



UNIVERSITY OF  
PORTSMOUTH

# Sex and behaviour changing marine pollutants

Professor Alex Ford

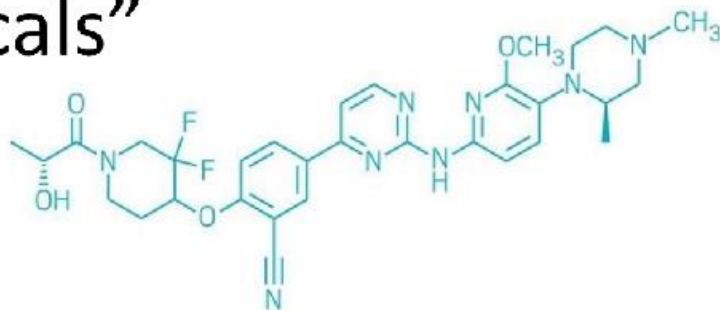
Institute of Marine Sciences

CHASM 12<sup>th</sup> June 2022



Photo: Chris Pearsall

“Humans have registered  
**150,000,000** known chemicals”



2-pyrimidinamine carbonitrile derivative

19<sup>th</sup> May 2019 (ACS)

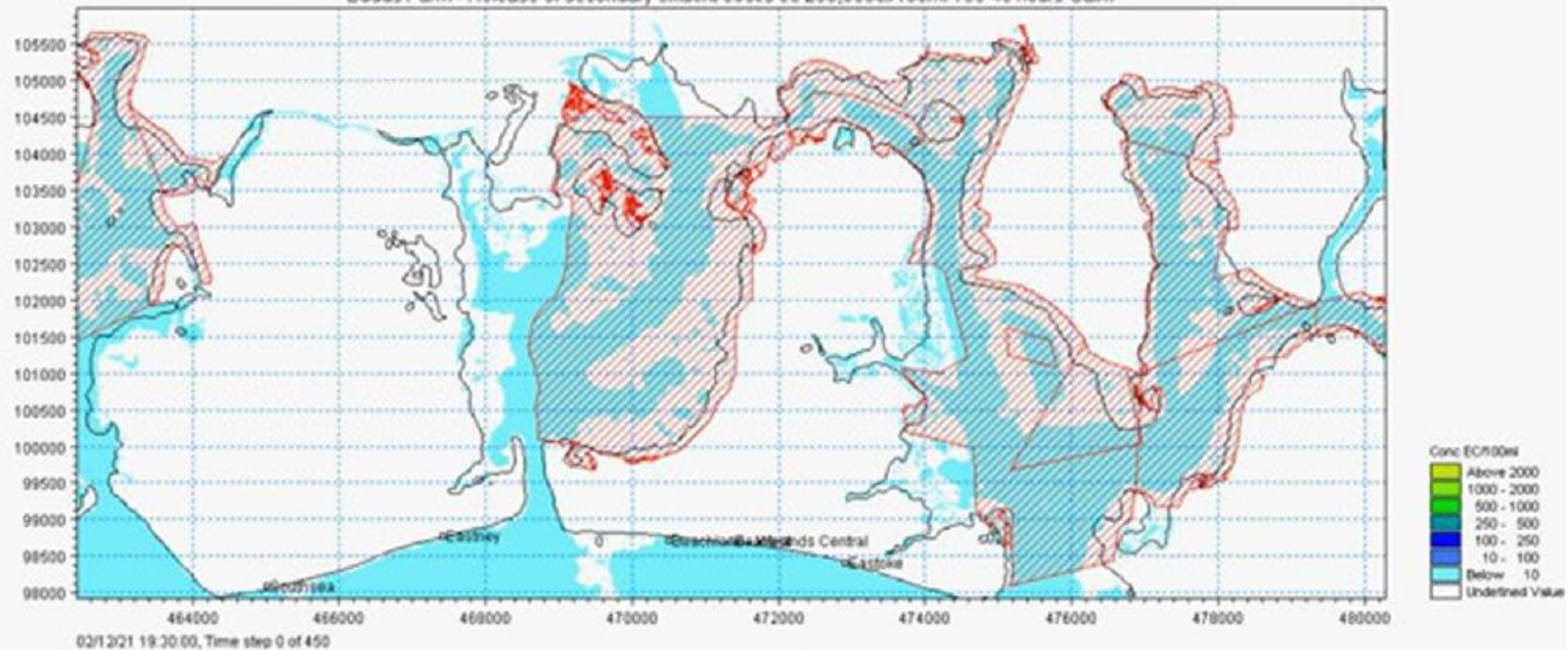
“A new chemical is created every  
**2.5 minutes**”







Budds Farm - Release of secondary effluent 500l/s ec 200,000cf/100ml T90 40 hours Calm



