

STATES OF JERSEY HEALTH AND SOCIAL SERVICES DEPARTMENT
Health Protection Services – Public Health Department

Environment Scrutiny Panel – Review of the Marine Environment

The environment, and particularly the marine environment, is an important area of concern with respect to protecting the health of the public. Protecting the health of the public is also an area of concern with respect to protecting the environment. Environment and Health are opposite sides of the same circle with each interdependent and negatively affected by the other.

From a health perspective the immediate issues in the marine environment can be summarised as;

1. Bathing Water Quality – the sea is a recreational facility used extensively
2. Beach Quality – the beaches are recreational facilities used extensively
3. Aquaculture – the lower foreshore in certain areas is used for the commercial cultivation and harvesting of seafood some of which is eaten raw
4. Foraging for wild food – the beach contains a wealth of wild seafood which are harvested by locals
5. Chemical pollution of marine sediments

The single largest factor that is likely to impact on these areas is the discharge of Liquid Waste from human activity. Of secondary importance will be run-off from land particularly in areas of animal husbandry. In both instances it is the microbial loading of discharges which are of concern as they create the potential for infectious diseases in humans through direct and indirect routes. Discharges from sewerage works and industrial premises, also have the potential to pollute sediments and marine life with noxious chemicals if the treatment plant fails or is absent..

Bathing Water Quality

Monitoring of bathing water standards in line with EU standards is undertaken by the Water Resources Team at Environment over a 20 week period through the summer and results are sent to Health Protection. Generally standards for bathing beaches in Jersey are good but water quality is significantly affected by run-off from land particularly following periods of rainfall. The high rainfall levels during the last three summers has seen water quality standards in Jersey at a low. If there are concerns about the standard of water quality Public Health will take a decision with respect to warning and informing beach users and have in the past recommended closure of highly polluted beaches.

Beach Quality

Contrary to popular belief beaches are not clean environments, they are subject to fouling by flocks of birds, run-off from land often contains chemical and microbiological pollutants from animal and plant husbandry. They may be subject to flotsam and jetsum from ships and discharges to sea from both legal and illegal discharges from pipes. In the south east of the island there are still sewage discharges that take place during high

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rainfall events with the result that sewage and seaweed deposits get mixed on the beach creating risks to the public. Seaweed deposits are an attraction for flies which breed and disseminate affecting nearby residential premises and giving rise to nuisance. This summer has seen significant complaints about flies in several areas of the island with allegations that beach deposits have made the problem worse.

Aquaculture

The island has an aquaculture industry which is worth in excess of 4 million pounds per annum with the cultivation and harvesting of oysters and mussels. Products are both shipped abroad for restocking or growing on and also for direct retail sale to the final consumer. Oyster beds are graded to determine their health status for direct supply to the consumer, this is based on levels of E.coli in the flesh of the animal.

In the last few years, in similar circumstances to other parts of the UK, the industry has seen a decline in microbiological standards across beds to the extent that there is only one grade A bed left in Jersey that can support direct sales to the public. The industry are required to depurate all stock from grade B beds prior to being placed on the market, a process that adds time, double handling and considerably to the cost of the product. Standards for shellfish are set down internationally and are based around the level of E.coli in the product. Health Protection have advised Fisheries Division of Environment that no further new licenses for Shellfish concessions should be approved unless the application is supported by a land based depuration facility. This is because product could not be used for direct retail sale.

Recently there has been concern raised regarding the increasing levels of Norovirus in shellfish. Extensive research in the UK has revealed that oysters have been responsible for significant outbreaks of disease in consumers. Currently there are no standards for Norovirus in shellfish, investigations indicate that the depuration process based on E.coli is ineffective in reducing the risk. Norovirus contamination is directly associated with human liquid waste discharges. Jersey oysters have been found to contain Norovirus and at least one shipment off island has been refused entry to a Scandinavian country.

Foraging for Wild Shellfish

The South East coast of the island, particularly in the Bay of Grouville is a regular venue for low water fishermen who collect razor fish, clams and cockles to name a few species. Concerns exist for public health due to the fact that the beaches in this area have been subject to pollution and high microbiological loading and as mentioned earlier beaches are not clean areas and persons using the beach and collecting materials from the beach should exercise caution and maintain good handwashing practices. Wild harvested shellfish should be cooked before consumption and improperly cooked shellfish represents a risk to consumers from food poisoning.

