

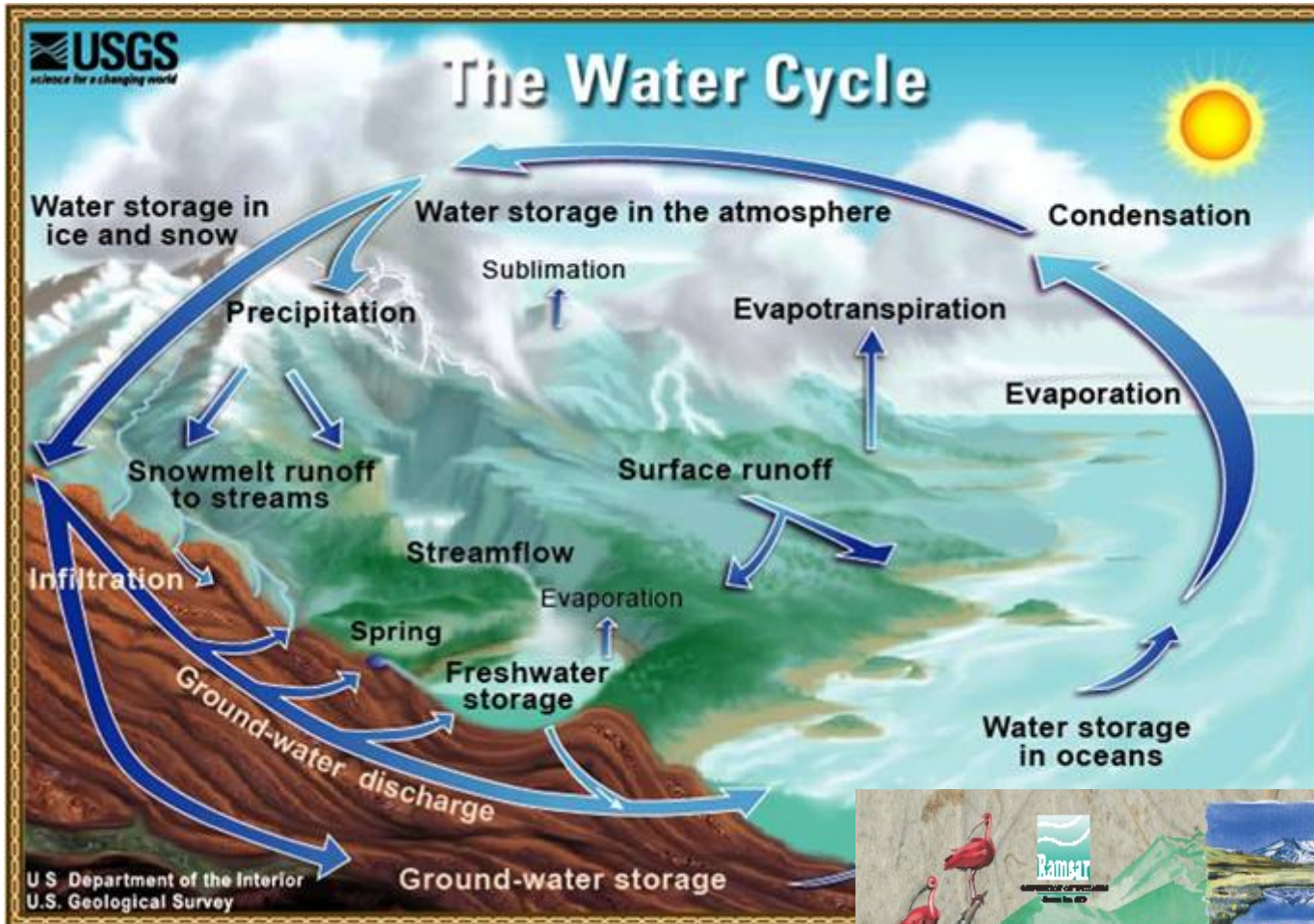


CONVENTION ON WETLANDS  
CONVENTION SUR LES ZONES HUMIDES  
CONVENCIÓN SOBRE LOS HUMEDALES  
(Ramsar, Iran, 1971)