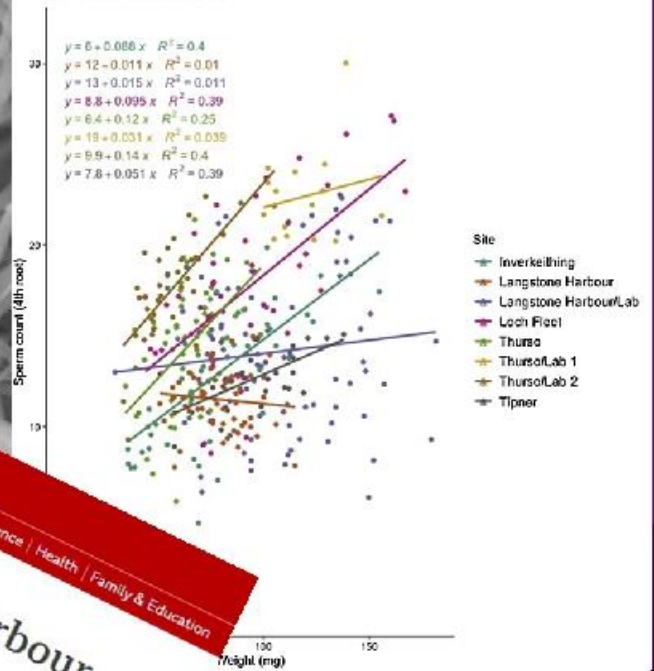








A: Different collection sites



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# Warning over Langstone Harbour shrimps' low sperm count

© S.March

robby wester

The research was carried out in Langstone Harbour



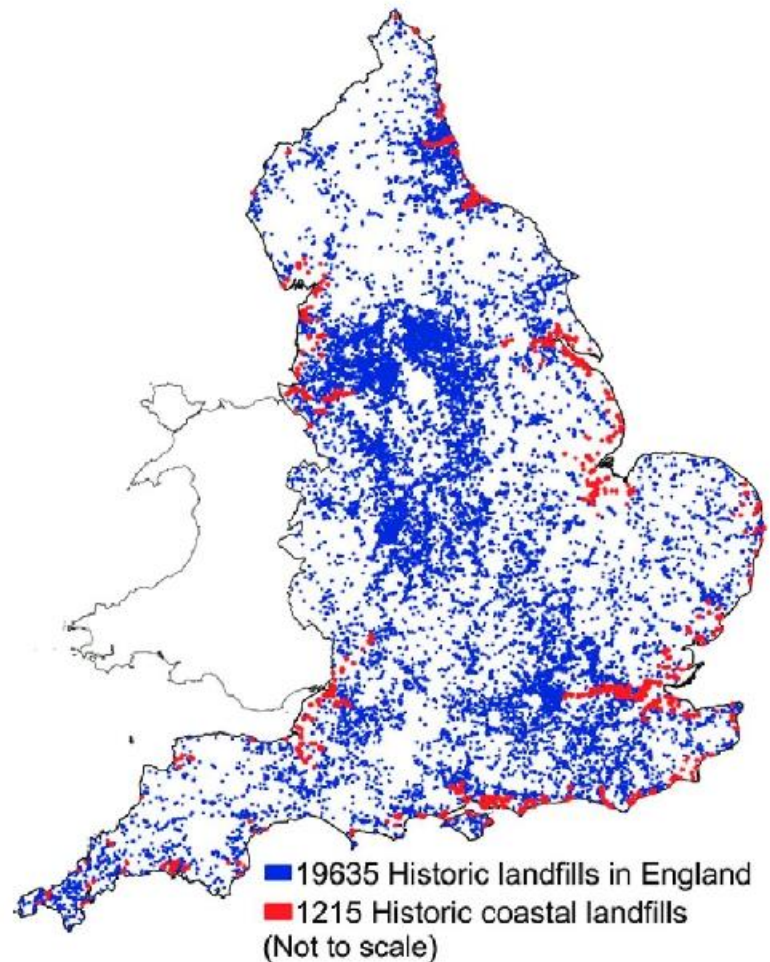






1 million historic landfill sites in Europe

10,000 are situated on coasts at risk of climate change, sea-level rise, flooding or erosion



