



When risk information changes the decision

Risk communication and the value of safer coastal waters

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BlueAdapt Final Conference · Brussels · 22 September 2026



Co-funded by
the European Union



UK Research
and Innovation

People can see most coastal risks — not this one

The weather

you can see it

The waves

you can see it

The crowd

you can see it

Pathogens

mostly you cannot

A beach user can see the weather, the waves and the crowd.

They cannot see the water — someone has to measure it, forecast it, and tell them today's risk.

The pathogens BlueAdapt studied — bacteria such as *E. coli*, enterococci and *Vibrio*, enteric viruses, and cyanobacteria — are almost never visible at the beach; a heavy algal bloom sometimes is. A laboratory result usually takes longer than a day, so a useful signal needs forecasting too.



Three levers, and only one of them is usually priced

Mitigation

Clean the water.

Wastewater, storm overflows, the catchment.

Costed and appraised today.

Adaptation

Measure and forecast the water, and tell people.

Monitoring, models, warnings, apps.

Rarely valued.

Education

Explain what the risk actually is.

Campaigns, schools, the survey screen we tested.

Almost never valued.

BlueAdapt let us put a price on all three — and on what happens when you combine them.

The United Kingdom: how to communicate risks?

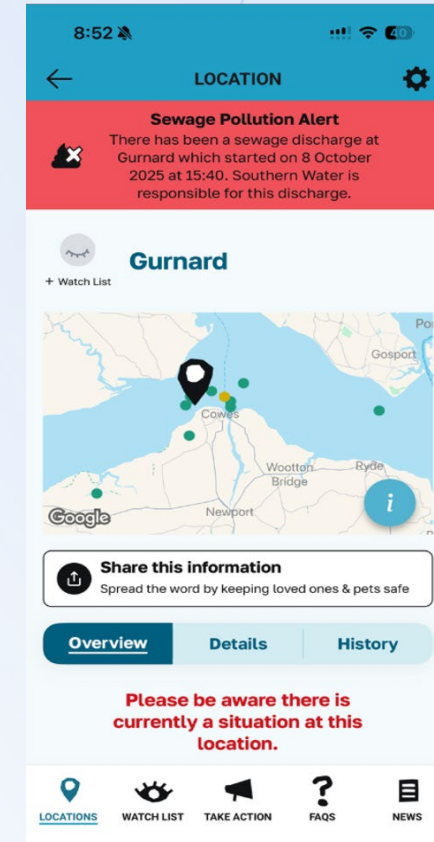
The Safer Seas and Rivers Service — a free app from the charity Surfers Against Sewage. Around 150,000 users, 450+ coastal and river sites, real-time sewage-spill alerts.

88% of the 1,901 users who got a warning about a beach they meant to visit changed their plans.

About 45% stayed out of the sea; about a quarter went to a different beach.

From multiple methods: people already look for water quality before they swim, and there is “a lot of information noise” from competing sources. Trust in who issues the warning decides the response — and some, fatigued by frequent alerts, stopped reading them or uninstalled the app.

University of Exeter and University of Galway with Surfers Against Sewage · 2024-season survey of 2,837 users, 23 interviews



A live alert, as users see it



Poland: what is that information worth, and does explaining help?

3,300+

coastal users of the Polish Baltic,
surveyed over two years

Two groups

one gets a full explanation of the
health risk, the other only a short
quiz — assigned at random

Choice experiments

repeated choices between
beaches, and later between
public programmes — the trade-
offs people make measure what
each feature is worth