Chemical Pollution of Sediments

In December 2008 the Health Protection Service became aware of a problem with locally harvested crab and crab meat. Italian authorities refused to permit the import of whole crab and crab meat which showed very elevated levels of cadmium, particularly in the brown meat (that within the main carapace). European Union standards are provided for cadmium levels in white meat(that within the legs) but not for the brown meat. Extensive

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investigation has revealed that elevated cadmium levels in brown meat, and to a small extent white meat, is a phenomenon affecting crabs on the western seaboard of Europe. Italian authorities have banned the import of whole crab and crab meat from the UK, Ireland, France and Spain as well as from the Channel Islands. Crabs in Guernsey and Jersey are caught often from the same area on the Atlantic fringes. The problem appears to be one of geology and terrain rather than pollution from industrial or commercial discharges as neither island has heavy industry and there are no large river discharges from the continental mainland. As stated earlier this is a widespread problem, Italian authorities have made an issue of this as they have indicated that brown meat is frequently used as a feed for the very young.

Officers from Health Protection have raised the matter with the Food Standards Agency in the UK who are the Channel Islands representatives in Europe. There have been high level discussions between European representatives but there does not appear to be any progress on resolving the issue. The likelihood is that the original work deliberately did not go for a brown meat standard as this would have harmed the industry as levels in brown meat are consistently higher than white meat.

Crab is a product that is not an everyday staple, it tends to be eaten perhaps weekly by those who favour it as a weekend treat. Discussions with the trade indicate that this is a delicacy rather than an everyday food. As a crude indicator of potential outcomes the Hospital Laboratory were contacted to determine if there have been instances of elevated heavy metals in samples they have analysed. All blood samples go to the Laboratory for testing on the island and although not all samples are tested for these, there are still a number. Checks back to June 1999 when the current database was commenced show that there has not been a single elevated level of cadmium during that time.

Islandwide Liquid Waste Strategy

The islands drainage infrastructure is old and the treatment plant at Bellozane is coming to the end of its life. The discharge from the plant at low tide conditions is on to the beach and is accessible to the public for a considerable time between tides. Although the effluent from the plant has a UV treatment process that reduces the level of microbial loading dramatically it still represents a risk, particularly if a failure of any aspect of the treatment process takes place.

Approximately 87% of the islands properties are on mains drainage, with the remainder either on private treatment plants, tight tanks or connected to the package plant at Bonne Nuit. Private plants are often subject to failure more often than not because ground conditions during wet periods/winter result in flooding of plants with ground water. When the mains drainage becomes inundated with surface water during periods of rainfall, and the sewerage system begins to back up, the island has a cavern in the rock formation under Fort Regent. This retains a proportion of the flow until conditions abate and the held sewage can be put back into the system and treated at Bellozane. No drainage system can deal with all likely conditions and the cavern has an overflow for periods when wet weather flows have exceeded the storage area. The diluted sewage is then directed straight to sea at the harbour. This has occurred on a number of occasions during the last few years.

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In addition to the cavern, on the east side of the island much of the sewage is pumped to reach Bellozane. Attached to many of the pumping stations are storage tanks to take excess flow during wet weather. Again the system is not designed to deal with all conditions and as a consequence when the storage is exceeded dilute sewage is piped to existing water courses or piped direct to the east coast beaches. In the last few years these occasions have occurred more regularly.

The excess discharges from the cavern and the east coast pumping stations are a concern due to the potential for impact on both the seawater quality at the east coast beaches and the effect on shellfish and aquaculture. The tidal flow around the island is anticlockwise and therefore discharges from the town area will be carried eastwards. Sewage is high in nutrient value and is therefore a good source of organic matter and good for shellfish growth, but it comes with the added disbenefit of high microbial loading. For several years the aquaculture industry has been concerned at the potential impacts on the industry from liquid waste discharges. In the early days the States paid the main operator to install a depuration plant but have not done so more recently, and quite rightly so. Sea water quality in the vicinity of beaches is impacted by land run-off as well as discharges from further afield. However, there is evidence that liquid waste discharges have had a negative impact on the beds, the presents of norovirus is an immediate indicator, as are the significant increase in E.coli which due to the extent and scale of the increase suggest a significant primary source.

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