towing fish farm trash to the shore under the cover of darkness."?

AVA did not respond to the question on illegally towing but said they do discover people illegally on the farm for fishing. "At night, all the hanky panky happens, e.g., kelong party."

Additional comments

Once there was a platform that sank. It was reported to AVA by other fish farmers.

I later shared that I had heard rumours but cannot confirm, that fish farms buy expired instant noodles from Malaysia cheaply to feed their fishes. This is why among the litter washing up on our shores, there are a large number of empty Malaysian noodle packets. Dr Anna said she will look into this.

(C) Exploring the possibility of daily door-to-door trash collection for all coastal fish farms: Eastern, Western, Southern

Background

From questions submitted to AVA by Ria Tan in [Nov/Dec 2013](#) following [AVA's Parliamentary reply](#) to NMP Faizah Jamal's question raised on 11 Nov 2013.

2. "AVA had explored the feasibility of door-to-door waste collection services for fish farmers, but the costs were found to be too high for the farmers."

2(a) What are the quantum of "the costs" determined by AVA's feasibility study?

2(b) When was this feasibility study done?

2(c) At the time of the feasibility study, how many AVA licenced fish farms were there?

Questions 2(a) to (c) also asked by NMP Faizah Jamal [in Parliament on 18 Feb 2014](#). Reply by MOS MND Dr Mohamad Maliki Bin Osman: "In October 2013, AVA explored if door-to-door waste collection services could be provided for fish farm sited in the eastern Johor Straits. There were 60 licensed eastern fish farms at that time. AVA estimated that each fish farmer would have to pay \$160 per month for weekly door-to-door waste collection service."

C.1: How did AVA arrive at the cost of \$160 per month for weekly door-to-door waste collection service?

Quote from one company.

C.2: Did AVA do an ITQ to get quotes of what the market will charge for daily door-to-door waste collection from coastal fish farms?

No. Will consider it.

C.3: What does AVA consider to be a cost low enough for farmers to pay for daily door-to-door waste collection?

No final response.

C.4: Did AVA consult the farmers on what they were willing to pay for daily door-to-door waste collection?

Yes. Did not respond when I asked how much this was.

C.5: Would AVA think it fair for coastal fish farmers to pay at least the same rate as other farmers on land for daily door-to-door waste collection?

Yes.

C.6: How does \$160 per month compare with the cost of providing daily door-to-door waste collection for all ships parked in Singapore Port?

Background: From “Facilities for the collection of garbage from ships in Singapore” Port Marine Notice No. [06 of 2009](#) dated 21 Apr 09: Cost of garbage disposal per trip

(i) \$900 per bin (Size of bin = 4.4m x 2.4m x 1.5m) or part thereof

(ii) \$1,200 per 2 bins or part thereof

AVA was not aware of this information about MPA costs (which are available online).

C.7: In the same way that daily door-to-door waste collection for all ships parked in Singapore Port is factored into port dues, can the same service be factored into AVA’s coastal fish farm licence fees?

Background: Fees payable for Coastal/Sea farms from [AVA website](#)

- Fish culture farm licence S\$850.00 per lot of 5,000m² per annum.
- A security deposit of \$5,000/ for each 5,000 m² or part thereof of fish culture farm should be made payable to the Authority on issuing the licence
- Fishing Vessels servicing the fish culture farm and kelong licence S\$66.00 per annum.
- Identification card for farm workers is \$2.50 per person.

AVA seemed to find this idea interesting.

C.8: How much does a fish farmer typically pay in total licence fees to AVA?

No final response.

C.9: How much does a fish farmer typically pay in security deposit to AVA?

No final response.

C.10: What is the current m² of fish culture farm licenced by AVA?

No final response.

C.11: What does the current farm licence of “S\$850.00 per lot of 5,000m² per annum” pay for?

Use of sea space. Rental to AVA. What services do the farmers get in return for this annual licence fee: technical services, evaluation, disease diagnosis, food safety.

I suggested that trash collection could be absorbed under this licence fee and AVA seemed to find this idea interesting.

