

Ballast water exchange

Members of the Orkney Manifesto Group were disappointed at the outcome of the debate on ballast water exchange at the Policy and Resources Committee meeting on 25 September.

This has been a complex and long-running discussion - and it is still far from over. Essentially this is an issue about the conservation versus the commercial exploitation of Scapa Flow.

Orkney Harbours offers a ship-to-ship (STS) transshipment service to oil tankers in the sheltered waters of the Flow. Tankers about to receive a transfer of oil arrive at Scapa Flow in ballast. Currently they exit the harbour midway through the transfer operation in order to dump their ballast water. This incurs a cost penalty which renders the service offering less attractive than that of other ports which permit ballast discharge in situ, at the transshipment anchorage.

Orkney Islands Council is therefore looking for a method of operation which will allow tankers to discharge their ballast water directly into Scapa Flow. The risk associated with this procedure is the possible introduction into the Flow of invasive non-native species (INNS) which have been picked up in the ballast water elsewhere in the world. These could potentially disrupt the ecosystems of the Flow and adversely affect the character and use of Scapa Flow as a natural resource.

The options available are hedged about by various legislative restrictions. These include European conservation designations such as the Loch of Stenness Special Area of Conservation (SAC), the EU Water Framework Directive, and International Maritime Organisation (IMO) regulations covering ballast discharge – IMO D-1 and IMO D-2.

The issue has been further complicated by the fact that LPG (liquefied petroleum gas) tankers already discharge ballast water in the Flow. These operations were introduced well before the environmental protection legislation came into force. They arguably carry less risk than STS transfers since they are more tightly managed in terms of the allowed sources of ballast water carried and discharged. They operate in UK waters only and carry less risk of picking up INNS. The number of LPG tanker movements is also extremely low. However, they have now been brought into mandatory consideration along with the STS transfer operations. This potentially puts at risk the Flotta oil terminal gas operations.

The paper discussed at P&R on 25 September considered four options. These were:

1. Retain the status quo as far as possible
2. Require exchange of ballast water three times prior to entering the Flow (IMO D-1)
3. Require onboard sterilisation of ballast water following three times exchange prior to entering the Flow (IMO D-2)
4. Cease all ballast water discharge in Scapa Flow and around Orkney

For options 2 and 3 a zone is defined in open waters off Orkney where ballast water would be exchanged.

Option 2 includes special provision for LPG tankers, essentially carrying forward current practice. The handling of LPG tankers under option 3 has been left open thus far.

The option which is being recommended by OIC officials is option 2. A draft policy based on option 2 has been prepared. Because this policy may have an adverse impact on European protected marine species in Scapa Flow and on the Loch of Stenness Special Area of Conservation (SAC) it has been necessary for an "Appropriate Assessment" (AA) to be carried out. A commercial ecological agency, Intertek Metoc was commissioned by the OIC to carry out this study. The methodology used was primarily based on hydrographic modelling of tidal flows. As part of the legal process, the AA report was submitted to Scottish Natural Heritage (SNH) and the Scottish Environmental Protection Agency (SEPA) for advice.

This whole can of worms having been opened up, option 1, the status quo, can no longer be operated without it being subjected to a new Appropriate Assessment as soon as is practicable, followed by mandatory statutory advice from SNH and SEPA. The same is true of current LPG tanker operations. This applies whether these are considered within option 1 or 2, or indeed within any option in which it features, eg option 3.

We are advised by Scottish Natural Heritage (SNH) that option 2 for STS transfers would contravene The Conservation (Natural Habitats etc) Regulations 1994.

The Scottish Environmental Protection Agency (SEPA) further advises that option 2 contravenes the Water Framework Directive (2000/60/EC). For example, Article 4(1)(a) requires that deterioration in water body status is prevented to ensure that surface water bodies are in good ecological status by 2015. Scapa Flow is currently in "good ecological status" and Loch of Stenness is at "high status". This proposal could compromise their current status and therefore breach the WFD.

Option 3 would effectively impose a moratorium on ballast water discharge until after 2016, when treatment according to the D-2 standard will be mandated by the IMO, and before which time very few ships are likely to be equipped with the means to treat ballast water. Option 3 may also contravene the 1994 Regulations.

Option 4, a complete ban on ballast water discharge, as worded above, is obviously a non-starter, although some operations, specifically STS transfers could cease without legal consequences.

There are concerns with the exchange zone proposed for options 2 and 3: it is much closer to the coast than recommended by the IMO, near to Shetland, and not as deep as recommended. A defined exchange zone is the least preferred IMO option for exchanging ballast water, presumably because it concentrates discharged water into the same area.

The SNH legal case against the discharge of ballast water, even after exchange, argues from first principles and the scientific data that the risk is unquantifiable - while the potential impact of an adverse event is catastrophic. The crucial test is whether there is any reasonable scientific doubt as to there being no adverse impact on the marine life of the Flow or on the Loch of Stenness SAC.

We have concerns about the validity of the Intertek Metoc modelling work too. The methodology does not properly take into account the motility of most marine species or the

cumulative impact of multiple discharges of ballast water. The model boundary is also artificially delimited

The Policy and Resources Committee, meeting on 25 September, resolved to adopt the recommended option (2) as "...the preferred approach to the development of a new Marine Services Ballast Water Management Policy for Scapa Flow". It was also agreed that further work be done to "...finalise the Appropriate Assessment reports... including the commissioning of the additional work required to examine issues relating to LPG vessels in Scapa Flow, at an estimated cost of £90,000...". It was further agreed that the OIC should "put in place a Monitoring and Recording system to provide a long term mechanism for monitoring any issues which may arise..."

