

Bathing Water Quality – The role of the EPA

Bathing Water and Health
Programme for Joint Environmental Health Service And
Public Health Medicine Training Day
13th March 2019

Anthony Mannix, EPA

Overview

- Good quality bathing waters are a resource for recreational use and an important tourist attraction
- Assessment of bathing water quality is key for human health protection
- Assessment relates to Intestinal Enterococci and Escherichia coli (E.Coli) in Bathing Waters
 - These organisms can cause illness on their own but are generally used as indicators of faecal contamination and as surrogates for other pathogens

Overview

- Revised Bathing Water Directive was issued in 2006 (2006/7/EC)
- Bathing Water Regulations (SI 79 of 2008) transposed the Directive into Irish legislation amended by S.I. 351 of 2011
- Aims are:
 - Reducing risk to bathers from bacterial pollution and improving health protection through water quality standards
 - A more pro-active approach to assessing pollution risks and managing bathing waters
 - Promoting increased public involvement and improved communication of information on bathing water quality to the public.

2008 Bathing Water Regulations

Who does what?

Local Authorities:

- Identify of Bathing Waters
- Manage and monitor Bathing Waters.
- Implement of management measures to reduce or eliminate sources of pollution.
- Designate new Bathing Waters: representations can be made by the public

Environmental Protection Agency:

- Ensure that Local Authorities carry out their functions under the Regulations.
- Collate information on beaches and communicate to the public via twitter and www.beaches.ie
- Submit information on Bathing Waters to the European Commission.

EPA Guidance

Public advice on the identification of new bathing waters



July 2016

Abstract:

This document provides advice for the general public on submissions for the identification of new bathing waters.

A framework to assist Local Authorities in the assessment of submissions for the identification of new bathing waters.



July 2016

Abstract:

This document presents a framework to assist local authorities in their assessment of submissions for the identification of new bathing waters in accordance with the requirements of the Bathing Water Regulations (SI No. 79 of 2008) which transpose Directive 2006/7/EC.

In Ireland, Local authorities are the designated national bodies with responsibility for identification of bathing waters. They may choose to identify bathing waters without recourse to this document however it is recommended that the criteria outlined in this document are taken into account when considering submissions for new bathing waters received from the public.

www.beaches.ie



Tweets 1,672 Following 169 Followers 822 Likes 157 Lists 4 Moments 0

EPABeaches

@EPABeaches

News, incident alerts during season and information on protecting and enjoying our beaches. Most Tweets by Annmarie and Brigid. hello@beaches.ie

Wexford, Ireland.

