



A SUCCESSFUL EXPERIENCE OF A MOOC IN PORT WATERS' QUALITY MANAGEMENT

José A. Juanes*, Aina G. Gómez, Sergio Martínez, Bárbara Ondiviela, Felipe Fernández, M Luisa Sámano, Paloma Fernández

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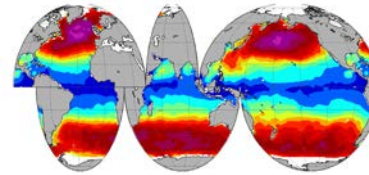
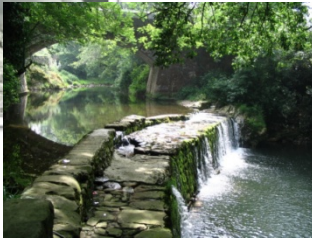
OUTLINE

1. **Challenge**: Transferring scientific knowledge to society
2. **Topic**: Port waters' quality management (ROM 5.1)
3. **Tool**: Massive Open Online Courses (MOOC)
4. Results
5. Conclusions

1. Challenge



Hydr/Coast
Engineering



Climate Change /
Renew. Energies



Hydrobiology -
Water Manag.



EHEA

- 2 MSc (ICP-GISH)
- 1 PhD (“IH2O”)
- Erasmus Mundus
- Summer schools

Capacity building

- Professionals
- Managers
- Summer courses
- Training courses

Water cycle literacy

- School visits
- UE Night of R&D
- Internships
- Games...

Coordinating and Optimizing the teaching effort

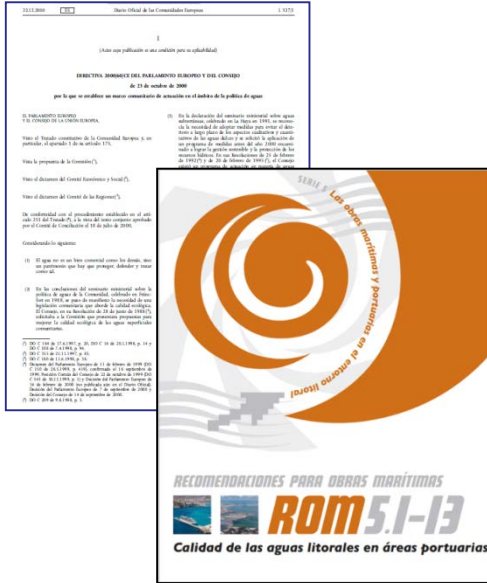
1. Challenge

How to explain to our children what we do and why it is important



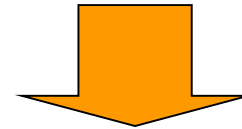
Main goal: SHARE WITH ALL OF YOU A SUCCESSFUL TEACHING EXPERIENCE

2. Topic



Water Framework Directive, (2000)

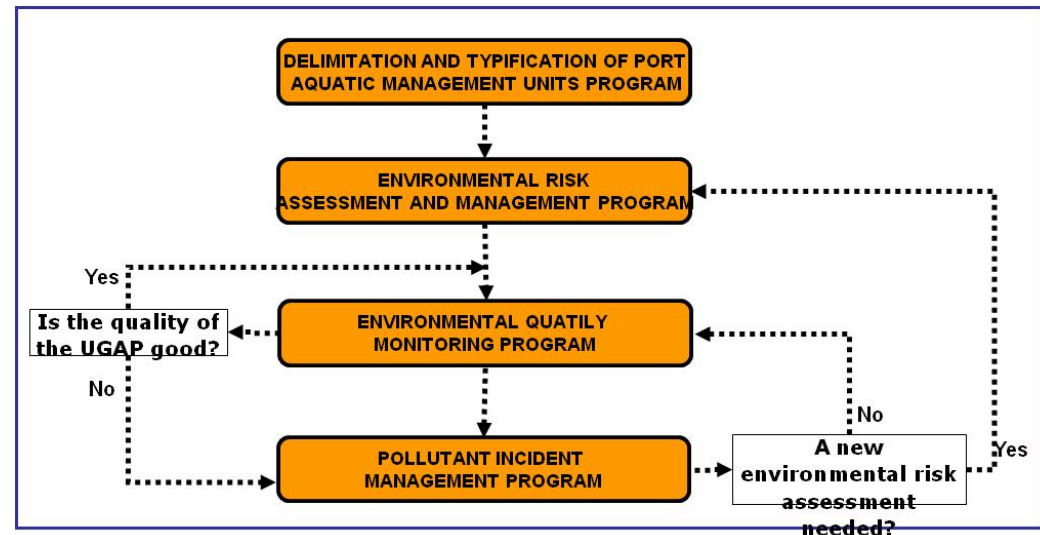
Establish a framework for the protection of the waters that prevent their deterioration and promote its sustainable use.