# 湿地公约与湿地科学发展展望

雷光春

湿地公约秘书处



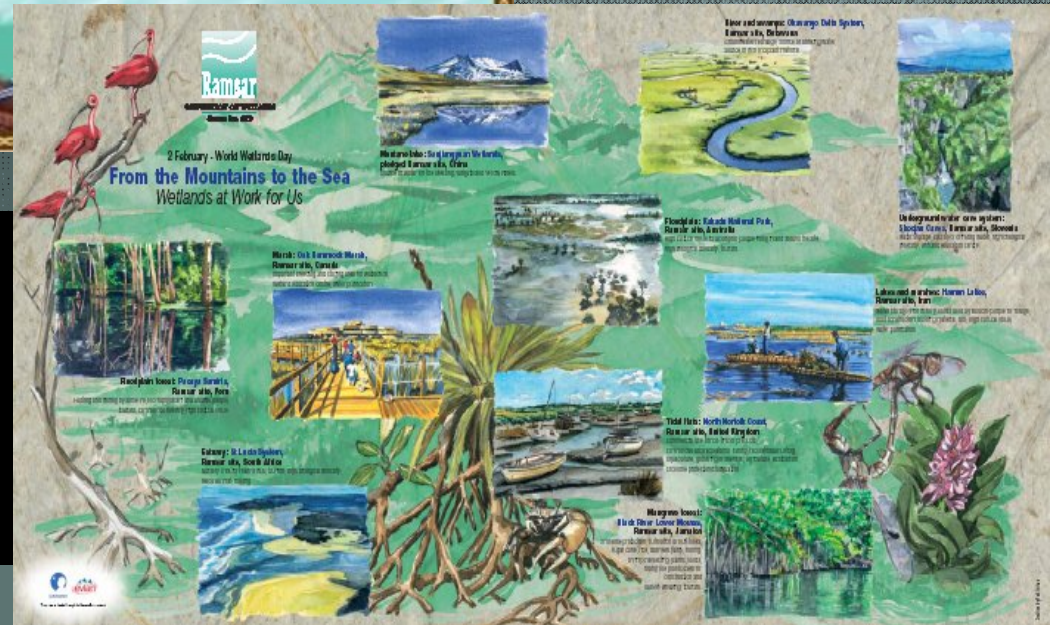
Wetland Ecosystem often across national boundary, via

-Hydrological Links

- Biogeochemical Links

- Ecological links  
Migratory animals (birds, fishes, etc)

Why Need An International Convention?



# Ramsar Convention on Wetlands



**Ramsar**  
CONVENTION ON WETLANDS  
Wetlands for All

**2 February - World Wetlands Day**  
**From the Mountains to the Sea**  
Wetlands at Work for Us

**High and mountain: Okavango Delta System, Botswana**  
A Ramsar site, the Okavango delta is a seasonal wetland in the tropical rainforest.

**Mountain lake: Sixiangyuan Wetlands, China**  
One of the largest and most diverse wetlands in the world.

**Wetland: Okavango Delta, Botswana**  
A Ramsar site, the Okavango delta is a seasonal wetland in the tropical rainforest.

**Floodplain: Kakadu National Park, Australia**  
A Ramsar site, Kakadu National Park is a wetland in the tropical rainforest.

**Underground water system: Shijiazhuang Wetlands, China**  
A Ramsar site, the Shijiazhuang Wetlands are a wetland in the temperate zone.

**Wetland: Humber Estuary, United Kingdom**  
A Ramsar site, the Humber Estuary is a wetland in the temperate zone.

**Wetland: Humber Estuary, United Kingdom**  
A Ramsar site, the Humber Estuary is a wetland in the temperate zone.

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A Ramsar site, the Humber Estuary is a wetland in the temperate zone.

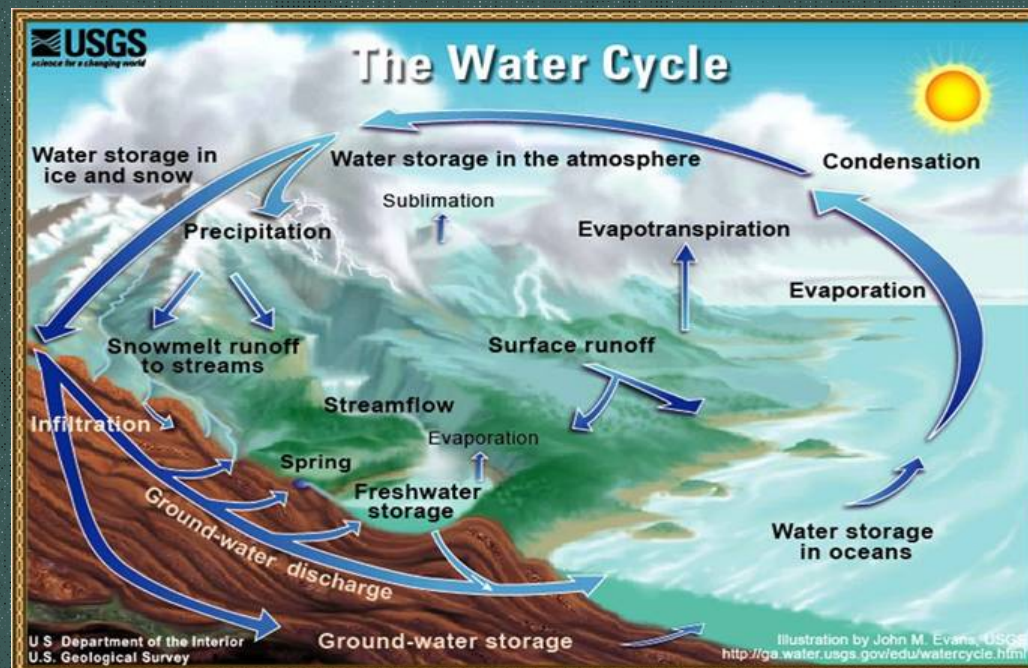
**Wetland: Humber Estuary, United Kingdom**  
A Ramsar site, the Humber Estuary is a wetland in the temperate zone.

