Society of Wetland Scientists Oceania Chapter

June 2020 Newsletter

Oceania Chapter representation

At our Extraordinary General Meeting on 4 May Phil Papas was unanimously elected to the position of President of the Oceania Chapter. This leaves the position of Vice President vacant – if you are interested in contributing to the SWS Oceania Chapter as VP or as a State/Territory/Regional representative please get in touch, we'd love to have your input and perspective!

Upcoming wetlands webinar

Sydney Olympic Park and SWS-O will be hosting the next wetlands webinar on 30 June at 2:00PM AEST. The topic is Challenges and opportunities in managing estuarine lakes and lagoons, with special reference to Lake Illawarra, Australia. Previous webinars have covered topics such as essential design components of constructed urban wetlands, mangrove response to sea level rise, and the role of the Ramsar Convention in wetland conservation. To register, visit:

https://www.sydneyolympicpark.com.au/education/professional-development

Wetland conferences

The **SWS Student Section** will be holding a very special **Virtual Conference** on 10-11 June 2020. The full agenda and registration details can be found at https://studentsofsws.wixsite.com/sosws/events-1/2020-sws-student-section-virtual-conference

Given the postponement of so many conferences and events this year this 2-day virtual conference provides a valuable opportunity for students working in wetland-related areas and will feature student lightening talks, networking opportunities, highlights from SWS leaders on ways to expand students' professional development in the Society and much more!

Most of you will have heard that the **Quebec RE^3 Conference** has been postponed to 2021, however SWS will be unable to participate due to our own **SWS Annual Meeting** which is planned to take place **1-4 June 2021** in Spokane, Washington. More information will be available in coming weeks.

The **11th INTECOL International Wetlands Conference** to be held in Christchurch is also postponed. The new dates are **10-15 October 2021** and abstract submissions will re-open in the near future. See http://clpinz.org.nz/intecol20

Notes from the field

The Oceania chapter covers a very large region with an amazing diversity of wetlands and wetland projects. To capture this diversity, we'd like to showcase a wetland project or two from around our region in each newsletter. If you have an interesting project on the go or just a great wetland experience that would make others smile, please share it with us!

Sea Level Rise @ Sydney Olympic Park – *Swapan Paul*

Sydney Olympic Park contains the largest coverage of contiguous wetlands in the Sydney Harbour-Parramatta River system. These wetlands are so invaluable that they are considered as the jewel in the crown of the Parramatta River system and are listed on the national Directory of Important Wetlands in Australia. It has the largest contiguous coverage of mangroves (approximately 70ha), coastal saltmarsh (25ha) and Swamp Oak Floodplain Forest (SOFF; approx. 10ha). In addition, it has some 35ha of estuarine creeks, mudflats and lagoons. These are small numbers but given in the geographical heart of urban Sydney, they do make a drop!

Due to their urban setting and a long history of past modifications and subsequent restoration attempts, these wetlands are under various management pressures. In the quest for innovative techniques of managing wetlands at Sydney Olympic Park and employing sustainability principles, the Authority strives for up-to-date scientific understanding. Amongst others, it looks out to projecting likely impacts of sea level rise on its estuarine wetlands.

According to the tidal data gathered from this site under the supervision of NSW Manly Hydraulics Laboratory, it can be concluded that more than 7mm of average annual sea level rise has been taking place in this site over the past 14 years, starting from 2002-03. In fact, in some years, the rise was many times higher and particularly in 2016-17, it rose by 55mm (Figure 1). The above rises mean that the estuarine wetlands are under enormous pressure from the rising sea level and at risk of malfunctions, ecosystem shifts and rapid transformations; if not losses. According to the

trend line in Figure 1, the level in 2022 will reach 140mm above the 2002-03 level. Considering this as an oversimplification of the trend, the rate of rise has been actually sharper than in the recent past. Many of the on-the-ground changes that we have been noticing should not have taken place until 2050; clearly indicating a sharper rate of rise.

