25 years of the Madrid Protocol
What, Why and How...is this important to a Polar educator?

José Xavier with many colleagues
Summary

Origins of the Madrid Protocol

The challenges of Antarctic environmental affairs today

The role of education of the Antarctic in the future
Antarctic research relevant to policy grew particularly from the late 1950’s...
International Geophysics Year (1957-1958)

- > 60 States
- 4 000 scientific organisations
- 25 000 scientists & technicians

Provided conditions to make Antarctica a continent dedicated to Science
Signature of the Antarctic Treaty 1959

In 2016 53 Parties
Antarctic Treaty

Signed in 1959, *into force* in 1961

Antarctica does not belong to any country

But there are “on-hold” claims....

http://www.ats.aq/e/ats.htm
Antarctic Treaty focus on 3 key issues

. International cooperation

. Science

. Protection of the Antarctic Environment
Freedom of scientific investigation in Antarctica
Station settlement

International cooperation in scientific investigation:

- Information exchange
- Personnel exchange
- Scientific observations
- Results exchange

A continent dedicated to Peace and Science

Signy Island (Antarctic)
Antarctic Treaty includes...

• Conservation of Antarctic Seals (1972)
• Conservation of Antarctic Marine Living Resources (1980)
• Protocol on Environmental Protection to the Antarctic Treaty or Madrid Protocol (1991)
Protocol on Environmental Protection to the Antarctic Treaty

Designates Antarctica as a natural reserve, devoted to peace and science (Article 2)

There is no expiration date for the Protocol

Commission of the Environmental Protection (CEP)
Number of Educational outputs?

Gray and Hughes 2017
Celebrating the 25th Anniversary of the Madrid Protocol in 2016!!!
Major issues to Antarctic policy makers

- Knowledge of Antarctic environment is incomplete

- Situation is not static...

Impact of human activities should be recognized and minimized
Major issues to Antarctic policy makers

Slow pace of Antarctic policies development:

Pollution management – Stopped

Protected Areas – Stopped?

Conservation status of species – Stopped

Problems: Need for quality science and good interpretation of results, funding, emerging issues, political contexts, lack of communication

Sutherland et al. (2013) Nature 503: 335-337
Hughes et al. (2016) Antarctic science (editorial)
Scientific Committee on Antarctic Research is playing a key role in addressing issues such as:

- Persistent organic pollutants
- Bioprospecting
- Wildlife disturbance
- Specially protected species
- Non-native species
- Environmental impacts

ALWAYS EVIDENCE-BASED ADVICE

SCAR identifies issues emerging from greater scientific understanding of the region and brings them to the attention of policymakers.
What scientists need to know about policy makers

• Applying science into policy is DIFFICULT!

• “We need more research” is the wrong answer

• Policy makers can be experts too 😊

• Economics and law are important in policy advice

• Public opinion matters

• Policy and science operate on different scales

Educators can help a lot!!!!
In the early days... when one talks to the other...
More engagement of scientists needed…
Do you have research papers that might have policy implications?
Research relevant to Antarctic policies

- Introduction of non-native species
- Climate change implications for the environment
- Improving biodiversity knowledge
- Area protection and management
- Repair or remediation of environmental damage
- Marine spatial protection and management
- Monitoring and state of the environment reporting
Research relevant to Antarctic policies

- Site specific guidelines for tourist-visited sites
- Human footprint / wilderness management
- Improving environmental impact assessment
- Designation and management of Historic Sites and Monuments
- Tourism and NGO activities
- Protection of outstanding geological values
Solutions in progress...

. Creation of mechanisms to facilitate collaborations
  (to address scientific issues relevant to Antarctic policy)

. Establish good communication channels
  (e.g. more engagement between scientists and policy makers)

. Adequate interpretation of evidence-based (well funded) science

. Assessment of emerging issues well in advance
  (e.g. having more engaged scientists into policy making; check CEP plans)

. International scientific engagement to address policy relevant issues
  (e.g. Through SCAR research programs with national funding bodies)

. Creation of an Antarctic Treaty Education & Outreach Forum
Example of a framework…COMMUNICATION is key!
The Southern Ocean ecosystem under multiple climate change stresses - an integrated circumpolar assessment

JULIAN GUTT, NANCY BERTLER, THOMAS J. BRACEGIRDLE, ALEXANDER BUSCHMANN, JOSEFINO COMISO, GRAHAM HOSIE, ENRIQUE ISLA, IRENE R. SCHLOSS, CRAIG R. SMITH, JEAN TOURNADRE and JOSÉ C. XAVIER
We need fundamental shifts in values from a growth-centered society to one acknowledging biophysical limits and centered on human well-being and biodiversity conservation
Emerging issue on Education with Environmental Protection (e.g. Biodiversity)

Importance of the Polar Regions and Biodiversity

Step 1. Evaluation of Impact

Education on Biodiversity in the Polar Regions

José C. Xavier, Gerlis Fugmann, Inga Beck, Louise Huffman and Eric Jensen
Visitor Survey

1. What is your gender?
   - MALE  - FEMALE  - OTHER

2. What is your age?
   ________ years

3. How many years of formal education (in school, college and university) have you had?
   ________ years

4. Do you live locally or are you visiting?
   - LOCAL  - VISITOR / TOURIST

5. What prompted your visit today (tick all that apply)?
   - Fun day out
   - Learn about animals
   - See animals
   - Entertainment
   - Family time
   - Other (specify below)
   - Other

5. Please list anything that comes to mind when you think of ‘polar wildlife’:
   1. 
   2. 
   3. 
   4. 
   5. 

6. If you can think of an action that you could take to help save polar plant or animal species, please list below: (Or if you can’t think of any actions, tick here)
   1. 
   2. 

*If you listed actions above, have you taken any of these actions in the last month? NO  YES

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‘I feel personally concerned about animals going extinct’ (circle your answer)

- Strongly Disagree  - Disagree  - Somewhat Disagree  - Neutral  - Somewhat Agree  - Agree  - Strongly Agree

(Or if you have no opinion about this statement, tick here)

[Information about the survey, who is conducting it, how data will be used, etc.]

Thank you very much for completing this survey!
Fig. 2 Pre- (a) and post-visit (b) drawings for same child from impact evaluation at London Zoo.
Policy makers, scientists and educators are striking back... working together!!!!!
But how? Good historical context...
This is your opportunity!!!
Considerable work already done...

Kaiser et al. (2010)
Intersessional contact Group
Education and Outreach (IP papers delivered)

SCAR CBET (PEI rep.)

POLAR EDUCATORS INTERNATIONAL

Education & Outreach Expert group

APECS (PEI rep.)
Build your network

With your colleagues (PEI)

With early career scientists (APECS)

Within your country representatives (Antarctic Treaty System)

With (other) scientists/educators via SCAR Capacity Building, Education & Training (SCAR CBET)…and these workshops!!!
25 years of the Madrid Protocol

- Important for Antarctic Treaty affairs
- Help addressing future issues
- Education about the Antarctic is crucial!

Polar Educators International play a key role
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MAKE THE BEST OF THIS WEEK