In other words, option 2 has not yet been confirmed as the final direction, but it has been given the inside track in terms of further work. In fact much of the work, especially on LPG tankers will also be relevant to evaluating the other options available. The work which does not relate to LPG tankers is directed towards making the Appropriate Assessment report for option 2 more robust in order to persuade SNH that there is no realistic scientific doubt as to there being no adverse effect on the Loch of Stenness SAC.

All of the statutory consultees and other bodies with a scientific knowledge and interest in protection of the environment are ranged against the proposal. This includes Scottish Natural Heritage (SNH), the Scottish Environmental Protection Agency (SEPA) and the Royal Society for the Protection of Birds (RSPB). Orkney Fisheries Association also has an obvious interest in protecting the Scapa Flow ecosystems and is against the proposal.

The position of the Orkney Manifesto Group is as follows:

The SNH legal case against option 2, based on the risk of adverse effect on the marine life of Scapa Flow and on the Loch of Stenness SAC, makes good scientific sense. Furthermore, it is unlikely that the Appropriate Assessment report for option 2 can be beefed up to defend against this case. Putting in place monitoring and a rapid response mechanism to deal with the appearance of invasive non-native species is unlikely to convince them that the risk can be mitigated by reactive means.

The legal case made by SNH is a small part of the overall ecological case. Much of the focus of SNH is on the Loch of Stenness because this is the body of water involved which has the highest level of environmental protection in European and Scots law. Since Stenness is a tidal loch there is a "hydrodynamic connection" with Scapa Flow.

The framework for protecting marine ecology is much less well-developed than that for terrestrial and avian ecology - a marine spatial framework is currently under development. Otherwise we might have areas of the Scapa Flow seabed and water column designated more clearly for protection. These are as much at risk from INNS as the Loch of Stenness, perhaps more so; hence the concern of Orkney Fisheries Association.

The risk of INNS being introduced is not quantifiable but it can be mitigated. However, the process of 95% water exchange three times (IMO D-1) does not meet the test of removing all reasonable scientific doubt, according to SNH.

The treatment regime stipulated by International Maritime Organisation D-2, proposed as option 3, almost certainly does not meet the legal test either since the standard it specifies is couched in terms of the number of organisms allowed to *survive* the treatment process.

When all is said and done on the environmental impact, the business case does not stack up anyway. The projected increase in STS business arising from the change in ballast water procedures (£500k per annum) may not materialise and will not, in any case, be sufficient to offset the losses currently being incurred by Orkney Towage (around £1.5 million per annum).

Pursuit of option 2 for STS transfers in the face of SNH advice is almost certainly going to end up with a messy and expensive judicial review. Ignoring their advice will lead to the proposal being called in by the Scottish Government and they will control the decision-making beyond that point.

We conclude that Orkney Harbours' ship-to-ship transfer service offering should be withdrawn with immediate effect.

The LPG tanker issue needs to be pursued separately. The risks are different, and the commercial impact of stopping LPG tanker operations is possibly more serious, although, as far we are aware, there have been only two LPG tanker movements since 1999 (in 2007 and 2010).

There is a real possibility, however, that the Appropriate Assessment now mandated for LPG operations will meet the same fate as the AA for STS transfers, although this is not a foregone conclusion, given the tighter ballast water management in place. At any rate, the possibility of LPG tankers being banned from discharging ballast water in the Flow needs to be considered and discussed with the Flotta terminal operator. A contingency plan is needed.

It may be thought that because Scapa Flow has so far apparently escaped INNS that there is no risk for the future. This would be a mistake for two reasons:

There may already be INNS in Scapa Flow. The level of biological survey activity is very rudimentary and is not targeted at detecting INNS.

This is a situation where the past is no indicator of the future. It is not good science to treat the historical run of events as a natural controlled experiment. The situation is too complex, chaotic and unpredictable to draw any conclusions about the future.

The fact is that INNS intrusions *have* occurred in UK waters. For example, the carpet sea squirt (*Didemnum vexillum*) was found in the UK in 2008. This species has spread extensively in New Zealand and the US. It smothers natural reefs and has caused huge losses for mussel farming.

The Chinese mitten crab (*Eriocheir sinensis*) is also present in UK waters. This is a predator which could devastate a wide range of native invertebrates and fish populations. It also causes erosion and water quality problems due to burrowing in banks. It has caused ecological and commercial damage in other parts of the world.

There is a phytoplankton alga which can cause symptoms in fish similar to those of amoebic gill disease. It produces a fatty acid toxin which stimulates mucus production in the gills and leads to suffocation. This alga, *Chattonella* cf. *verruculosa* is native to Japan. It is thought to have been spread by ballast water to Norway and Sweden where it has caused big losses on salmon fish farms.

Some potential invasive species are also a human health hazard. *Alexandrium catenella*, for example, is a dinoflagellate, a motile protist (unicellular animal) already present in UK waters. Dinocysts, their resting phase, have been found in ballast water sediment. This organism produces paralytic shellfish toxin. It poisons people who eat shellfish infected with the organism.

Orkney Manifesto Group
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