**Wetland: Humber Estuary, United Kingdom**  
A Ramsar site, the Humber Estuary is a wetland in the temperate zone.



# 湿地的定义 (湿地公约1971年文本)

"areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres".

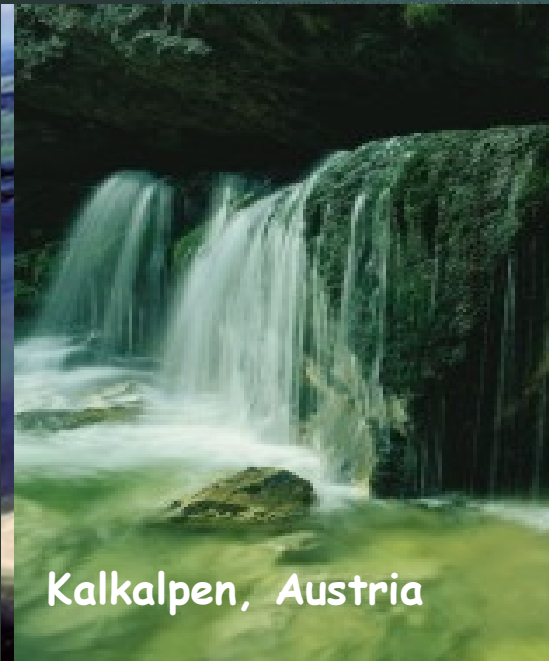


U.S. Department of the Interior  
U.S. Geological Survey

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# So....Ramsar Concerns

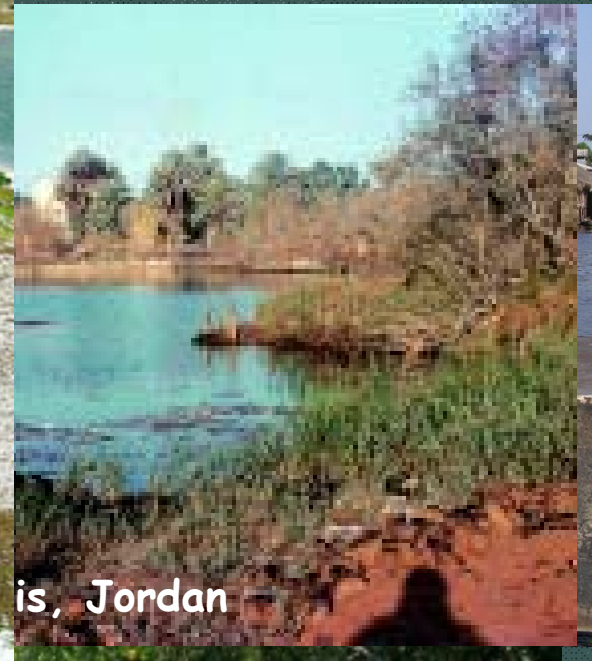
- Natural wetlands
  - marshes, rivers, lakes, lagoons, estuaries, mangroves, coral reefs etc.



Kalkalpen, Austria



Los Roques - Venezuela



is, Jordan

- Human-made wetlands
  - farm ponds, irrigated agricultural fields and systems



Diponegoro, Bali, Indonesia



Oasis of Ouled Saïd, Algeria



Aquaculture Pens  
Lake Sebu, Philippines

# The Ramsar Convention on Wetlands

- Over 30 years ago, Convention text was far-sighted in recognising:
  - the interdependence of people and their environment;**
  - the fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna; and**
  - that wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable**



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# Ramsar's mission...

The conservation and *wise use* of wetlands through local, regional and national actions and international cooperation as a contribution towards achieving sustainable development throughout the world.



משרד הסביבה והיער  
מחלקת המים וההגנה  
משרד החקלאות והמזון  
מחלקת המים וההגנה  
המרכז הלאומי לשימור  
ההגנה והסביבה, 1997

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# Commitments: 3 Pillars of Action

- Wise use of all wetlands
- **Wetlands of International Importance**
- International cooperation



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# Wise Use of Wetlands



“their sustainable utilisation for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem”



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# Wetlands of International Importance (Ramsar sites)

- Designation
  - selected under one or more of 9 criteria, e.g.:
    - a representative or unique wetland type,
    - important biodiversity,
    - life-cycle of species
    - e.g. spawning, nesting, stopovers;



# International Cooperation



## Trilateral Wadden Sea Cooperation



**25th anniversary  
Celebration for trilateral  
cooperation on Wadden Sea  
among Denmark, Germany  
and The Netherlands  
8 Ramsar sites; 1,000,000  
hectares.**



**The Mediterranean Wetlands Initiative (MedWet)**

**25 countries (Europe, Africa & Asia)**

# Himalayan Initiative: Safeguard Water Tower for Asia



Bangladesh  
Bhutan  
China  
India  
Kyrgyzstan  
Nepal  
Pakistan  
Tajikistan



# Commitments: Reporting

- Article 3.2: Each Contracting Party shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organization or government responsible for the continuing bureau duties specified in Article 8.