To assesses the potential risks, vulnerability and adaptability, a study was undertaken in 2010 (Finlayson and Spiers, 2011). According to the study, all estuarine wetlands within Sydney Olympic Park contained vulnerable components, based on an assessment of existing threats and risks and thence vulnerability to specific climate change and sea level rise impacts. However, some wetlands had more vulnerability than the others. The study suggested that the Authority's response to the changes in scenarios due to sea level rise and/or climate change would need to be reasonable, prompt and in most cases, pre-emptive. Proactive steps will help undertaking adaptation measures so to sustain conservation initiatives. Table 1 provides a summary of the outlook.

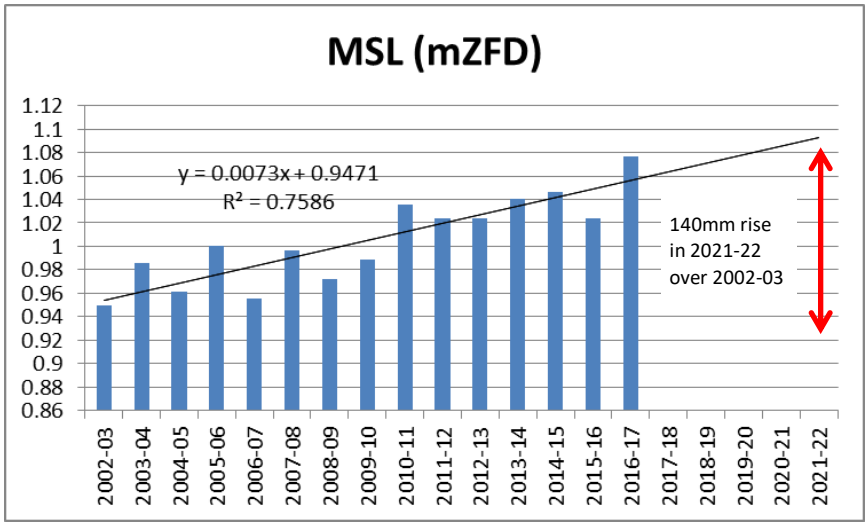


Figure 1. Average Mean Sea Level (MSL) fluctuations and trend-line in sea level rise in Sydney Olympic Park during 2002-03 through 2016-17 (values are in Zero Fort Denison Tide Gauge).

Table 1: Summary of major changes expected in main estuarine wetlands in Sydney Olympic Park under present (1.075m) and future (1.475m and 1.974m) tidal inundation levels arising from sea level rise (reformatted from Finlayson & Spiers, 2011).

1.075m AHD (ave. of high tides in 2000)	**1.475m AHD (future ave. of high tides in 2050)**	**1.975m AHD (future ave. of high tides in 2100)**
Parramatta River System: Newington Nature Reserve Wetland		
Under current tidal restrictions placed on the wetland with the help of the manual weir, the entire mangrove area will be fully inundated; parts of the saltmarsh area in the Nursery section will remain un-inundated; the freshwater Wharf Pond will be partly inundated; the Swamp Oak Forest will be partly inundated.	Under the same tidal restrictions the entire mangrove area will be fully inundated; only a very small part of the saltmarsh area in the Nursery section will be un-inundated; the freshwater Wharf Pond will be mostly inundated; the Swamp Oak will be mostly inundated; the Armory Creek will be flooded.	Under the same tidal restrictions the entire mangrove area will be more heavily inundated; all parts of the saltmarsh area including the Nursery section will be inundated; the freshwater Wharf Pond will be totally inundated; the Swamp Oak will be totally inundated; the Armory Creek will be completely flooded; many sections of pathways in the River Walk and the Armory will be under water.
Powells Creek System: Badu Mangrove and Lake Belvedere		
With full tidal restrictions imposed through the automated	With full tidal restrictions the WBR will be partly affected by water	Even with full tidal restrictions the WBR will be fully affected by