beaches.ie

Joined March 2015

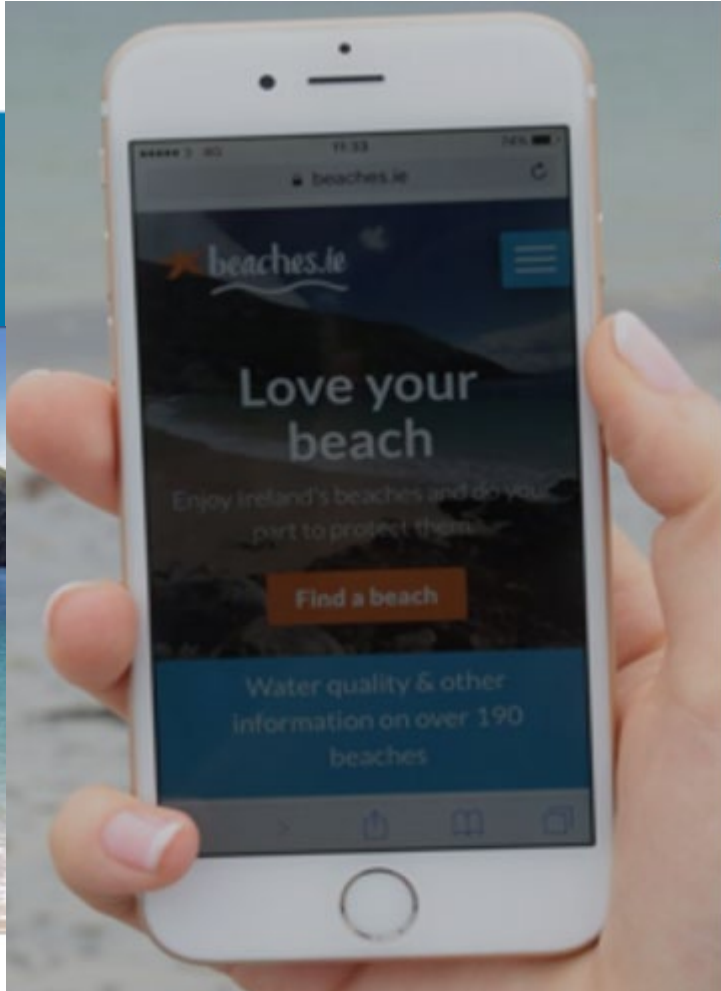
Tweets Tweets & replies Media

 **EPABeaches** @EPABeaches · Jun 3
Recent #BathingWaterIncident is over at #MerriStrand @DubCityC
beaches.ie/find-a-beach/#...

Show this thread

 **EPABeaches** @EPABeaches · Jun 3
Recent #BathingWaterIncident is over at #SandymountStrand @Dubl
beaches.ie/find-a-beach/#...



Reported Restrictions



Current Swim Restriction due to Possible Pollution

Date: 05/06/2018

Expected Duration: 2 Days

Restriction: Bathing is temporarily advised against

Risk of deterioration in water quality due to emergency sewage overflow (in the event of mechanical or electrical breakdown)

Download Notice

www.beaches.ie

Dublin Merrion Strand

GO

Filter

Results

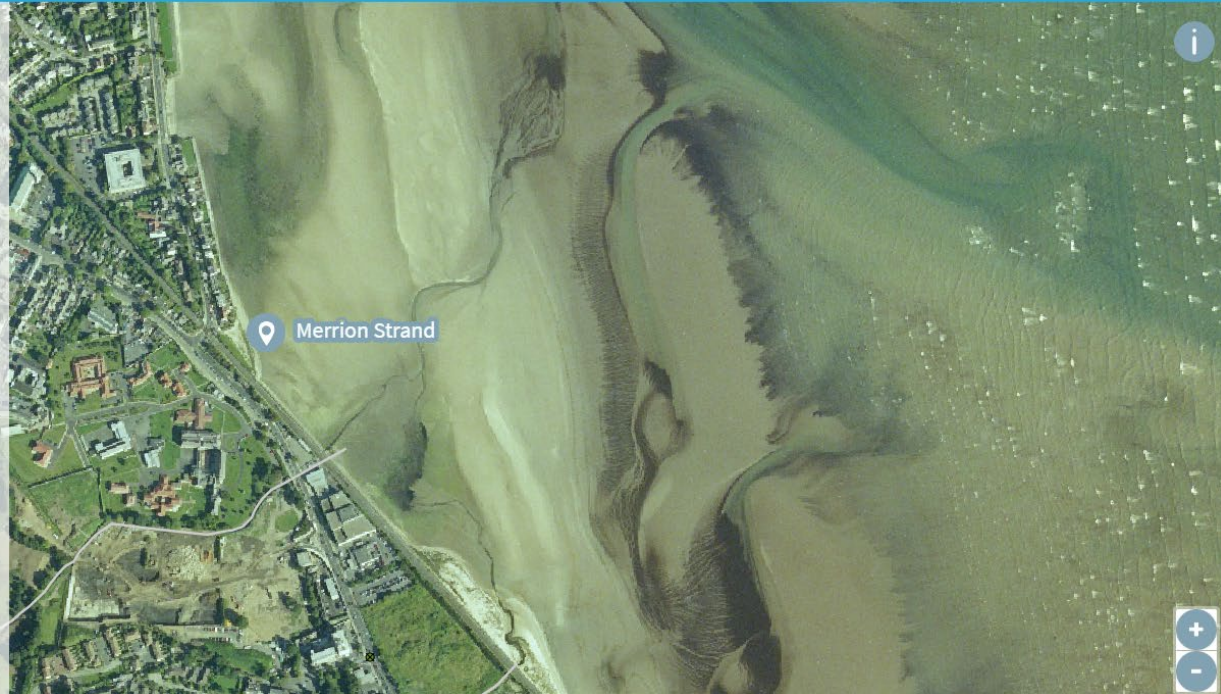


Merrion Strand

Dublin



Reported Restriction



www.beaches.ie



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Mayo Keem Beach, Achill Island