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# Commitments: Reporting

- Update Ramsar Information Sheet

Resolution VI.13 has urged Contracting Parties to revise the data provided in the RIS at least every six years

- COP National Report

From the first meeting of the Ramsar Conference of the Contracting Parties in 1980, countries have submitted National Reports on their implementation of the Convention. National Reports constitute a vital source of information on the implementation of the Convention at the country, regional, and global levels, and once submitted to the Bureau become public documents.



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# Commitments: Reserves and training

- **(Article 4 of the Convention)**

Contracting Parties have also undertaken to establish nature reserves in wetlands, whether or not they are included in the Ramsar List, and they are also expected to promote training in the fields of wetland research, management and wardening.





# How does the Convention works?

- Contracting Parties (countries)
- Meetings of Contracting Parties (COPs)
  - main decision-making meetings
- Standing Committee
  - Intersessional governance body
- Scientific & Technical Review Panel
  - prepares advice and guidance on technical issues
- Ramsar Bureau/Secretariat
  - Co-ordinates the day-to-day activities



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# Ramsar Convention Manual & Handbooks



## **The Ramsar Convention Manual**

**A Guide to the Convention on Wetlands  
(Ramsar, Iran, 1971)**

3rd edition



## **Handbooks**

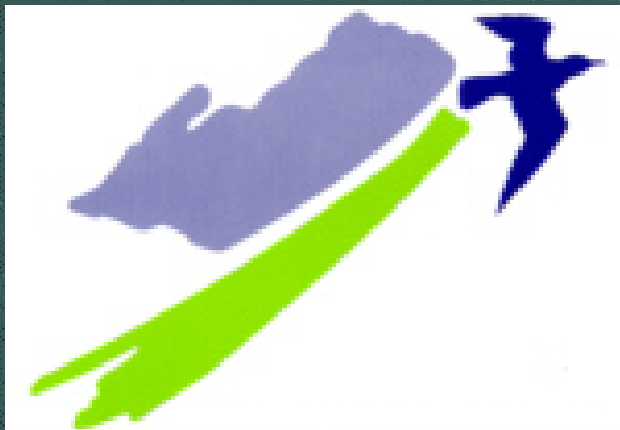
- 1) Wise Use of Wetlands
- 2) National Wetland Policies
- 3) Laws and Institutions
- 4) River basin Management
- 5) Participatory Management
- 6) Wetland CEPA
- 7) Designating Ramsar Sites
- 8) Managing Wetlands
- 9) International Cooperation
- 10) Wetland Inventory
- 11) Impact Assessment
- 12) Water Allocation and Management
- 13) Coastal Management
- 14) Peatlands



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# Evolution of Ramsar Convention: *from Water Birds to Wetlands Ecosystem*



