

# From Science to Politics

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We explore patterns of communication between science and decision makers using the results from 2 survey questionnaires.

Survey of scientists in the BALTEX mailing list.  
(full results available: SurBACC 2010 International BALTEX Secretariat. Publication No. 48. October 2010.

Survey of regional decision makers in the German Baltic region 2011  
(results not yet published)

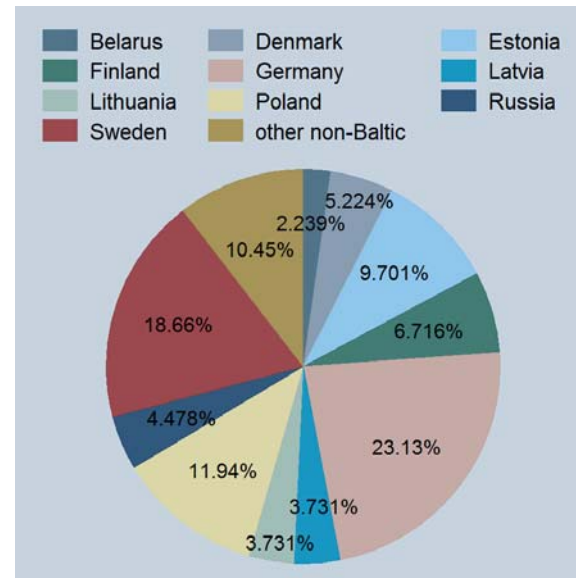
## SurBACC 2010

Sample = BALTEX mailing list  
(saturation sampling)

700 potential respondents

Invitation only on line survey

Response rate 19%



## Survey of regional decision makers in the German Baltic region

heads of local governments in the German states of Schleswig-Holstein and Mecklenburg-Vorpommern: *Gemeinden* (municipalities) and *Ämter*; typically *Bürgermeister* (mayor) or *Amtsvorsteher* (superintendent of an *Amt*); 1364 potential respondents; total of 535 unique e-mail contacts for the *Bürgermeister* and *Amtsvorsteher*s were identified; 789 *Gemeinden* listed contact e-mail addresses that they shared with other *Gemeinden* in their *Amt*.

Invitations to participate = 1100

Response rate = 104 (appx. 9%)

About sample sizes ...

Hamilton (no date given) produced a white paper that analyzed 199 surveys. The total response rate of these surveys, calculated using the total number of surveys sent out in the 199 surveys and the total number of responses for the 199 surveys was 13.35%. He noted that large invitations lists, >1000, tend to be associated with lower individual response rates.

Harris Interactive, a well established organization specializing in web-based surveys, used a convenience sample of 70,932 California residents in a survey of attitudes towards healthcare. As with the survey in this analysis, an email was sent to potential respondents with a link to a web survey and non-respondents received one reminder email. The response rate for the Harris Interactive survey was 2%.

Holbrook et al (2007) concluded that a low response rate does not necessarily equate to a lower level of accuracy but simply indicates a risk of lower accuracy.

## Presentation of results

### Boxplots:

- illustrate the median, spread and data values
- lowest and highest values are indicated by 'whiskers'
- the boxes contain the 50% of total values falling between the 25th and 75th percentile, meaning that 50% of the cases have values within the box, 25% have values larger than the upper boundary and 25% have values less than the lower boundary
- length of the box indicates how much spread there is in the data values within the middle 50 percentile. If, for example, one box is much longer than another then the data values in the longer box have more variability
- what to look for: location and width of box

We begin by comparing assessments of the issue of climate change

Each assessment consists of 3 box plots:

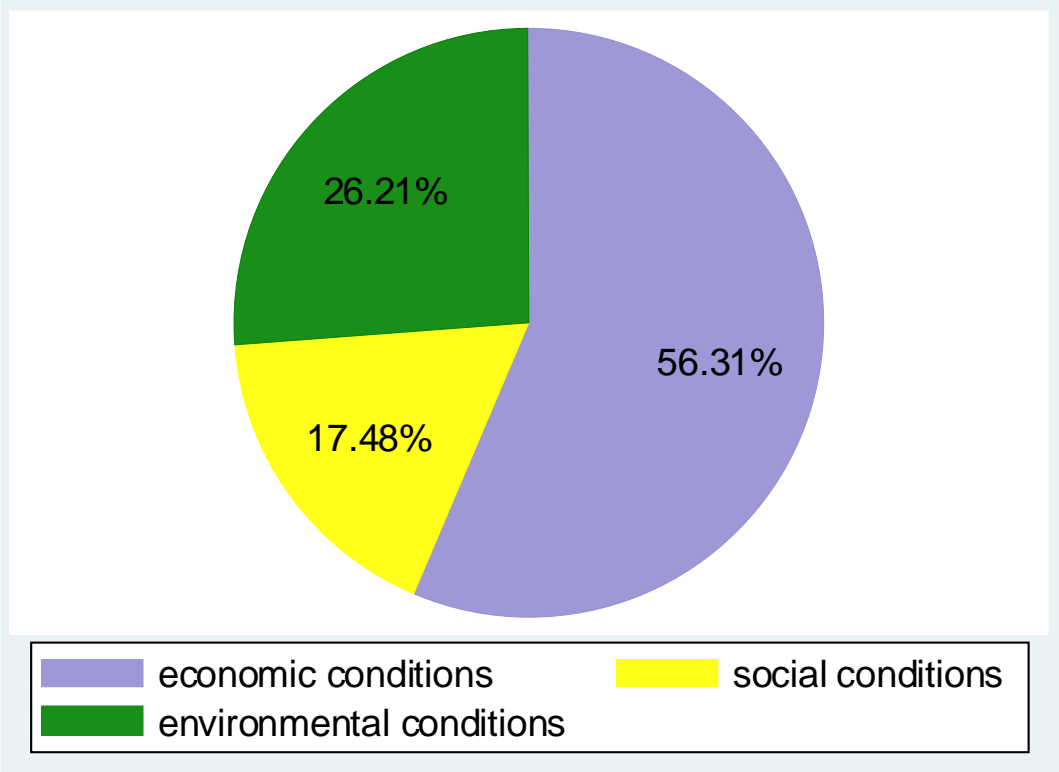
1. Entire BALTEX sample
2. Sub-set of German/BALTEX sample
3. German Baltic Region decision makers

This is followed by a section concerning communications

Assessments of climate change in the German Baltic region:  
Scientists and Regional Political Decision Makers



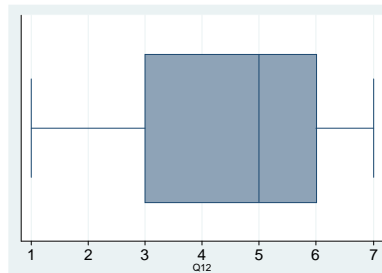
Rating the regional political importance of environmental issues by decision makers



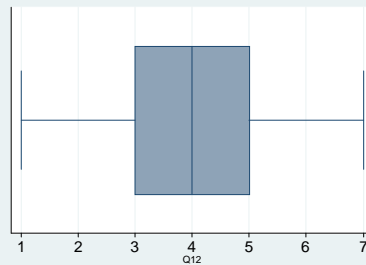
Most concern is directed towards economic conditions

## Worry about climate change

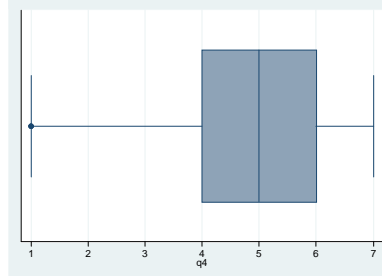
BALTEX  
scientists



German sub-set  
scientists



Decision makers



How convinced are you that *climate change* poses a very serious threat to the Baltic Sea region in which you live?  
*Not at all 1 2 3 4 5 6 7 Very much*

In your opinion and for the area in which you live, *climate change* is something a person should be  
*not be worried about at all 1 2 3 4 5 6 7 be very worried about*

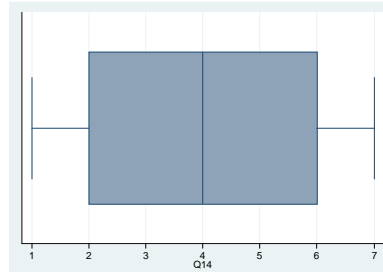
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7