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Filter

Results

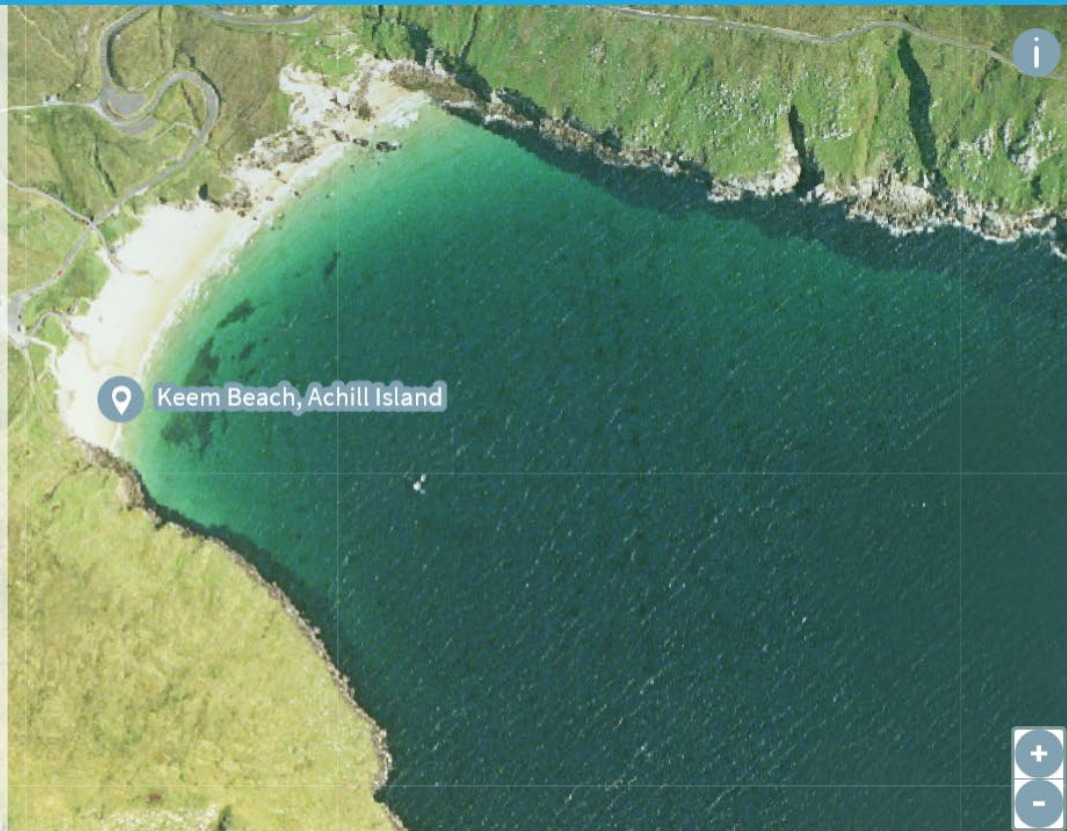


Keem Beach, Achill Island

Mayo



Excellent Quality



Find a Beach

Save to Favourites

Keem Beach, Achill Island

View Gallery

Map

Report Issue

Keem Beach, Achill Island

Mayo



Keem Beach is a sheltered sandy beach facing southeast with a steep gradient. Two freshwater streams flow into the sea from the surrounding land at Keem beach. Keem Beach has a variety of habitats including large shallow bays and inlets, reefs and mudflats and sandflats which support a variety of plant, animal and bird species. Keem Beach forms part of the Croaghan/Slievemore SAC and pNHA (Site Code 001955) and Achill Head SAC (Site Code 002268). Activities include swimming, surfing, sailing, canoeing, water skiing, jet skies, scuba-diving / snorkelling and fishing. The designated bathing area is approximately 300m in length and approximately 0.14km² in area. The medium and maximum water depth within the designated bathing water is 0.5m and 5.0m respectively depending on tides.