1989

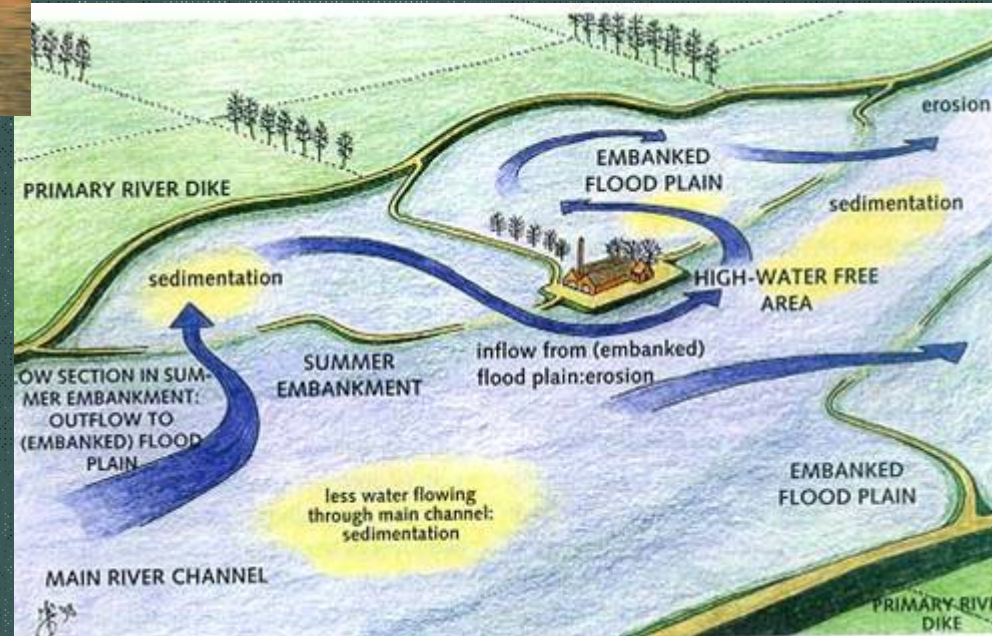


1998



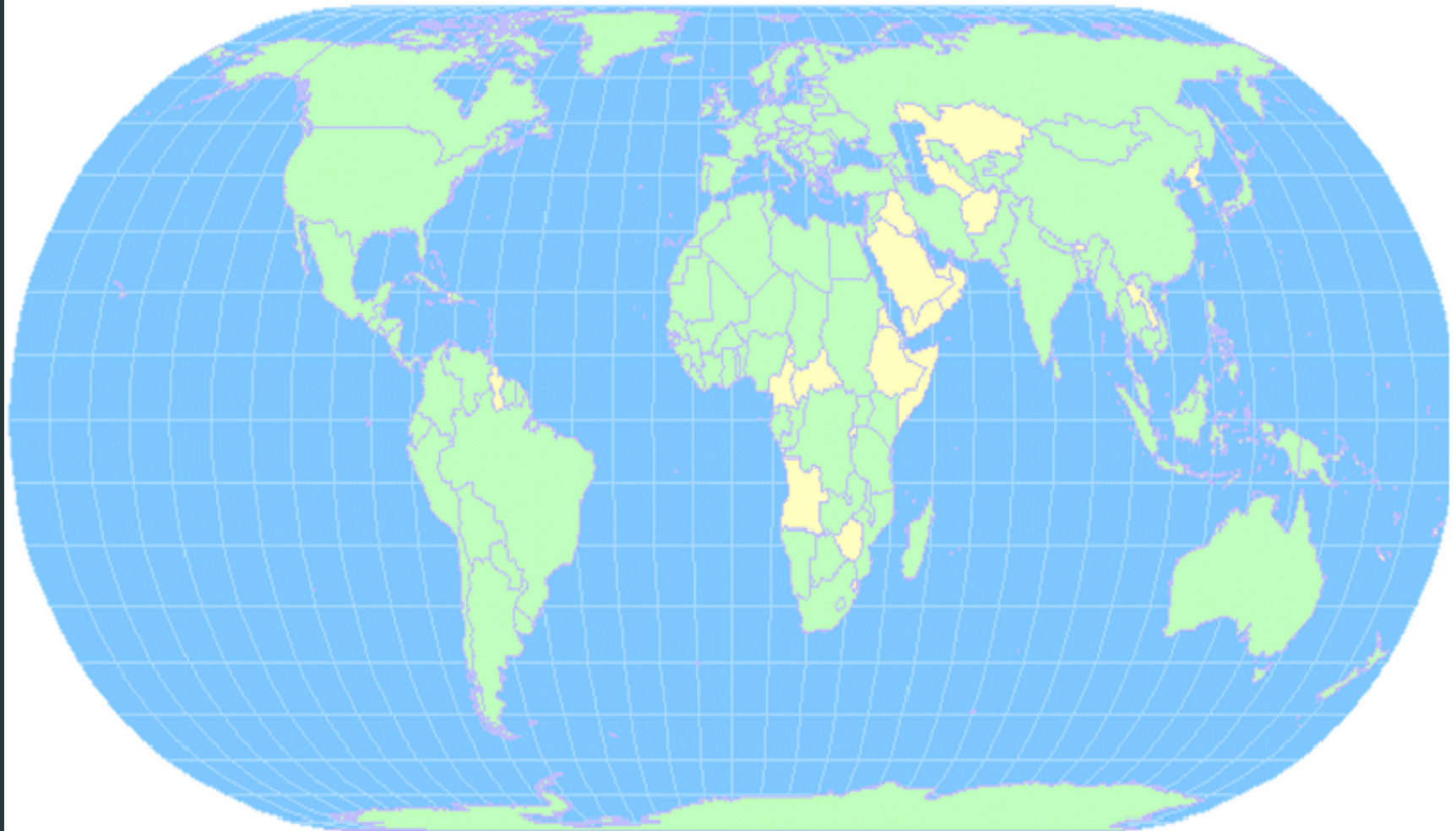
# 生态系统

# 迁徙水鸟



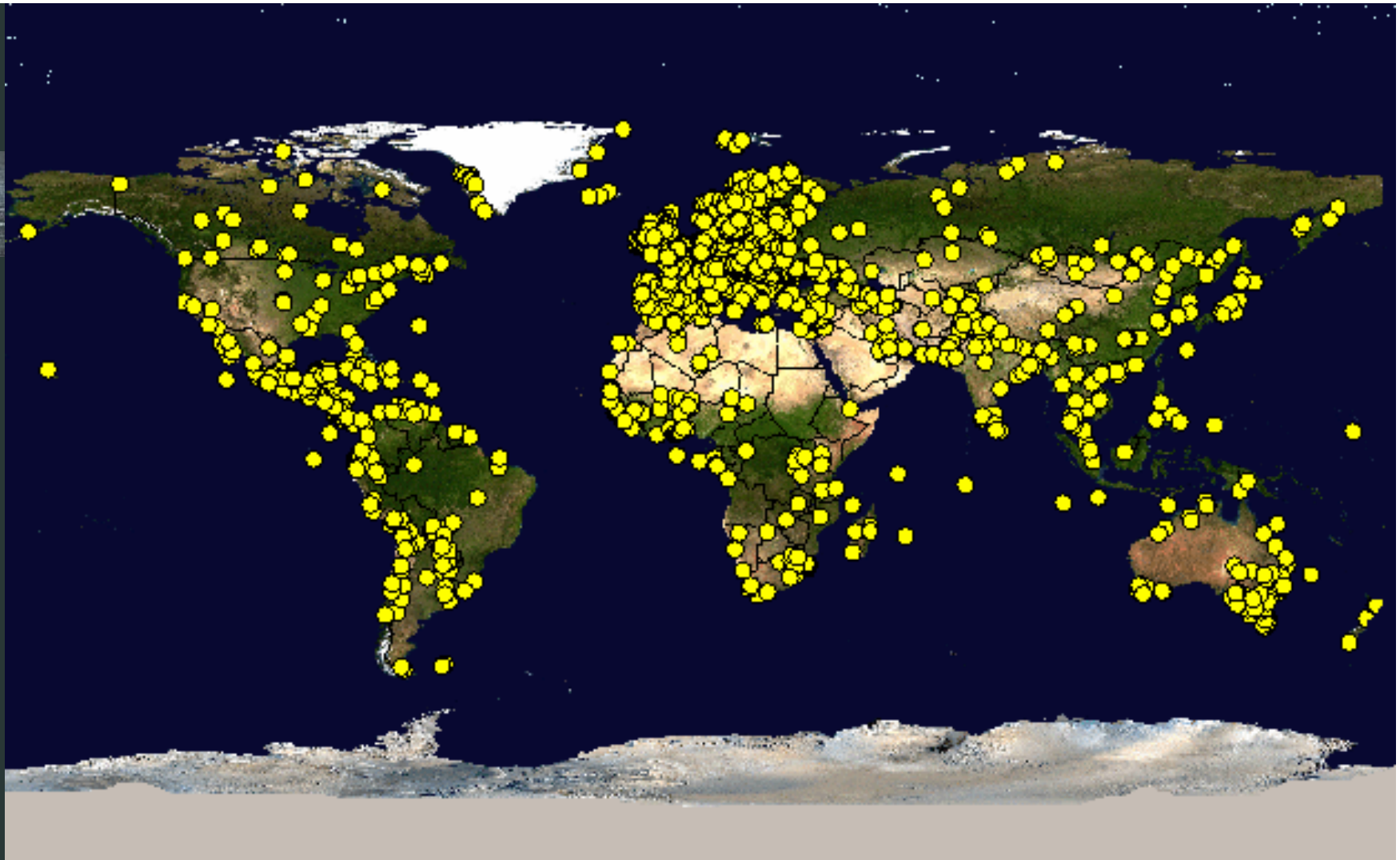
# The Ramsar Convention today

- 150 Contracting Parties



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- 1590 Wetlands of International Importance  
“Ramsar sites”
  - 134 million hectares
  - size: from <1 ha to> 6 million ha



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Fig. 1: LIVING PLANET INDEX, 1970-2000