Brand et al 2017

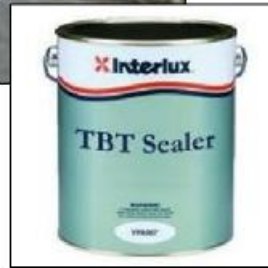




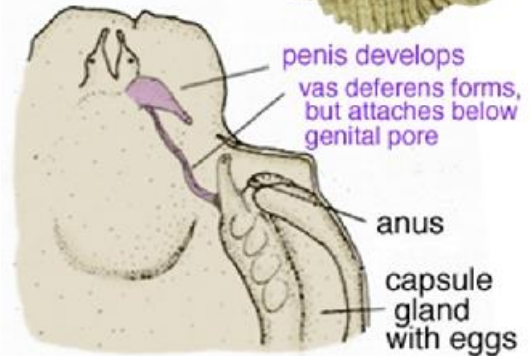




# 'Imposex' in marine snails caused by tributyltin (TBT) as low as 1ng/L



*Nucella canaliculata*  
with imposex

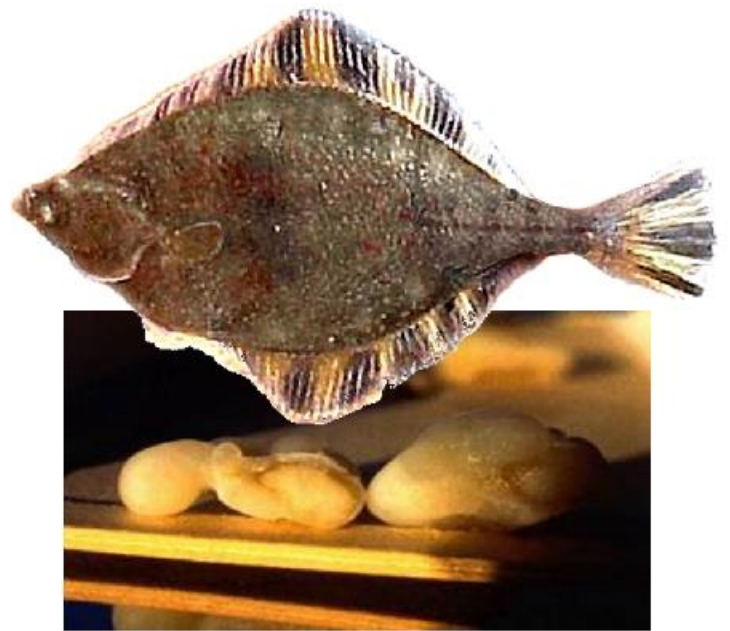
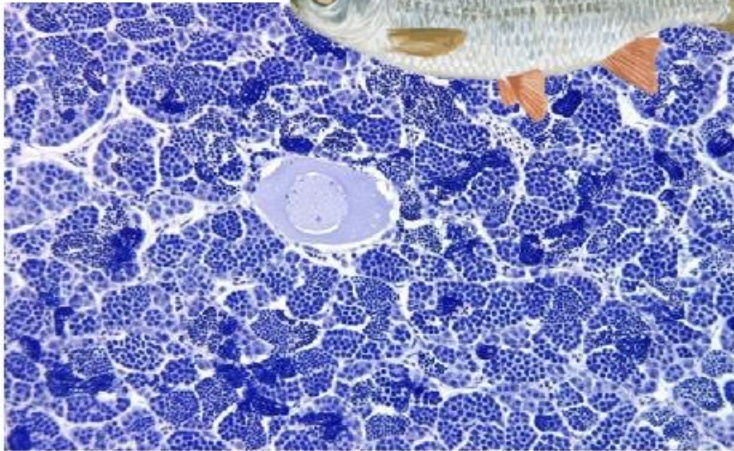








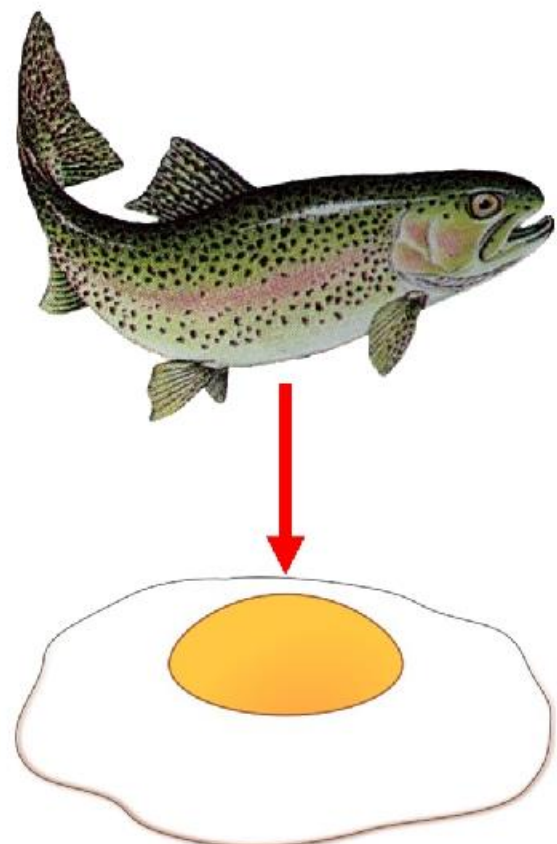
Black = Proportion displaying imposex



<http://www.the-scientist.com/?articles.view/articleNo/42556/title/Image-of-the-Day--Intense-Fish/>