Weather



Met Éireann

7°C

MOD. DRIZZLE
12 km/h SW

View Three Day Forecast

Tides

No data

Lifeguard Information

[Click here](#) to view lifeguard information

Download Beach Profile

Awards & Amenities

- Blue Flag Award
- Lifeguarded Zone
- Lifebouy at beach
- First Aid
- Disability Access
- Toilets
- Parking
- Cars not allowed on beach
- Car free zone
- Dogs allowed on lead
- Natural Sensitive Area
- Beach Information board
- Litter Bin
- Recycling Facilities

Annual Water Quality Rating



Excellent

2018	2017	2016	2015
Excellent Quality	Excellent Quality	Excellent Quality	Excellent Quality

Keem Beach, Achill Island is classified as achieving Excellent Water Quality in 2018 based on the assessment of bacteriological results for the period 2015 to 2018. Keem Beach, Achill Island has achieved an Excellent Water Quality rating for the four consecutive years 2015 to 2018. Annual water quality ratings are generally calculated using monitoring results over a four year period and are assessed against stringent bacterial limits to protect bather health.

Historical Water Quality



Excellent

Mayo County Council
Sampled on 03/09/2018

Historical Results

The water quality of each sample is assessed as either 'Excellent', 'Good', 'Sufficient' or 'Poor'.

Sample Date	E. coli	Intestinal Enterococci	Water Sample Quality Status
20/08/2018	<10	<1	Excellent
13/08/2018	<10	38	Excellent
23/07/2018	590	48	Sufficient
09/07/2018	10	<1	Excellent
02/07/2018	<10	<1	Excellent

Download

- Local Authority bathing water profiles can be viewed
 - General information on bathing waters
 - Catchment and Monitoring Point details
 - Pressures and risks in the bathing water catchments
 - Management Measures

Bathing Water Profile - Keem Beach, Achill Island (2016)

Bathing Water:	Keem Beach, Achill Island
Bathing Water Code:	IEWEBWC250_0000_0100
Local Authority:	Mayo County Council
River Basin District:	Western
Monitoring Point:	56089E, 304134N

1. Profile Details:

Profile Id:	BWPR00370
Year Of Profile:	2016
Year Of Identification:	1992
Version Number:	1

Figure 1: Bathing Water



Amenities

Beach activity zones	No
Beach Information board	Yes
Beach Wheelchair	No
Car free zone	Yes
Cars allowed on beach	No
Cars not allowed on beach	Yes
Disability Access	Yes
Dogs allowed on lead	Yes
Dogs not allowed	No
First Aid	Yes
Lifebuoy at beach	Yes
Lifeguarded zone	Yes
Litter Bin	Yes
Natural Sensitive Area	Yes
Near Public Transport	No
Parking	Yes
Recycling facilities	Yes
Toilets	Yes

3. Identified Pressures:

Map 2: Bathing Water Catchment



3.1 Potential pressures in the catchment assessed as posing no risk:

Description:	Achill Island Central WWTP and Agglomeration is located approximately 2km to the west of Keel village. The WWTP was built in 1991 and consists of inlet works with screening, dewatering and grit removal. The treatment process consists of two aeration tanks followed by two settlement tanks. Sludge is stored in a sludge holding tank prior to dewatering for final removal from site. The WWTP has a design capacity of 4 000 PE but the current input is approximately 2 500 PE. The primary discharge is to the Atlantic Ocean. There is also a storm water overflow at this point. There are 3 No. secondary discharge points, two at Doagh Strand and one 1.4km upstream of Keel Beach. Achill Island Central WWTP Agglomeration is subject to WWDL 00072-01.
Source:	Achill Island Central WWTP and Agglomeration
Type:	Waste Water Treatment plant
Short Term Pressure:	No