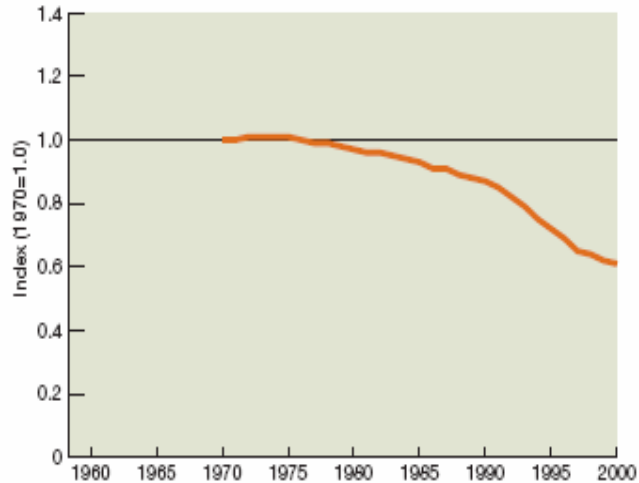


Fig. 2: HUMANITY'S ECOLOGICAL FOOTPRINT, 1961-2001

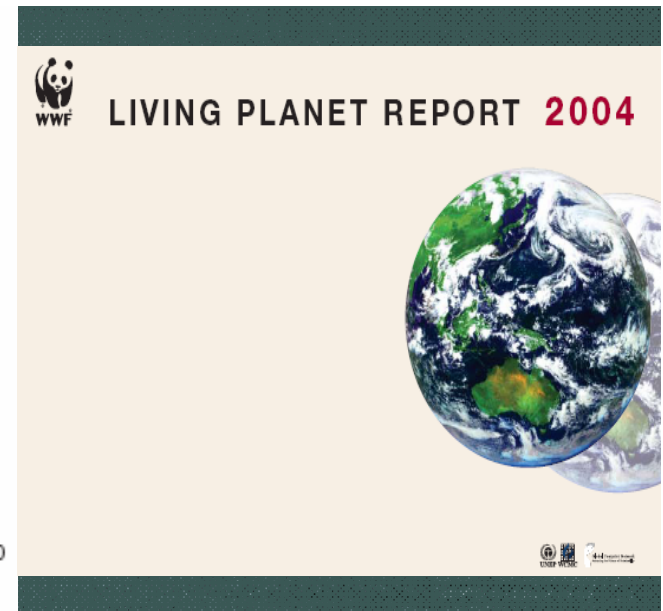
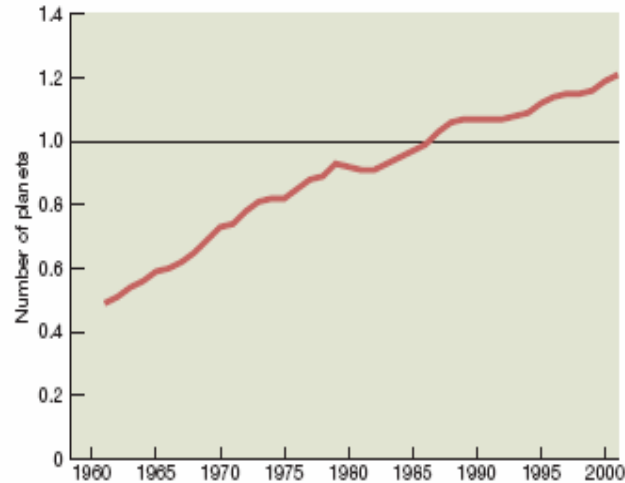


Fig. 3: TERRESTRIAL SPECIES POPULATION INDEX, 1970-2000

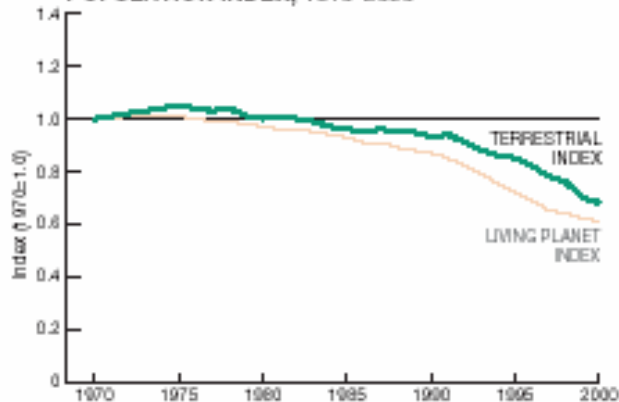


Fig. 4: FRESHWATER SPECIES POPULATION INDEX, 1970-2000

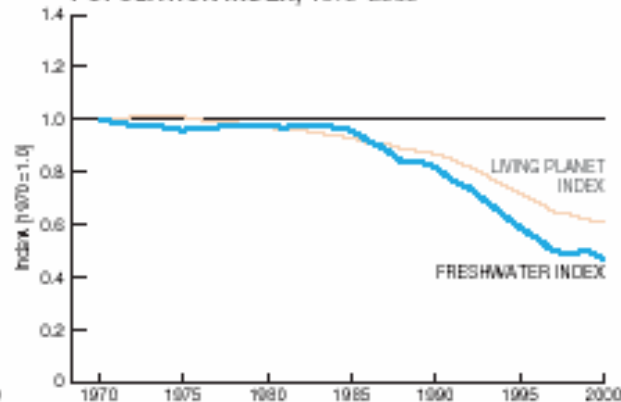
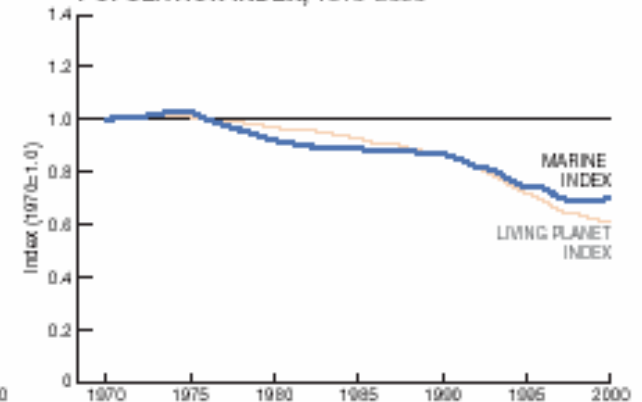


Fig. 5: MARINE SPECIES POPULATION INDEX, 1970-2000



千年生态系统评估报告指出：湿地生态系统是目前被破坏最为严重的生态系统，>50% 的湿地已经消失，20-30% 正在退化

# 湿地科学的发展方向

## Human Well-being

- Health Security
- Environment Security
- Economic Security
- Culture Security
- Equity

## Indirect Drivers of Change

- Demographic
- Economic (trade, subsidies, etc)
- Political (regulations, laws, etc)
- Science & Technology
- Culture and religious

## Direct Drivers of Change

- Change in local land use
- Species removal /introduce
- Eutrophication /Pollution
- Hydraulic works
- Climate Change
- Over Consumption