C.12: What does the current security deposit of “\$5,000/ for each 5,000 m² or part thereof” pay for?

Goes back to farmers when they give up their licences. Don't get it back when they don't clear their structures when they give up licence or are asked to shut down their farm.

Additional comments

(D) Can AVA and related agencies take a “whole of government” approach to this issue?

Background: Just because fish farms don't pay the cost of trash disposal doesn't mean the trash doesn't incur a cost. The National Environment Agency (NEA) is said to spend [\\$1.4 million a year](#) to clean up just the recreational beaches (as at 2010). The cost is not only measured in price but also in our health and other impacts.

D.1: Can NEA cross-subsidise the coastal fish farm trash disposal as this will reduce NEA's expenses from cleaning trash that washes up on the shores?

Will consider. I suggested a pilot study to see if trash load on the shore is reduced when daily door-to-door trash collection is provided, and AVA seemed to find the idea interesting.

D.2: Can the coastal fish farms be included in MPA's daily door-to-door waste collection for all ships parked in Singapore Port? Especially the Southern fish farms?

AVA says it will explore with MPA.

D.3: What can I and other members of the public do to help AVA and related agencies sit down together to work out a way to provide daily door-to-door trash collection for all coastal fish farmers: East, West and South?

AVA will explore directly with MPA and NEA.

I pointed out also that NParks has an inter-agency platform to coordinate environmental marine issues. Called the Integrated Coastal Management programme under the National Biodiversity Centre; more [here](#)

Additional comments

Members of the public can call the AVA hotline: 91908708 24hours if they spot

- Illegal dumping, good to have photo of the act including farm number, usually painted on the “house”, although AVA can generally identify most of the farms from photos.
- Illegal gathering more than 5 persons on a farm.

=====END OF QUESTIONS=====

Other background information

Do fish farms deliberately dump trash?

I have documented trash that are likely to come from fish farms, deliberately dumped or washed up on recreational beaches such as [Pasir Ris Park](#), as well as [tourist destinations](#) like Sungei Buloh Wetland Reserves, and nature areas such as [Pulau Ubin](#) and Lim Chu Kang.



I have come across many refrigerators, TV sets, large furniture, heavy gas canisters, large blue drums, and entire fish farm platforms on these shores. Most of these items are too heavy to ‘float’ to the shore and must have been deliberately dumped there. These shores are also littered with countless fish meal bags, plastic, styrofoam and other products that clearly originate from fish farms.

Others have documented large fish farm trash and fish farm platforms being dumped [BEHIND the security fence](#) on Pulau Ubin. This was recently [featured in the media](#).

How much trash would fish farms produce?

The following estimates are based on AVA's responses to [my first email to them](#).

AVA informed me that "Western coastal fish farms produce an average of 23 tonnes of farm waste monthly." Or 276 tonnes per year. I learnt from personal checks that some of the Western coastal fish farms had, on their own, organised a system of trash collection. Their combined collected trash was disposed at the mainland skid tank at Lim Chu Chang provided by AVA. The figures quoted by AVA probably refers to this. But this system does not cover all Western coastal fish farms. So the Western fish farms might actually produce more than 276 tonnes of trash per year.

AVA gave me no figures for the amount of trash produced by Eastern coastal fish farm. Assuming Eastern coastal fish farms produce the same amount of trash as Western farms, could 250 tonnes or more be dumped into the sea per year, simply because Eastern coastal fish farms are not provided a practical and reasonable way to responsibly dispose of their trash?

Is it costly to clean up fish farm trash?

Just because fish farms don't pay the cost of trash disposal doesn't mean the trash doesn't incur a cost. The National Environment Agency (NEA) is said to spend [\\$1.4m a year](#) to clean up just the recreational beaches (as at 2010). The cost is not only measured in price but also in our health and other impacts.

What are the potential health impacts of trash?