Decision makers are slightly more concerned about the threat of *climate change* than German scientists working in the Baltic region

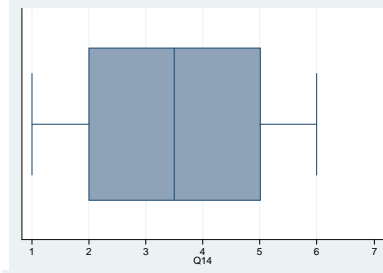
## Worry about sea level

BALTEX  
scientists

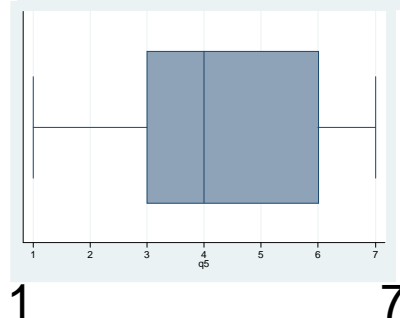


How convinced are you that *sea level rise* poses a very serious threat to the Baltic Sea region in which you live?  
*Not at all 1 2 3 4 5 6 7 Very much*

German sub-set  
scientists



Decision makers



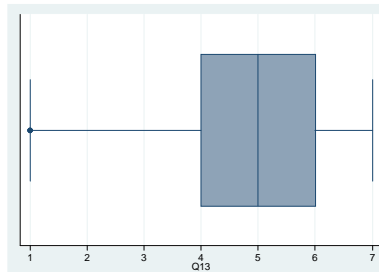
In your opinion and for the area in which you live, *sea level rise* is something a person should be  
*not worried about at all 1 2 3 4 5 6 7 very worried about*

Decision makers are slightly more concerned about the threat of *sea level rise* than German working in the Baltic region

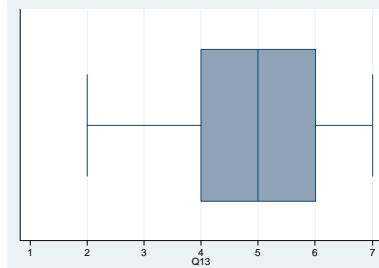
# The Present

How convinced are you that the Baltic Sea region in which you live is beginning to experience the gradual impacts not at all 1 ... 7 very much

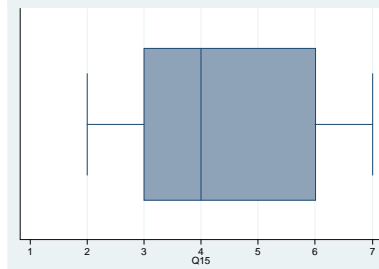
Climate change  
Baltic scientists



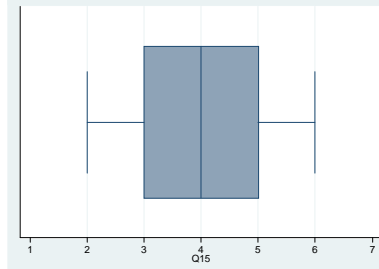
Climate change  
German scientists



Sea Level Rise  
Baltic scientists



Sea Level Rise  
German scientists



On climate change all scientists are in agreement

On sea level rise the German scientists are a little more skeptical

1 7

Are there signs that the following have already happened in the area where you live:  
decision makers