## Ecosystem Service

- Provisioning (e.g., food, water, fuel, gene pool)
  - Regulating (e.g, climate, water, disasters)
  - Supporting (primary production, biodiversity & nutrients cycle)
- Culture



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**Wetland Assessment  
& Valuation**  
**An Ecosystem between  
Marine & Terrestrial  
Ecosystem**

## Ecosystem Service

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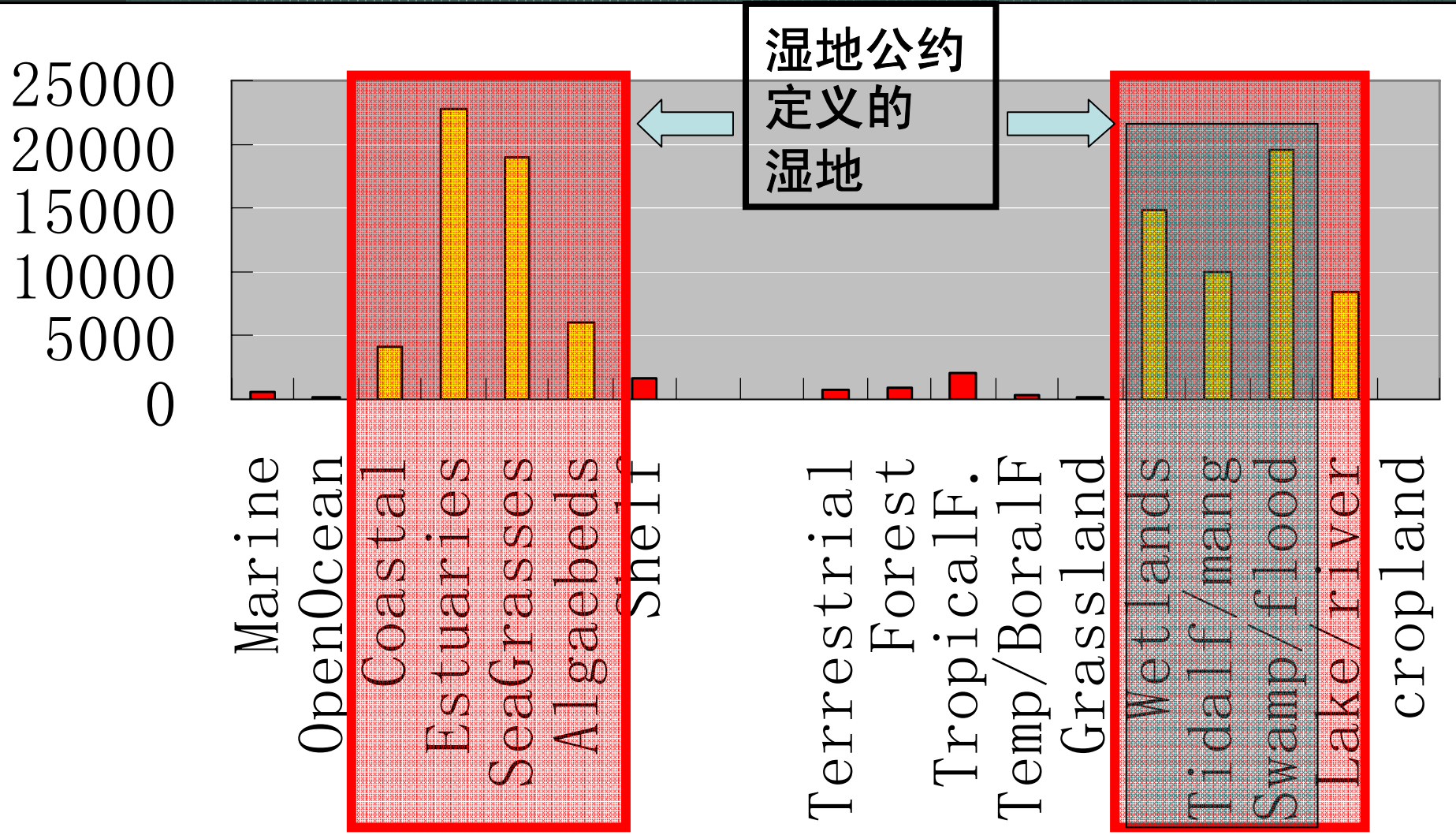
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# 生态系统的服务与自然资本 (美元/公顷/年)

(R. Costanza 等, 1997)



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**Understanding of  
Complex Natural  
Processes  
Esp. driven by  
Climate Change**

## Ecosystem Service

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**Restoration:  
Mission of the  
21st Century**

**What we need????**

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## Ecohydrology & Phytotechnology

## Ecosystem Service

- Provisioning (e.g., food, water, fuel, gene pool)
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Improve Understanding  
Of Fundamental  
Ecological Questions

## Ecosystem Service

- Provisioning (e.g., food, water, fuel, gene pool)
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**Wetland Science  
Will Become  
Mainstreamed**

## Ecosystem Service

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# 谢 谢 大 家



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