3.2 Potential pressures in the catchment assessed as posing risk:

Description:	Agriculture is the main land use within the catchment of Keem Beach which is located in an isolated area. Much of Keem Head is commonage.
Source:	Agriculture in the Catchment Area
Type:	Run off from agricultural land
Short Term Pressure:	Yes
Maturs:	High Risk
Frequency:	2/3 per season
Duration:	< 72 hours
Risk Assessment Methodology:	The lands within the immediate vicinity and wider catchment of Keem beach are classified as being of extreme groundwater vulnerability by the GSI. The main agricultural activity in the area is grazing, with overgrazing common, leading to exposed mineral soils. The land surrounding Keem Beach has steep slopes leading to increased run-off following heavy rain.
Risk Assessment Results:	Due to the nature of the soils in proximity to Keem Beach and as a result of heavy grazing, heavy rainfall events can result in significant elevations in microbiological parameters for Keem Stream.
Details:	Heavy rainfall events can result in elevations in microbiological parameters for Keem Stream usually of short duration. Bathing water monitoring in 2012 showed one failure (of 16) for Escherichia coli in July following heavy rainfall in combination with higher than average rainfall for the months of June and July.
Management Measures:	If heavy rain is anticipated warning notices will be erected and notification made to the EPA. Regular monitoring of Keem Stream will take place during the bathing season.

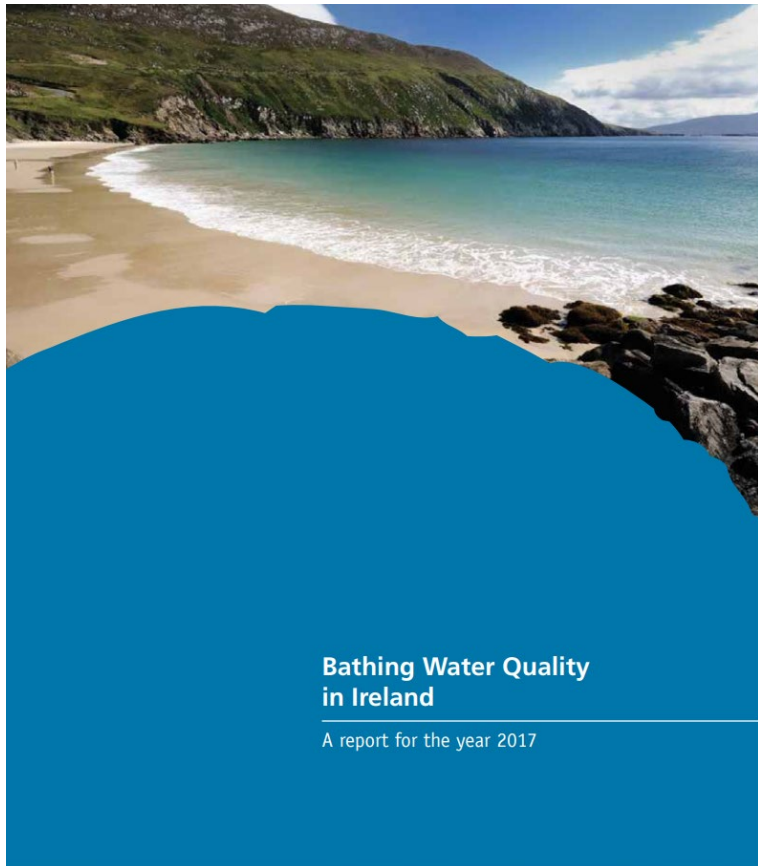
3.3 Other Risks:

Assessment of the potential for proliferation of cyanobacteria:	N/A
Proposed management measures for cyanobacteria:	N/A
Assessment of the potential for proliferation of macroalgae:	N/A
Proposed management measures for macroalgae:	Monitoring of the beach since it attained a Blue Flag Award in 1989 indicates that there is no significant potential for proliferation of Marine Phytoplankton on this beach.