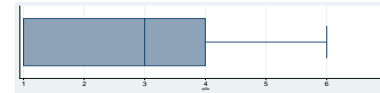
**Warmer summer temperatures**

none

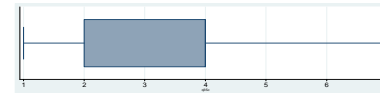
very much



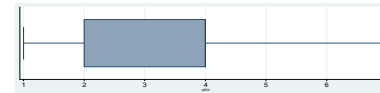
**Cooler summer temperatures**



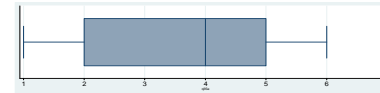
**Warmer winter temperatures**



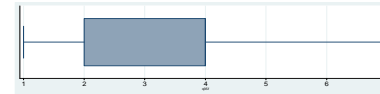
**Cooler winter temperatures**



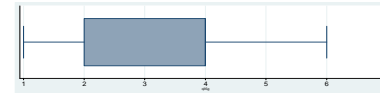
**More rain in summer**



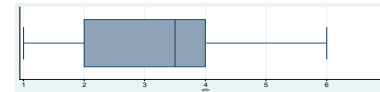
**Less rain in summer**



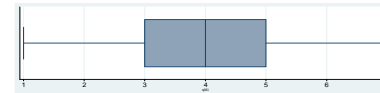
**More rain in winter**



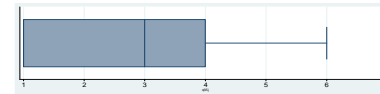
**Less rain in winter**



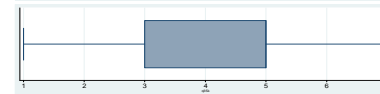
**More snow**



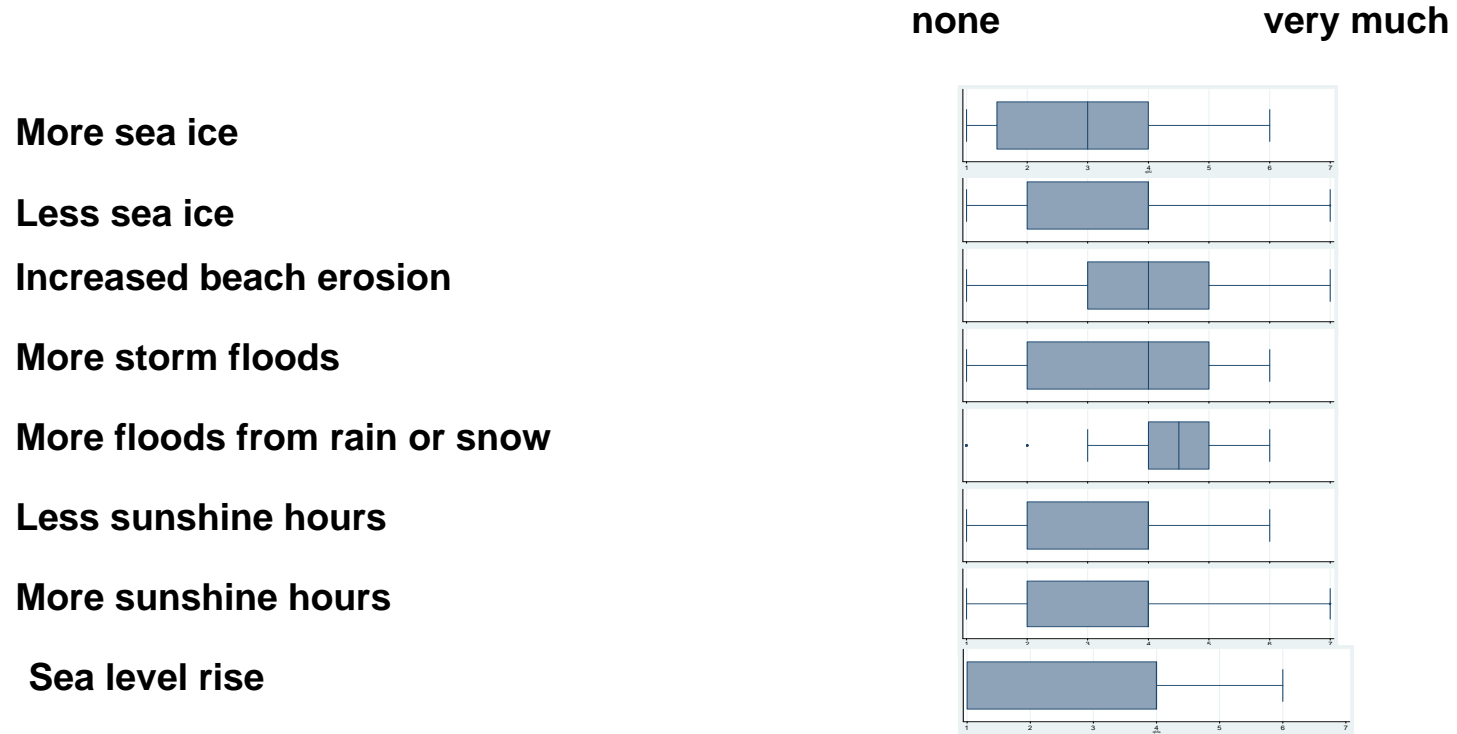
**Less snow**



**Stronger winds**



Are there signs that the following have already happened in the area where you live:  
decision makers (continued)



## About the decision makers perceptions of change

- *Everything* has changed somewhat
- Some perceptions are conflicting
- Most change noted in
  - Warmer summer temperatures
  - More rain in summer
  - More snow
  - Stronger winds
  - Increased beach erosion
  - More storm floods
  - More floods from rain or snow

What is interesting to note is the differences in perspectives. Some people perceive that summer temperatures have gotten warmer, others that it has become cooler; more rain, less rain. The point is, this causes much confusion in the issues at hand; adaptation responses. This is significant when resources need to be allocated according to priority.