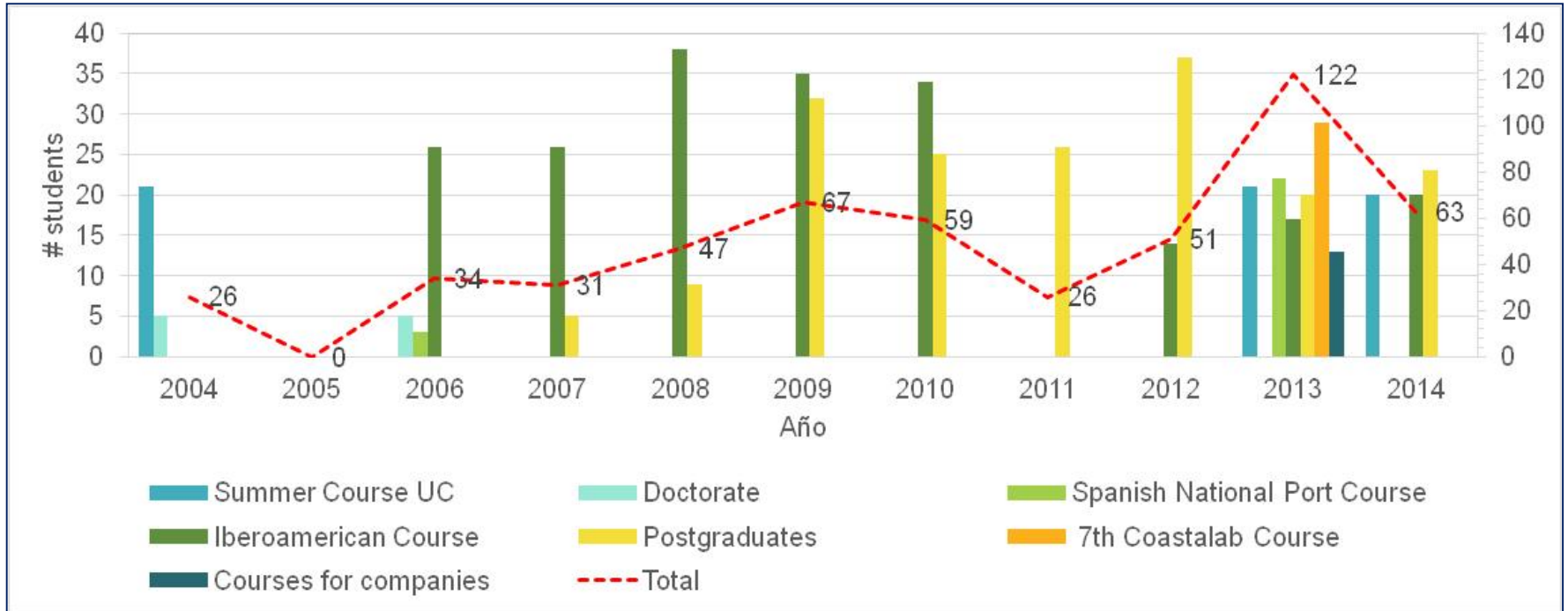
ROM 5.1. Quality of coastal waters in port areas (2005, 2013).