weir, the WBR will be unaffected; Badu Saltmarsh ponds will be inundated; mangrove areas will be favourably inundated; the freshwater Bennelong Pond will not be inundated; pathways and walkways will not be flooded; freshwater Lake Belvedere will not be inundated.	seepage through the bunds; Badu Saltmarsh and the ponds will be fully inundated; mangrove areas will be deeply inundated; the boardwalks will be more unstable; the freshwater Bennelong Pond will be inundated; most pathways and walkways will be flooded; freshwater Lake Belvedere will be fully inundated; pathways around the Lake will be under water; leachate system may be infiltrated; portion of Oulton Ave pathway will be under water.	flooding of the bunds; saltwater will infiltrate through WBR to the freshwater Triangle Pond; Badu Saltmarsh and the ponds will be fully inundated; mangrove areas will be more deeply inundated; the freshwater Bennelong Pond will be fully inundated; all the pathways and walkways will be underwater; Lake Belvedere will be fully inundated; pathways around the Lake will be totally under water; leachate system will be infiltrated and the Leachate Evaporative Pond will be infiltrated; Bennelong Parkway and the exit pathway of Bicentennial Park will be partly under water; most sections of the Oulton Ave pathway will be fully under water.
Haslams Creek System: Haslams Reach & Haslams Flats		
Since there are no restrictions, tides will inundate all areas of mangroves and most areas of saltmarsh; Nuwi Wetland will be normally inundated by tides; the freshwater Northern Water Feature and EWQCP will not receive tidal water; GGBF Ponds will not be inundated. Tides will inundate most areas of saltmarsh on Haslams Flats; the freshwater Teal Pond will not receive tidal water; GGBF Ponds will not be inundated.	Tides will inundate all areas of mangroves and all areas of saltmarsh; Nuwi Wetland will be more inundated by tides and if associated with storm events it will infiltrate the freshwater Narawang Wetland; the freshwater Northern Water Feature will not receive tidal water but EWQCP will; GGBF Ponds will not be inundated. Tides will inundate all areas of saltmarsh on Haslams Flats; the freshwater Teal Pond will not receive tidal water; GGBF Ponds will not be inundated.	Tides will inundate all areas of mangroves and all areas of saltmarsh; Nuwi Wetland will be more inundated by tides and even without associated storm events it will infiltrate the freshwater Narawang Wetland; the freshwater Northern Water Feature will not receive tidal water but EWQCP will be fully inundated; GGBF Ponds will not be inundated. Tides will inundate all areas of saltmarsh on Haslams Flats; the freshwater Teal Pond will receive tidal water; paths and walkways will be flooded; freshwater Narawang Wetland will be inundated by tides and GGBF Ponds will be severely affected.

The rates of sea level rises that were considered in the above table were those that were adopted by the NSW Government in 2009 (DECCW, 2009). To address the rising sea level at the same time maintain the ecological integrity of the estuarine ecosystems that are mandated to be conserved, the Authority has been particularly employing the principle of Adaptive Environmental Management.

References

DECCW (Department of Environment, Climate Change and Water). 2009. Coastal Risk Management Guide, Incorporating sea level rise benchmarks in coastal risk assessments. Published by Department of Environment, Climate Change and Water NSW.

Finlayson, M. and Spiers, A. G. 2011. Vulnerability Assessment of the Impacts of Climate Change and Sea Level Rise on Sydney Olympic Park Wetlands (Sydney, Australia), Report prepared for Sydney Olympic Park Authority.

A Society of Wetland Scientists Climate Change and Wetlands Initiative

In response to the interest in SWS in many facets of climate change and wetlands we have developed and discussed with the Society's Executive Board a proposal to establish a Climate Change and Wetlands Initiative. It is foremost an initiative with an open invitation to all SWS members to contribute in ways that reflect their interests for sharing and information on the following topics:

- vulnerability of wetland ecosystems to climate change;
- impact of climate change on wetland ecosystems;
- adaptation to the impacts of climate change on wetland ecosystems;
- mitigation of climate change through wetland management; and
- provision of guidance on possible policy and institutional responses to the social-ecological complexities associated with climate change and wetlands.

The Initiative builds on activities undertaken through the Society's annual meetings and involve an expanding group of Society members. The Initiative will help create a bridge to other relevant communities and encourage further dialogue and activity.