Bathing Season

- Runs from 1st June to 15th September in Ireland
- Local Authorities
 - Submit a sampling schedule to EPA
 - Take and analyse samples through the bathing season
 - Inform public and notify HSE and EPA of water quality issues
- EPA and HSE advise on management requirements e.g. Bathing Water restrictions
- Local Authority may give prior warnings of pollution incidents
- Local Authority investigate pollution incidents
- EPA communicate information reported by Local Authority via www.beaches.ie

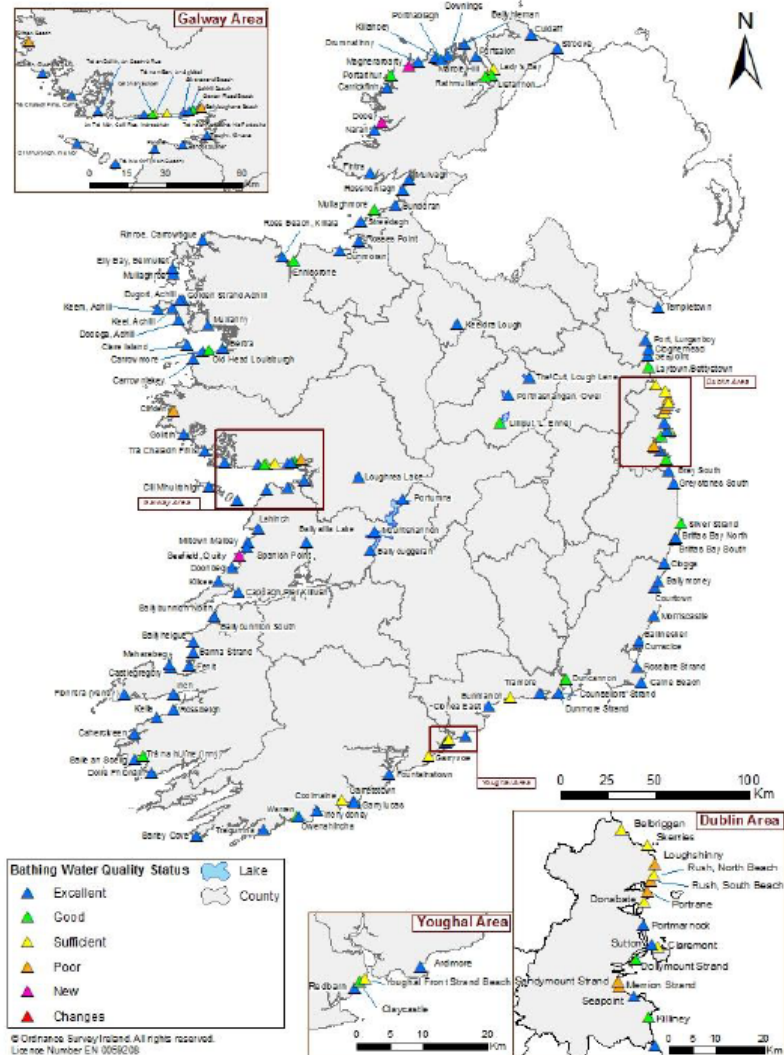
EPA Bathing Water Quality Report



- Assessment of Ireland's Identified Bathing Waters: 142 in 2017
- Based on the results of monitoring covering the period 2014 to 2017 (4 years data used for assessment)
- Information on other Bathing Waters where water quality monitoring is undertaken by Local Authorities as a public health measure – Non Identified Bathing Waters

EPA Bathing Water Quality Report

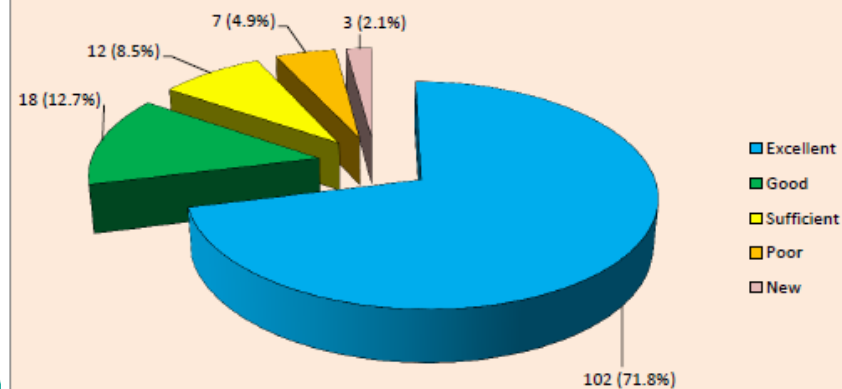
Bathing Water Quality Map of Ireland 2017