Provide a methodological tool for the integrated management of the quality of the port water systems.

- A standard for ES Ports
- Validation at the UE level: PORTONOVO



2. Topic



- Since 2004..... A decade of different teaching experiences
- Total: 526 students (postgraduates, mainly)
- 2013 → Last update of ROM 5.1

3. Tool

- **Massive:** 10^3 students;
- **Open:** Free, “copyleft”
- **Online:** Internet, social networks....
- **Course:** High Education Institutions

The screenshot shows the Miriada-X MOOC interface. At the top, there is a navigation bar with the Miriada-X logo, a user profile for José A. Juanes de la Peña, and options for language (español | portugués) and account management (Salir). Below the navigation bar, the course title 'ROM 5.1: Calidad de Aguas Portuarias/Port waters' quality (3.ª edición)' is displayed. A secondary navigation bar includes links for 'Inicio', 'Syllabus', 'PyR', 'Foro', 'Documentación', 'Alumnos', and 'Administración'. The main content area features a video player with the title 'ROM 5.1: Calidad de Aguas Portuarias' and a play button. Below the video player, the names of the instructors, José Antonio Juanes de la Peña and Aina García Gómez, are listed. On the right side, there is a sidebar with the UC Cantabria logo and a 'Fecha De Inicio' (Start Date) section showing '16 enero 2015'. At the bottom of the sidebar, there is a section titled 'Con este curso puedes conseguir' (With this course you can achieve).

- Origin: 2008. MIT, Open Course Ware (OCW)
- OCW (sharing static information, but copyleft) → MOOC (open dynamic information, but copyright)
- UNESCO: promotion of open-reusable education materials
- Different platforms: CoursEra, Udacity, EdX, Miriada-X
- Topics: mainly generics, BUT.....

What can we expect about a very specific topic (ROM 5.1)?

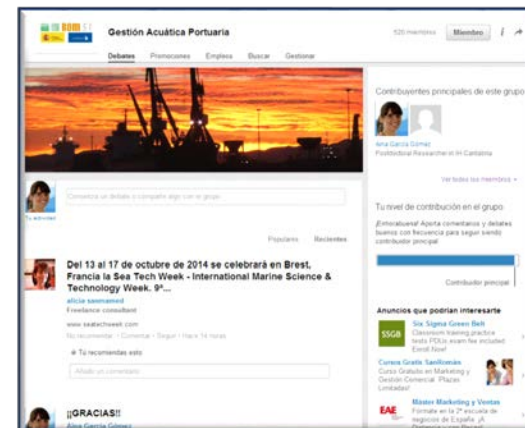
3. Tool

<https://www.miriadax.net/web/calidad-aguas-portuarias-3edicion>

- Critical phase: Design of teaching materials
 - ✓ 3-10 min videos
 - ✓ Additional readings, documents
 - ✓ Presentations
 - ✓ Exercises (practical work, tests, P2P)
- General structure: 6-8 modules (weeks)
 - ✓ Evaluation by module
 - ✓ Fueling interactions (wiki, forum, contest, etc)
 - ✓ Promoting “leaders” / Guiding debates
- Complementary links



www.rom51.ihcantabria.com



<https://www.linkedin.com/groups/>

4. Results

- Number of students:
expected x10
- Average rate of completion:
>20%
- Temporal evolution: big
changes after Module 0

