

# Science for Environment Policy

## Risk perceptions are essential in communicating about climate change

**Experts and members of coastal communities** possess both differences and similarities in how they perceive the risks associated with changes in sea level. A new study, based on interviews with both, has found that future communication about the risks should focus on specific adaptation and mitigation strategies.

**The Severn Estuary in the southwest United Kingdom** has the second largest tidal range in the world. It supports [biodiversity](#), recreational activities, tourism and industrial processes. These characteristics put it at a heightened risk of significant impacts from rising sea levels due to [climate change](#) — called 'sea level change'. However, no studies had previously looked at how people living near this coastal environment perceive the [risk](#) of sea level change.

The goal of this study was to fill this research gap, and in doing so to understand the differences in mental models (individual interpretations of reality), knowledge and risk perceptions between experts and the public. The researchers interviewed 11 experts, consisting of academics, government or organisation officials, and consultants. They also interviewed 20 diverse members of the public living around the estuary. The sample attempted to represent different age groups, genders, and education levels, as well as if the person was a homeowner or not.

The researchers used the results of the interviews to design a survey, which was answered by 359 people living within 16 kilometres of the shoreline. The interviews and survey asked questions about the risks associated with sea level changes, such as property damage, vulnerability to storms and floods, and loss of industry, as well as how likely participants thought the risks were to occur.

The research found both similarities and differences between experts and the public. Both were aware of the risk of [flooding](#) and ecological damage, such as erosion, changes in intertidal environments, and salt water intrusion into freshwater sources. They also had similar ideas about effective mitigation strategies.

However, many differences were also noted. Although members of the public tended to understand that melting ice causes sea-level rise, fewer were aware that rises in sea level are actually due to land ice melting or thermal expansion, where the volume of water increases as temperatures rise.

The research also uncovered barriers that prevented members of the public from taking action to curb [climate change](#) and sea level change. First, many people were not engaged with the issue because it did not directly affect their lives. They also did not think negative consequences would be an issue in their lifetime, so did not see the need to act. Others shifted responsibility and thought governmental entities needed to take the lead — although some said they lacked trust in those same entities. Lastly, many felt the problem was too big for them to affect. The researchers say these are the issues that policymakers must take into account when communicating with lay audiences.

It is also important to give people accurate estimates of future sea level changes so they can make informed decisions. The researchers also highlight the importance of working these ideas into communications, such as public information campaigns or outreach activities and materials, to influence decision making processes and target different segments of the public. For example, an important audience consists of those looking to buy or build a home. This section of society requires accurate information about the risk of sea level changes in different locations.

The authors also recommend using visual media, such as flood depth maps, to communicate to the public, and to also focus on simple mitigation steps individuals can take in the present, rather than in the future.



**17 September 2015**  
**Issue 427**

**Subscribe to free**  
**weekly News Alert**

**Source:** Thomas, M., Pidgeon, N., Whitmarsh, L. & Ballinger, R. (2015).

Mental models of sea-level change: A mixed methods analysis on the Severn Estuary, UK. *Global Environmental Change* 33: 71-82. DOI:

<http://dx.doi.org/10.1016/j.gloenvcha.2015.04.009>

**Contact:**

[ThomasMJ6@Cardiff.ac.uk](mailto:ThomasMJ6@Cardiff.ac.uk)

**Read more about:**

[Biodiversity](#), [Climate change and energy](#), [Natural hazards](#), [Risk assessment](#)

The contents and views included in *Science for Environment Policy* are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

**To cite this**

**article/service:** "[Science for Environment Policy](#)":

European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.