Parameter	Excellent	Good	Sufficient
E. coli (freshwater)	500*	1000*	900**
E.coli (Coastal)	250*	500*	500**
Intestinal enterococci (freshwater)	200*	400*	330**
Intestinal enterococci (coastal)	100*	200*	185**

* based on 95-percentile value ** based on 90-percentile value

Bathing water quality 2017



EPA Bathing Water Quality Report

Key findings 2017

Overall Water Quality

93% (132) of our coastal and lake beaches met the minimum standard of Sufficient water quality	84.5% (120) were classed as either Excellent or Good water quality	8 beaches showed some deterioration in quality – five of which are in the Dublin area	7 beaches were classed as Poor – five of which are in the Dublin area	4 beaches showed an improvement in water – all from rural or small urban areas
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Classifications are based on 2014 -2017 bathing season data for the microbiological parameters E.coli and Intestinal Enterococci. These faecal bacteria are used as indicator organisms with the aim of protecting public health.

Pollution Events

163 incident notices were issued by local authorities - up from 81 in 2016	112 of these were precautionary and pollution did not actually occur at the beach *	78 (55%) of beaches had a restriction in place at some stage during the year	Merrion and Sandymount Strand accounted for 12 of the bathing restrictions	Most pollution events related to sewage discharges after rainfall
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* Precautionary (Prior) warnings are issued when local authorities suspect the possibility of a deterioration in water quality - most notably after heavy rainfall. In 2017, pollution did not actually turn out to be as bad as anticipated in all but two cases. We recognise as good practice this positive approach to public health protection shown by many local authorities.

When BW classified as Poor

- Local Authority must submit long term Management plan to EPA (plan is reviewed and approved by EPA)
 - Identification of causes of pollution
 - Adequate measures to prevent, reduce or eliminate causes of pollution
 - Reviewed yearly
- Decide on appropriate level of full season restriction - Advisory or Prohibition
- Alert public by clear and simple warning sign on Bathing Water restriction
- If Poor for 5 consecutive years – issue permanent bathing prohibition (no longer an identified bathing water)