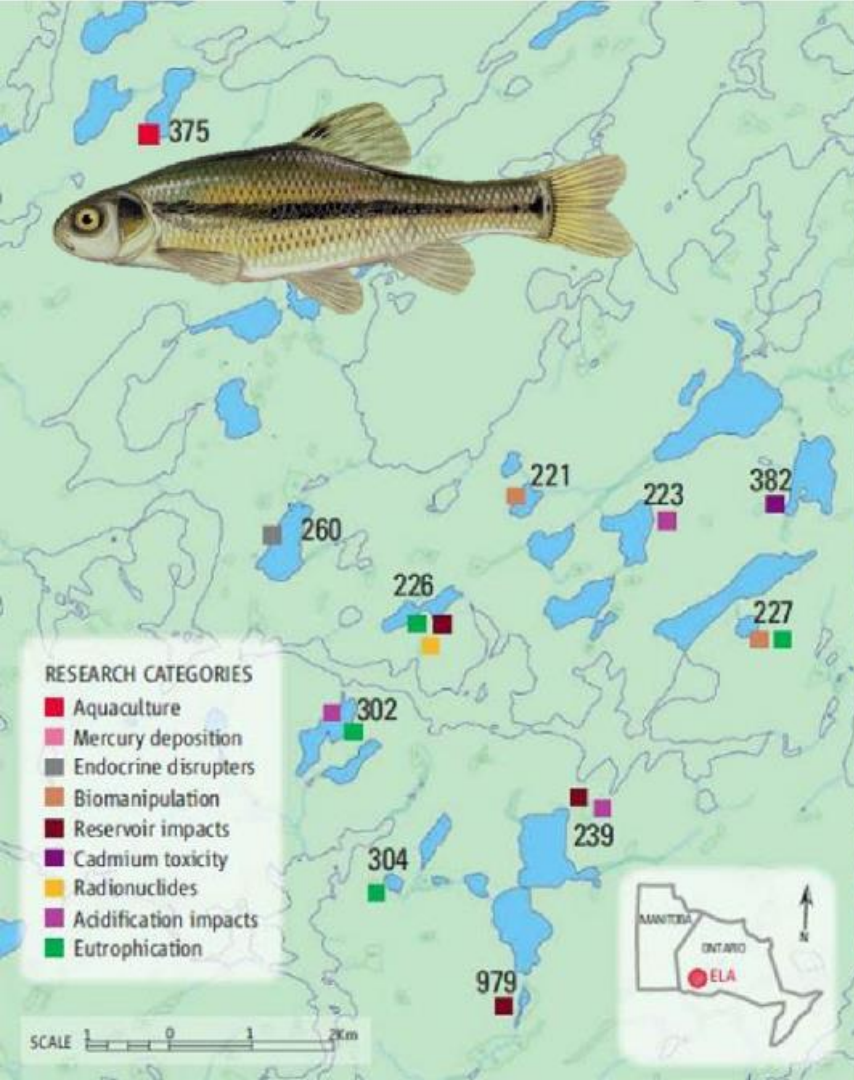
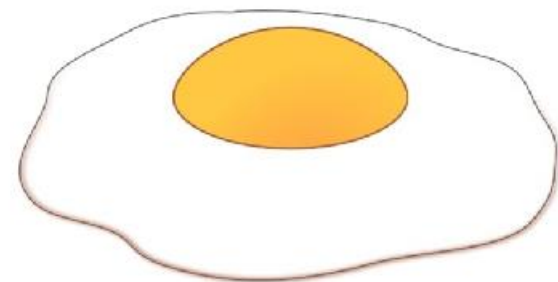
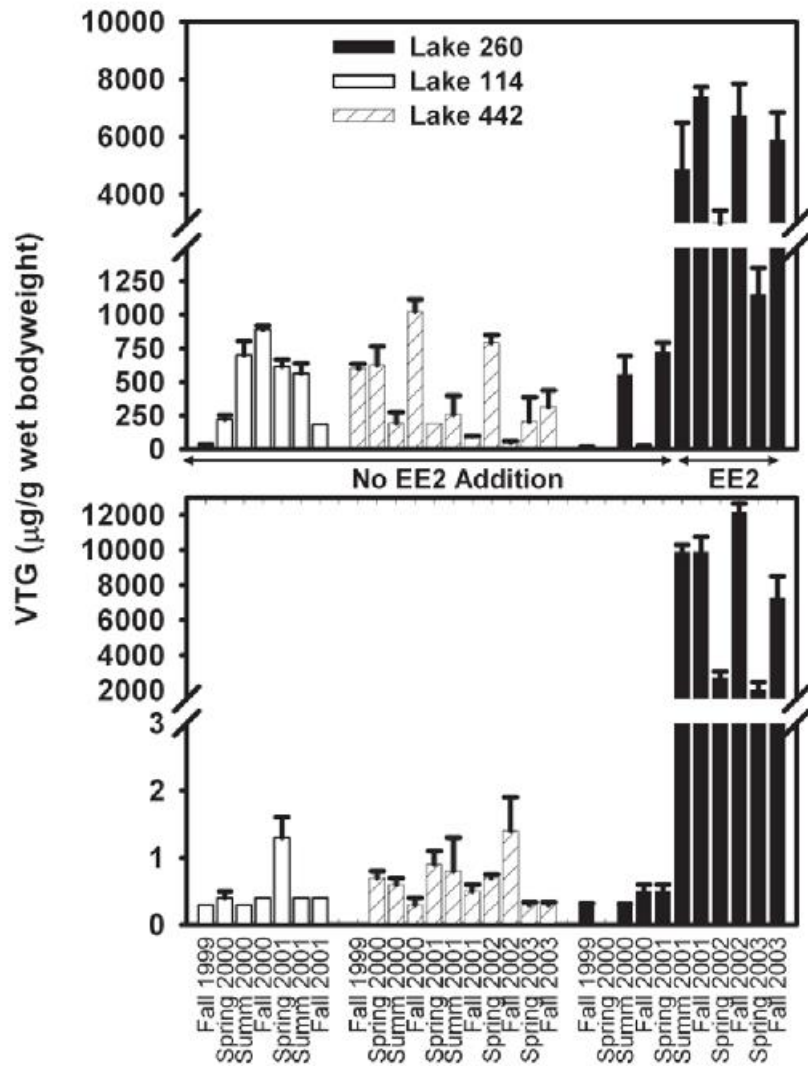