It brings into question the involvement of stakeholders. Should their input be utilized on both problem recognition and problem resolution, or be limited to involvement only in determining means of adaptation?

It also raises the issue of science to society communication.



# **The Sense of Urgency**

## **Time Frames**

## Scientists perceptions

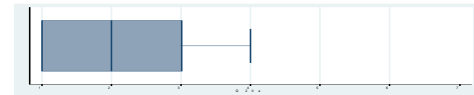
The potential for catastrophe in the Baltic region if we do not do anything towards adaptation or mitigation in

10 year

Climate change Baltic scientists



Climate change German scientists



Sea level rise Baltic scientists



Sea level rise German scientists



50 years

Climate change Baltic scientists



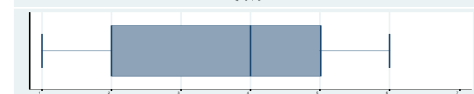
Climate change German scientists



Sea level rise Baltic scientists



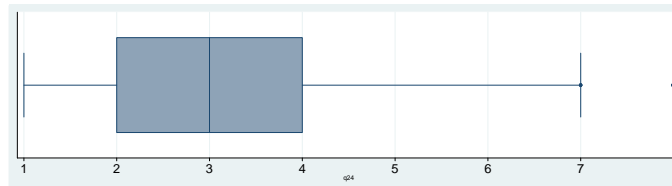
Sea level rise German scientists



## Stakeholder perceptions

In your region, do you think adaptation measures must be taken

immediately



some time in the future

Possibly a slight hint of panic

Again, there is a discrepancy between scientific claims and public claims.

So what is the origin of the public perceptions?

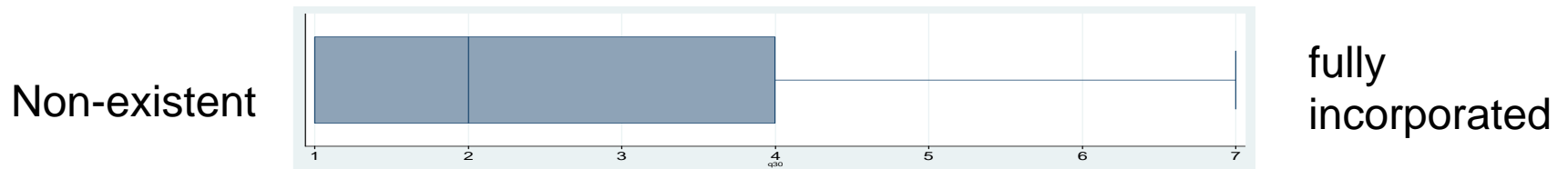
# **The communication and utilization of science**

The public understanding of scientific issues might have something to do with the sources of information.

The survey of coastal decision makers assessed the stakeholders' awareness of various programs designed to raise awareness. The responses indicate that the majority of stakeholders are not even aware of the existence of these programs and of those that were aware, few found them to be of any significant use.