European Bathing Water Report

- Yearly comparison across Europe
- Report and interactive maps on website

http://ec.europa.eu/environment/water/water-bathing/index_en.html

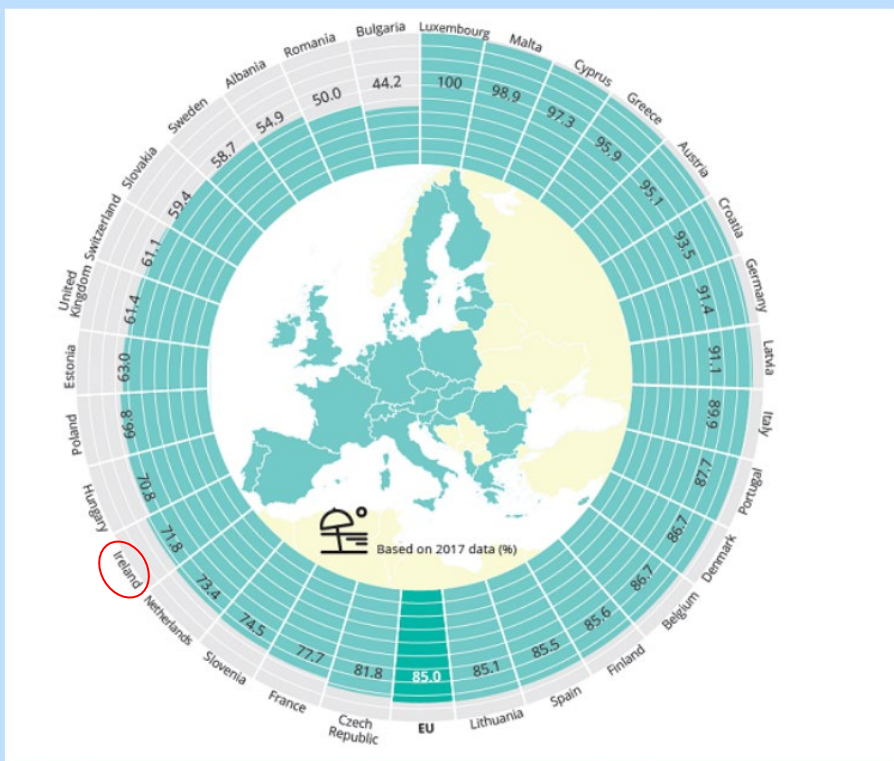
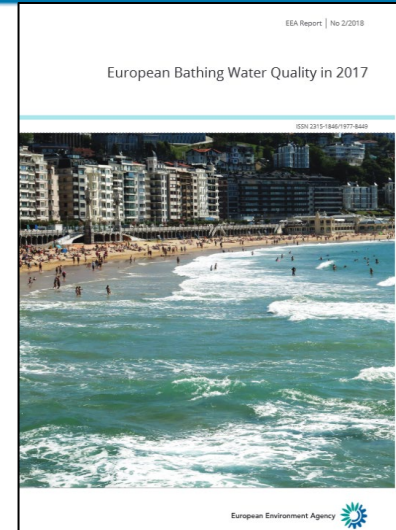


Figure 2.3 Bathing water quality in 2017 for the 28 EU Member States, Albania and Switzerland

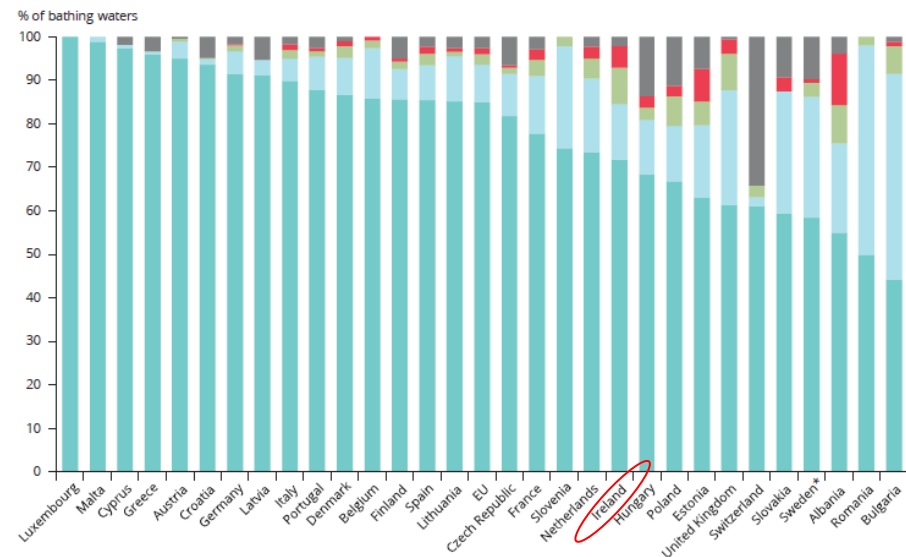


Figure ES1: Proportion of bathing water sites with excellent water quality in European countries

Research example - Acclimatize Project

- €6.7 million Launched Oct 2017
- UCD/Aberystwyth University
- Rural (Wales) and Urban (Ireland) at-risk bathing waters
- Look at vulnerability of bathing waters to climate change to fill gaps in the policy evidence-base
- Develop practical management methods and tools to minimise risk to human health and the marine environment under current and future climate change scenarios

Project Team and Partners

Ireland



Wales



Thank You



Merrion Strand