Photo:  
Karen Kidd





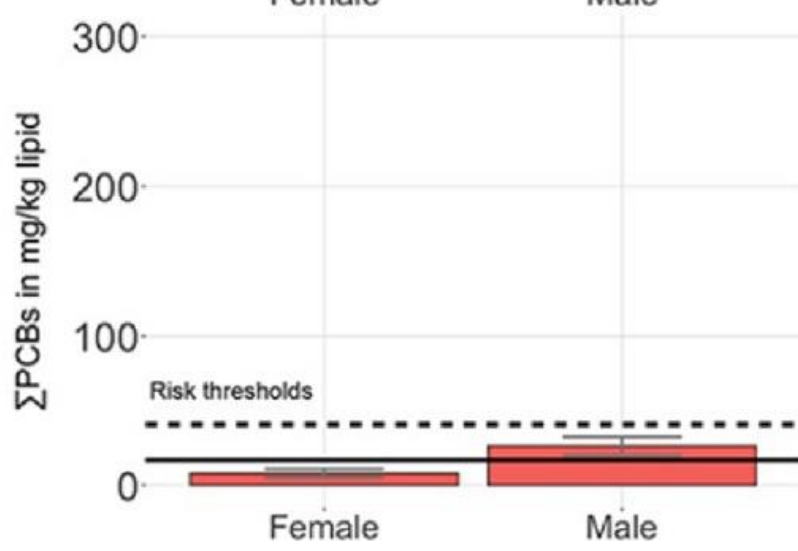
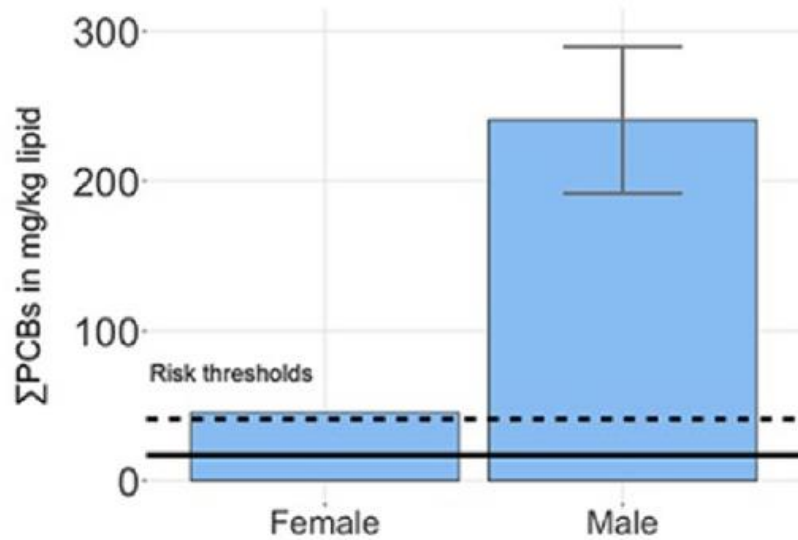
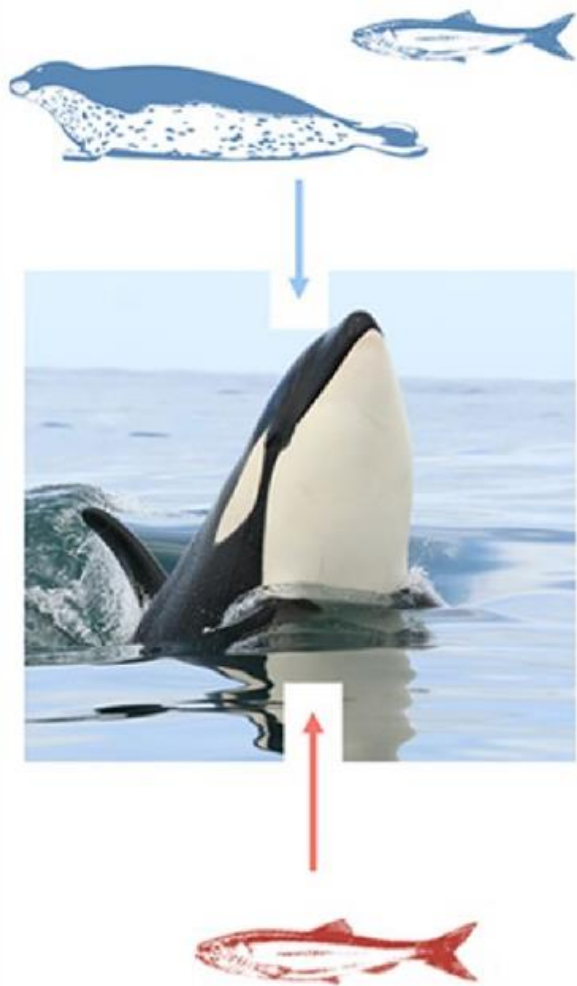