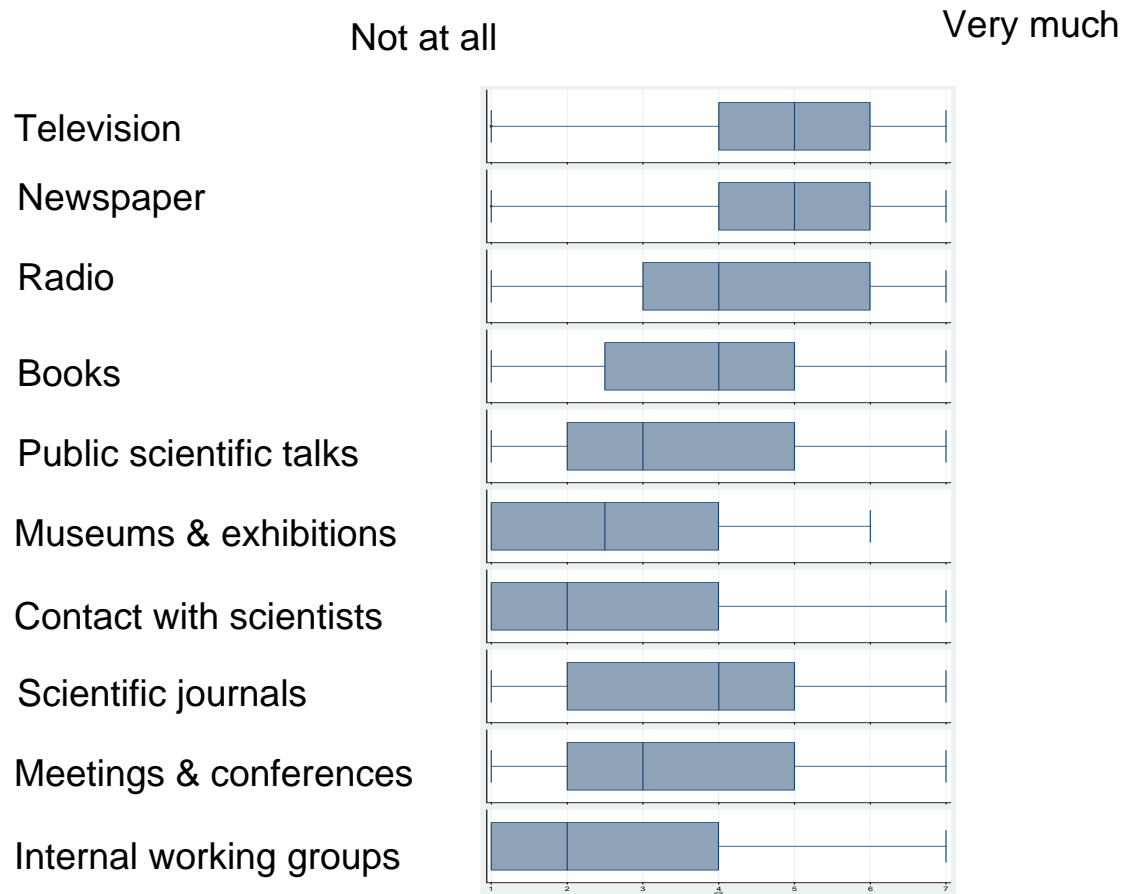
'Integrated Coastal Zone Management' is also another concept that gets much attention in coastal sciences, suggesting participation among scientists, stakeholders and general public. While applied in theory, it seems to be lacking in praxis.