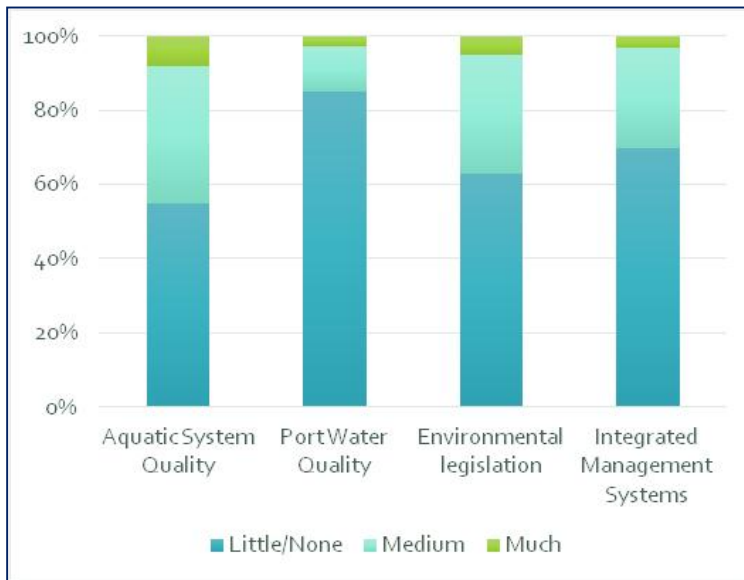
Course	Enrol	Start	Finish	Diploma
1	1.919	1.550	353	57
2	1.888	1.264	338	-
3	2.074	1.617	149*	-
TOTAL	5.881	4.431	840*	-



4. Results

Education level:

- 40% BSc
- 36% Eng,
- 15% MSc,
- 9% No graduates

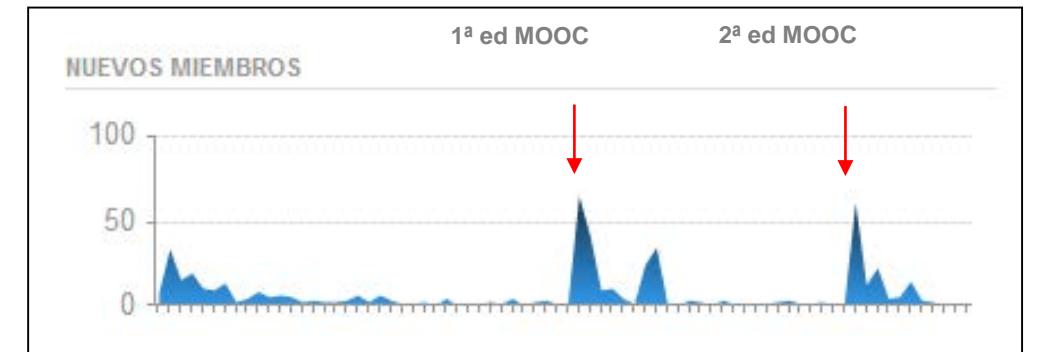
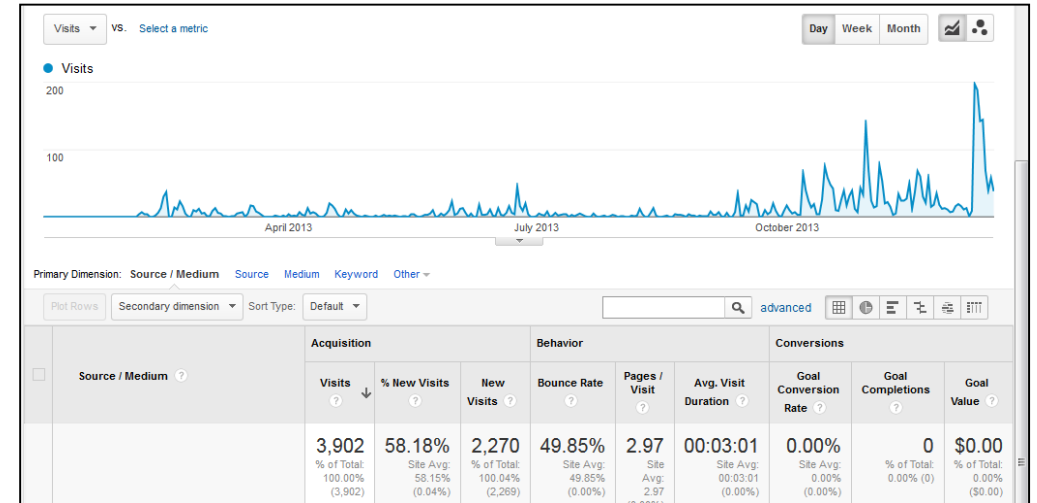
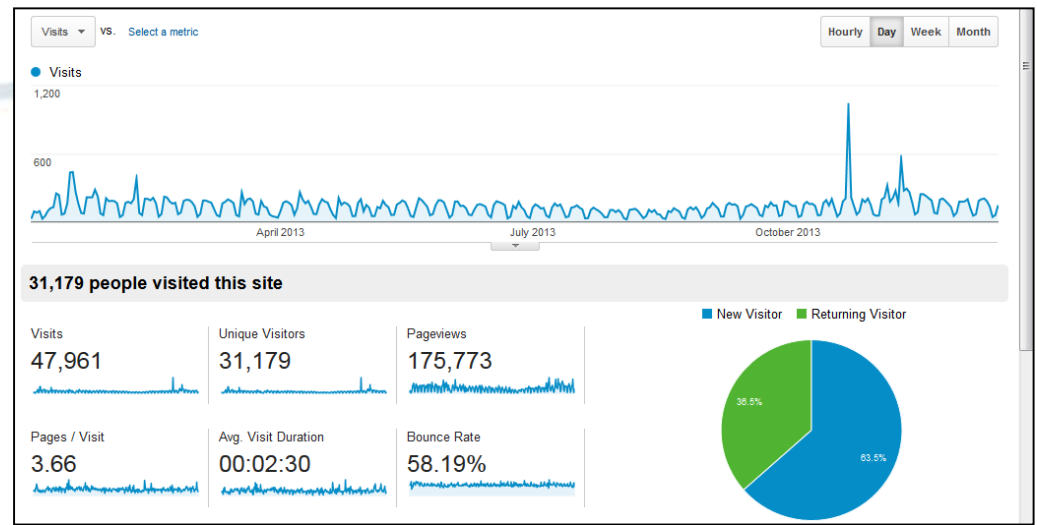


Sin datos	1521	73,09%
España	272	13,07%
Perú	60	2,88%
Colombia	46	2,21%
México	37	1,78%
Ecuador	23	1,11%
Chile	22	1,06%
Venezuela	20	0,96%
Argentina	16	0,77%
Brasil	14	0,67%
República Dominicana	10	0,48%
Honduras	6	0,29%
Guatemala	4	0,19%
Reino Unido	3	0,14%
El Salvador	3	0,14%
Portugal	3	0,14%
Nicaragua	2	0,1%
Alemania	2	0,1%
Paraguay	2	0,1%
Costa Rica	2	0,1%
Italia	2	0,1%
Uruguay	2	0,1%
Puerto Rico	2	0,1%
Cuba	1	0,05%
Argelia	1	0,05%
Panamá	1	0,05%
Angola	1	0,05%
Andorra	1	0,05%
Estados Unidos	1	0,05%
Bolivia	1	0,05%

- 45% Relative increase of visits to the web page of the IHC

- 71% Relative increase of visits to the ROM 5.1. web page

- Significant promotion of professional networking: LinkedIn GAP group → 48% new members (608)



5. Conclusions

- Transfer of SCI knowledge to the society is an urgent need
- New technologies come up to the capacity building scenario as a powerful tool
- MOOC can be a valuable channel to divulgate what we do
- Our results showed the significant impact of this new approach to let people come into our work and interact with them





juanesj@unican.es