[HWDT.org](http://HWDT.org)








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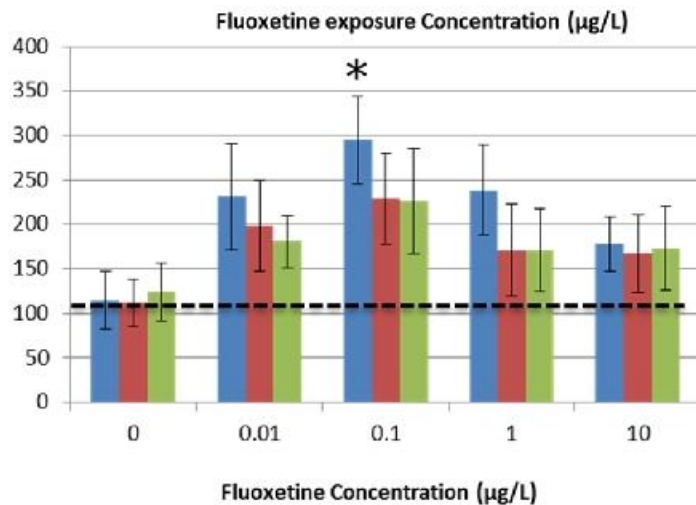
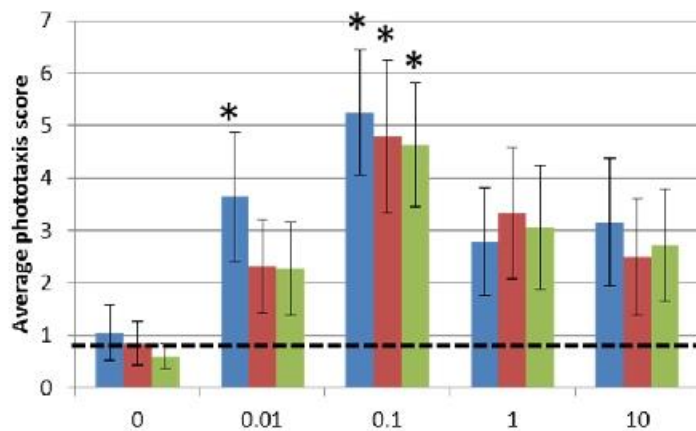
1



(+) Phototaxis



(-) Geotaxis



Week 1 \*

Week 2 \*

Week 3 \*





*Echinogammarus marinus*  
one-well plate

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British prawns getting high on Prozac