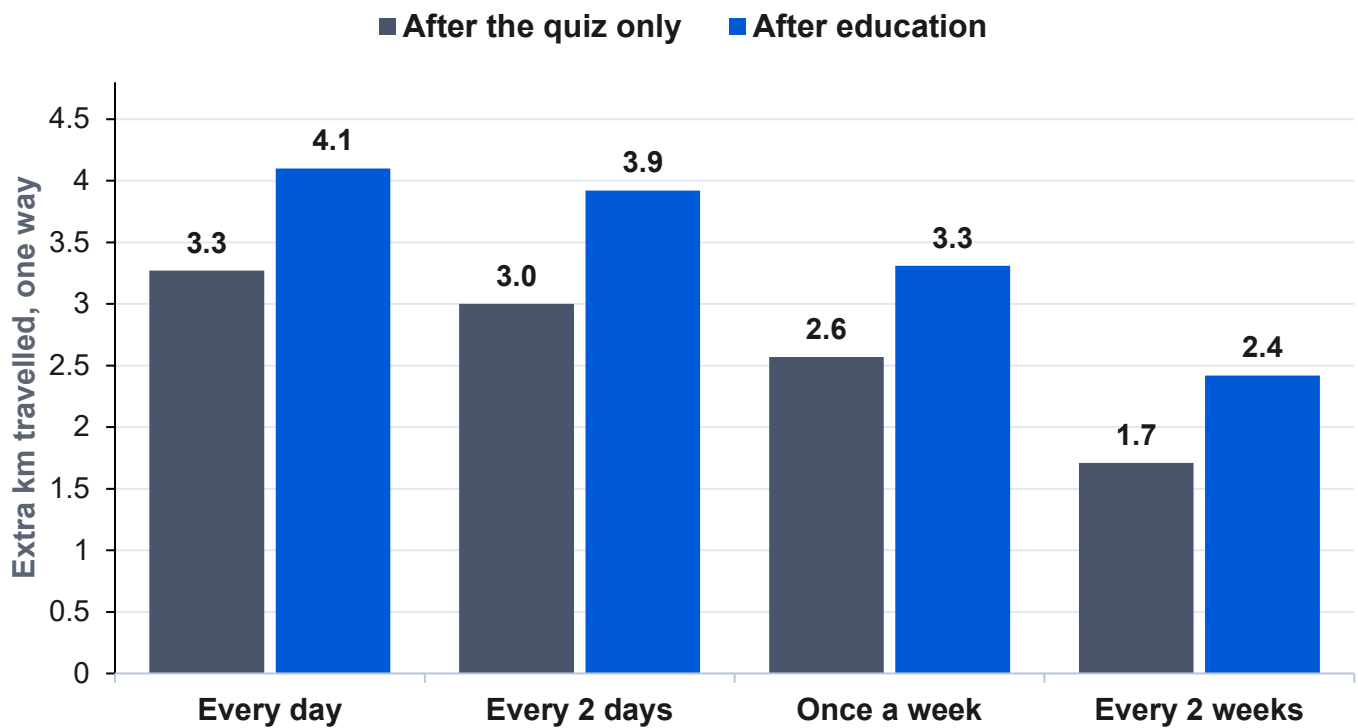
The information worked as teaching: quiz scores rose from 7.2 to 8.9 out of 14.

University of Warsaw with Charles University · random assignment, so the only difference between the groups is what they were told



Current information has value — and education raises it

How much further people would travel for a beach where the water is tested ...



+25%

more value on daily testing, after one explanation

+0.7 to 0.9 km · ≈ +€0.6 bn a year, EU-wide

What each feature is worth — to one beach user, and to Europe’s beach visitors:

A lifeguard	4.15 km	€3.1 bn
Water tested daily	3.65 km	€2.7 bn
A designated site	3.02 km	€2.3 bn
A weather board	1.38 km	€1.0 bn