In your region, integrated coastal zone management is



# Decision makers' sources of information

How much do you use the following sources of information



Most information seems to come from

- Television
- Newspapers
- Media

Least information comes from

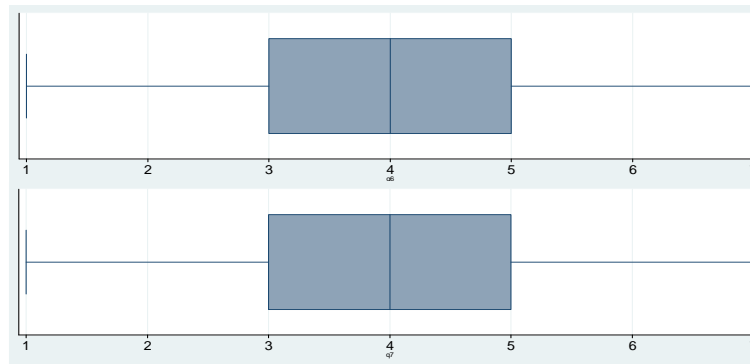
- Contact from scientists
- Exhibitions
- Internal working groups

It would seem that decision makers often rely on public communications (television, radio) on which to base decisions concerning climate change.

How do they see the utility of direct contact with science?

The results of science that you refer to in order to make decisions are often

Not understandable



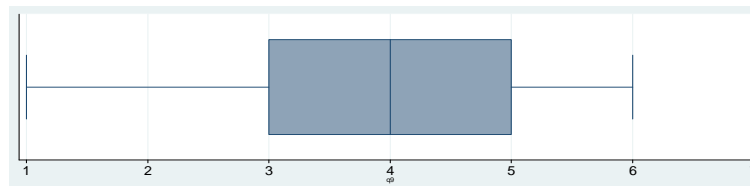
Very understandable

Of little use

Of great use

Scientists know what information you need to design effective policy and take appropriate action

Never



Always



There needs for much more attention to given to the nature of the dialogue between the knowledge producers and the knowledge consumers. To date, it seems to be an ad hoc process with the decision maker collecting information from multiple sources. Little attention has been give to developing a formalized process. If the issues warrants important decisions, this is a must.

It would appear that there is an increased need to understand what constitutes useable knowledge and this should be defined by the decision makers. This should also be on a regional basis.

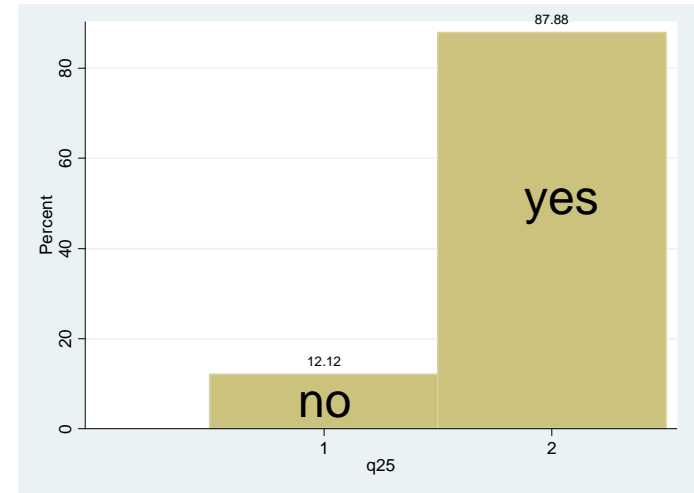
However, science is not always able to supply explicit simple answers.

More dialogue is necessary between decision makers and scientists to explain the limitations of the current state of science to decision makers and for the decision makers to make known their needs and concerns.

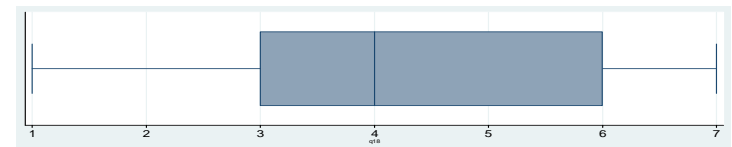
Successful and cost effective adaptation strategies depend upon such dialogue.

What decision makers perceive e of as necessary.

Are adaptation measures required?



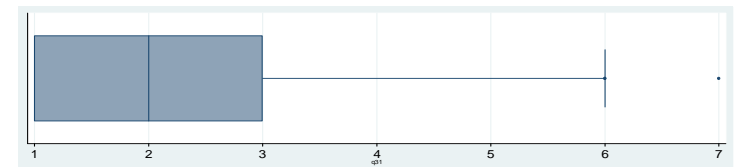
Focus should be on



Mitigation

Adaptation

Action should be



pro-active

reactive

Thank you for your attention