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Friday, 9 July 2010

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# Prawns on Prozac



Coccol of drugs... prawns at risk

By LYBSEY SHAWOOD

PUBLISHED: 07 Jul 2010

**PRAWNS** and shrimps around Britain are getting

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## Daily News

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MailOnline

Shrimps 'becoming hooked on Prozac' that is flushed into the sea

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**New Scientist**

@newscientist

Following



Prawns on Prozac, whatever next? Crabs on cocaine? <http://bit.ly/ayGbwl>

5:02 AM - 7 Jul 2010

34 Retweets 11 Likes



34

11



# Prawn to be wild: cocaine found in all shrimp tested in rural UK county

The recreational drug ketamine also turned up in samples of wildlife examined in Suffolk



▲ Researchers said they were surprised to find so many readings of cocaine and ketamine in samples of wildlife. Photo: Alan Stock/Alamy Stock Photo

Researchers have found cocaine in all samples



Researchers collected freshwater shrimp from rivers in Suffolk

KING'S COLLEGE LONDON

# Scientists find cocaine in UK shrimp

By Jack Guy, CNN  
Updated 03:40 GMT (17:40 HKT) May 2, 2019

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## Scientists find cocaine in shrimps in Suffolk rivers

© 1 May 2019

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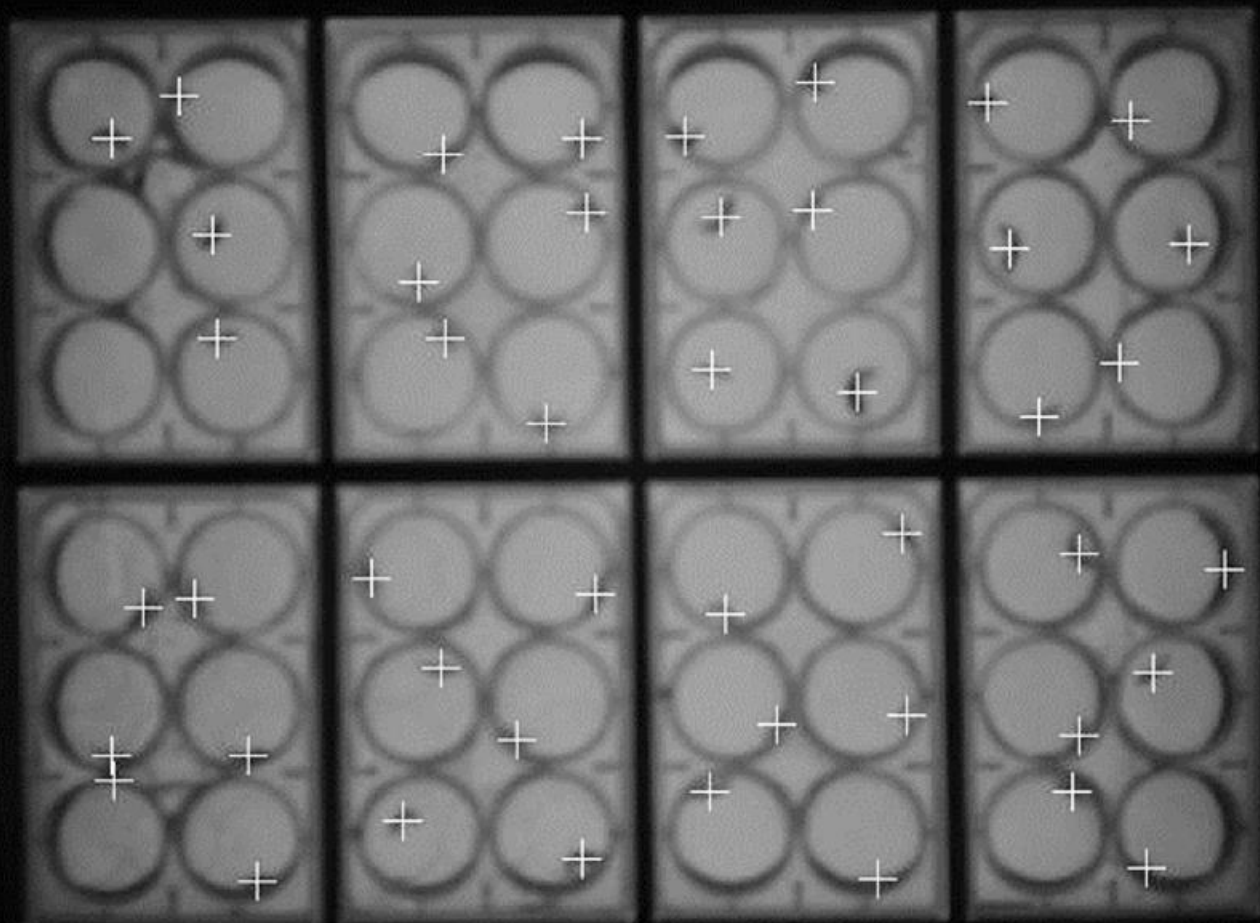
illicit drugs and pesticides, in UK river wildlife.