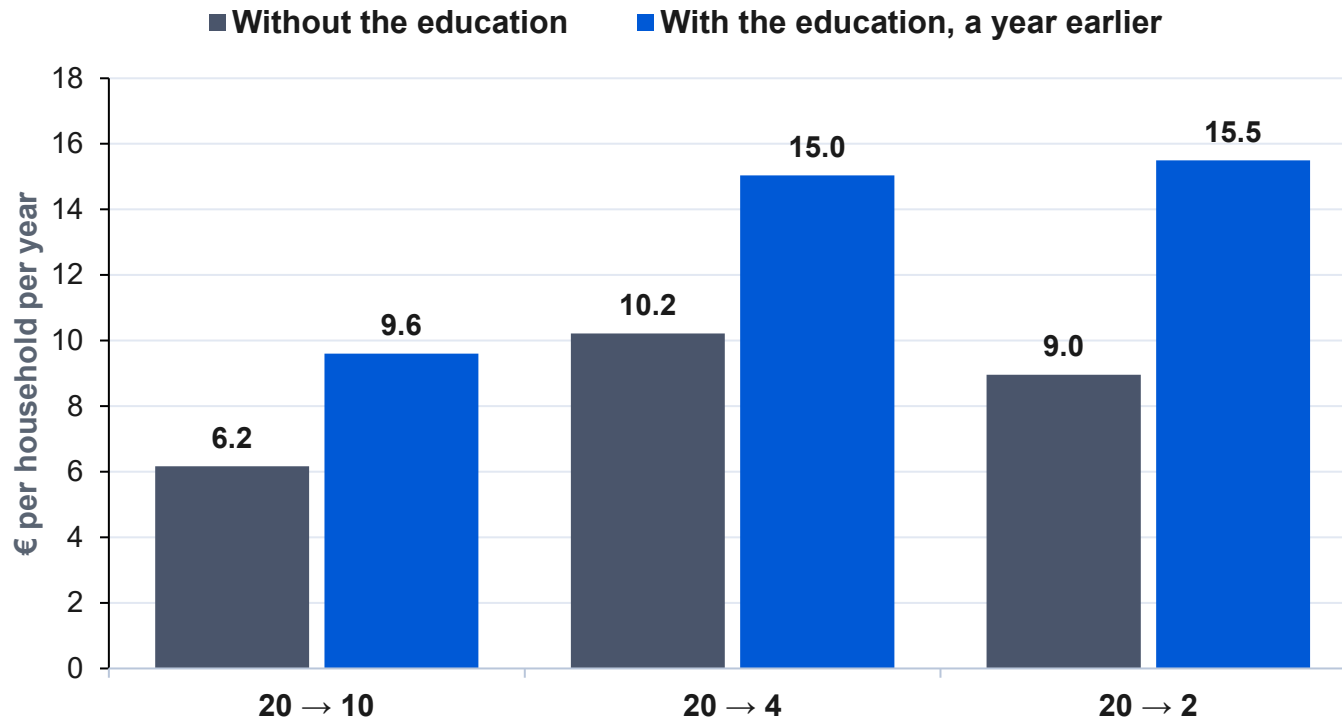
Being told the water is safe today is worth almost as much as a lifeguard.

Kilometres are estimated: 1,284 people, relative to a beach tested once a month, all four gaps significant. Euros are back-of-the-envelope: distance × the study's own travel cost (round trip, time included) × 1.4 billion coastal tourist visits a year in the EU.



A year later: more willing to pay for cleaner water

What they would pay to cut infections per 1,000 bath-days, from 20 down to ...



+€102 m

a year for Poland — what a single information package adds to the same programme

The full programme, per household

€15.9 → €23.1 a year (+45%)

Poland, all households

€226 m → €328 m a year

The bigger the health gain

the bigger the difference

1,492 respondents, wave 3 · 'full programme' = cutting infections from 20 to 2 per 1,000 bath-days, with twice-weekly monitoring · national aggregate scales to Polish households



And what people actually did: trips, beach visits, time in the water

With a panel this size we could only have detected changes bigger than about a third.

Trips, beach visits, time in the water

changes of -12% to +16%. None significant.

What a trip is worth to people

no detectable change either.

The people most at risk

fewer long trips, more local ones — a hint of substitution ($p \approx 0.06$ – 0.08).

We expected any change to be well below that — and that is what we find.

We changed what people value. The beaches they actually use did not change.

What the two levers are worth — and what education adds

	Value to one user	Poland, a year	EU, a year
Adaptation	€2 a visit	€17 m	€2.7 bn
Testing the water daily instead of monthly, and publishing the result			
+ education (+25%)	+€0.45 a visit	+€4 m	+€0.6 bn
Mitigation	€16 a household a year	€226 m	€3.2 bn
Cutting infections from 20 to 2 per 1,000 bath-days			
+ education (+45%)	+€7 a household a year	+€102 m	+€1.5 bn

Education is not a third benefit to add on.
It raises the value of the two things we are already paying for.

Back-of-the-envelope. Adaptation: value per visit × 9 m Polish coastal visits, × 1.4 bn EU coastal visits. Mitigation: value per household × 14.2 m Polish and ≈202 m EU households, if every Member State ran the equivalent programme. Polish values transferred unadjusted, so the EU figures are conservative.



Three things to build into water policy

1

Appraise the whole package

Cleaning the water, monitoring and forecasting it, and educating people are one intervention, not three budgets. And because what people will pay depends on what they know, an appraisal has to state what the public was told.

2

Supply the signal people are asking for

The demand is real and we can measure it. It needs monitoring and forecasting that give a current, local answer — not just a seasonal average.

3

Refine the signal, and test what works

Wording, risk categories, who issues it, the channel and the timing all change what people do. Keep what works, and decide who maintains it.

The efficient package is mitigation, adaptation and education together.



Thank You

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BlueAdapt is funded by the European Union's Horizon Europe research and innovation programme under grant agreement No 101057764 and by the UKRI/HM Government.