A constant inflow of large amounts of trash can only negatively impact water quality that affects people and businesses using the water, including fish raised in the water. The trash we see washed up on beaches may just be a small proportion of what eventually settles on the sea bottom and remains there until removed, as [this study](#) suggests. Trash in the water breaks up into smaller and smaller pieces (microlitter). [One study](#) found plastic makes up the majority of microlitter accumulating in the food chain. [Another study](#) found toxic concentrations of pollutants in animals that have eaten microplastic. I expect the health effects on humans who eat animals that live in such an environment can hardly be positive.

Low water quality seems to be a particular problem in the area where the Eastern fish farms are located. Pasir Ris beach failed NEA's water quality standards [in 2008](#) and the public was warned to avoid 'total immersion' there. The beach continued to fail every year [until 2012](#). Low oxygen levels in the water have already resulted in mass fish deaths with hundreds of dead, rotting farm fishes washing up at [Pasir Ris in Dec 2009](#) and [Lim Chu Kang and Sungei Buloh](#)

[Wetland Reserve in Jul 2013](#). Despite these publicly reported incidents, AVA told me no fish farms have been penalised for littering even though AVA's "conditions of licensing makes it an offence for fish farmer to illegally dispose waste into the waters."

Poor water quality raises fish farm costs

AVA [recently identified](#) that "disease outbreaks at the farms, especially in the coastal fish farms" is one of the three main challenges at fish farms. It also [highlighted how one fish farm](#) tapped on the third tranche of AVA's \$10million Food Fund "to purchase a water quality monitoring system that can monitor the dissolved oxygen levels in the fish nets and alert the farmer through SMS when low levels are detected."

In fact, AVA has committed large investments such as in the sophisticated Marine Aquaculture Centre to conduct R&D and the Republic Polytechnic Aquaculture Centre to attract talent into the industry. Why does AVA not make the relatively smaller investment in daily door-to-door trash collection to stop fish farm trash from affecting water quality?

Trash explosion in the years ahead?

Fish farm trash may grow exponentially. It was [recently outlined](#) that AVA wants 15% of fish to be produced locally, up from the current 6%. If not dealt with now, fish farm trash will only have more obvious impacts on the environment, with rising concomittant clean-up costs, as well as impacts on farmed fish quality that require amelioration via government programmes.

Not to mention transboundary effects in the narrow Johor Strait. Any impacts that spillover to Johor businesses and population would undermine Singapore's efforts to persuade neighbours to limit transboundary haze caused by companies that resort to the lowest cost agricultural methods.

Does fish farm trash on our shores come mostly from Malaysia?

It is often suggested that most of the trash that washes up on Singapore's shores comes from Malaysia. But a cursory look at Google Earth suggests that AVA licenced floating fish farms outnumber and outsize floating structures found in Malaysian waters. The image below is for the Western fish farms, the yellow line is the Malaysia-Singapore boundary.



This is even more so for the Eastern coastal fish farms around Pulau Ubin and Pasir Ris and Changi. When AVA licenced fish farms are clearly visible, floating structures in Malaysian waters (in red circles A and B) are not visible until an even larger view is obtained. Also, any fish farm trash that lands on southern Ubin shores and on Pasir Ris beach is more likely to have come from the nearby Singapore fish farms than from Malaysian structures that lie on the other side of Pulau Ubin. I also find it hard to believe that Malaysians would be allowed to freely enter Singapore waters to dump trash on Singapore land.



Trash from passing ships?

Another suggested source of trash is the [“many vessels plying the Straits of Johor”](#). I suspect fish farms produce industrial waste in large quantities as they are required by licence terms to produce at least 17 tonnes of fish a year. In comparison, vessels, even large ones, are generally manned by a small crew and mostly probably produce domestic household-type waste in much smaller quantities. MPA has [publicly shared](#) data and the processes in its trash collection and marine debris cleanup programmes. A comparison will require AVA to provide equivalent and complete data, which I am having trouble obtaining.

What is the Singapore Way of dealing with trash?

Even if some trash on our shores have origins outside of Singapore, I don’t understand how this absolves the Singapore government from providing fish farms with daily door-to-door trash collection. Particularly since these farms are licenced by the government and supported by government programmes. If every household, business and ship parked in Singapore waters is provided with and required to pay for such a service, what special circumstances exempt these fish farms?