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1937

10.—THE EVENING NEWS, FRIDAY, JUNE 4, 1937.

### Tides and Sewage

The problem of tides and sewage were disposed of by the speaker. He explained that the sewage outflow would be moved from its present position to outside Langstone Bar, and he had complete confidence in the scheme that it would take the sewage away from the shores out to sea. The land drainage around the Harbour, from Farlington marshes and Hayling Island could also be easily disposed of.

1957

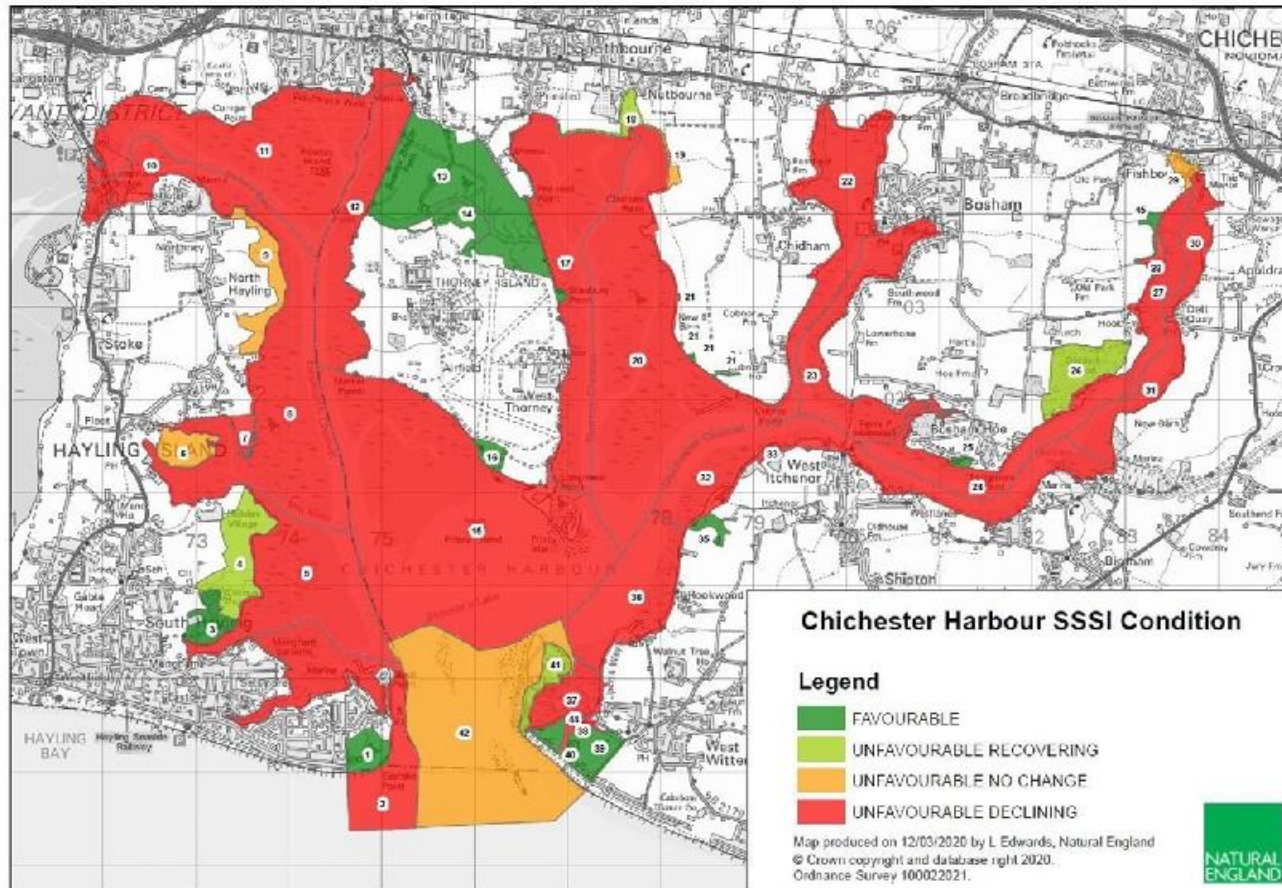
2—HAMPSHIRE TELEGRAPH AND POST, FRIDAY, SEPTEMBER 6, 1957

## Portsmouth Sewage Disposal

There will be no danger of pollution when Portsmouth Corporation discharges sewage into the sea through a new pumping station, it was stated at the meeting of Portsmouth Roads, Works and Drainage Committee on Tuesday by the City Engineer (Mr. W. E. C. Chamberlain).

All Portsmouth's sewage is discharged into the sea at the entrance to Langstone Harbour—on the ebb tide.

# Natural England - 2021





Thank You for listening!



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