The Initiative represents an extension of activities processes fostered by SWS over many years and can be done without additional costs. These activities will be coordinated by a small panel that will report to the Board of Directors on an agreed basis, and help foster a more substantive SWS presence at the international level.

A number of activities have been proposed and will be developed and complemented by others. The coordinating team will manage these in a loose-tight arrangement and encourage small teams to develop their own activities and report these to the SWS Board of Directors on a regular basis. It is not expected that all climate change activities need to be badged as a part of the initiative – it's an open invitation to those interested in being part of a wider initiative.

Examples that could be developed include: preparation of a paper on the global carbon storage in different wetlands types; preparing a paper on climate change decisions taken by countries at the Ramsar Conference in 2018; a paper on climate change decisions made over time at Ramsar COPs; participation in a high level panel on the "UN Decade of Restoration: Responding to Climate Destabilization and Wetland/Biodiversity Loss" that had been planned for the "RE3" conference in Quebec City, Canada in June 2020; as well as further symposia at SWS annual conferences. There also seems to be interest in compiling an annotated catalogue of SWS climate change activities from past annual meetings and provide a statement about the expertise within SWS about climate change and wetlands and provide a springboard for further activities.

A longer description of this Initiative has been accepted for publication in Wetland Science & Practice.

Past SWS Statements on Wetlands and Climate Change

Past statements on wetlands and climate change made at SWS annual meetings from 2017-2019. These statements were approved by the SWS Executive Board or the Board of Directors and made available for individuals to sign them. The statements are reproduced below and have also been presented in articles in Wetlands and Wetlands Science & Practice.

San Juan Statement on Climate Change and Wetlands (2017)

The following participants at the Society of Wetland Scientists 2017 Annual Meeting encourage(s) policy makers in all countries to continue their collaborative efforts to develop and implement international policies, such as the Paris Climate Agreement, to mitigate global climate change and, in so doing:

- Ensure the protection of existing carbon banks in wetlands and encourage carbon sequestration;

- Maintain or restore wetlands for their biodiversity and ecosystem services, including climate resiliency;
- Request all wetland managers and scientists to share this statement and support local to global efforts to combat climate change for the betterment of humankind."

The Denver Declaration on the Management and Restoration of Wetlands (2018)

The following participants at the Society of Wetland Scientists 2018 Annual Meeting affirm their support for the "San Juan Statement on Climate Change and Wetlands" that was signed by more than 200 participants at the Society's 2017 Annual Meeting.

The San Juan Statement encouraged all countries to continue their collaborative efforts to develop and implement international policies to mitigate global climate change.

In 2018, participants stress the importance of:

I. recognizing that all types of wetlands, including those underlain by permafrost and coastal wetlands, are among the most productive ecosystems on the planet;
II. ensuring the protection of existing wetlands that are among the largest and most vulnerable carbon sinks on the planet;
III. increasing the capacity for additional carbon sequestration by wetlands where possible; and
IV. maintaining and restoring wetlands for their biodiversity and ecosystem services, including climate resiliency.

The participants also recognize the immense ecological, economic, cultural, and spiritual significance of high-altitude wetlands and the key roles they play in the hydrology and ecology of major rivers.

And request all wetland managers and scientists to share this statement and encourage policy makers to support local to global efforts to combat the loss of all wetlands for the betterment of humankind.

Baltimore Proclamation on the Role of Wetlands in Meeting Global Environmental Challenges (2019)

The following participants at the Society of Wetland Scientists 2019 Annual Meeting ***affirm*** their support for the *San Juan Statement on Climate Change and Wetlands* and the *Denver Declaration on the Management and Restoration of Wetlands*, each of which was signed by more than 200 participants at the 2017 and 2018 Annual Meetings.

The San Juan Statement **encouraged** all countries to continue their collaborative efforts to develop and implement international policies to mitigate global climate change. The Denver Declaration **stressed the importance of** protecting existing wetland carbon sinks and future capacity of wetlands to sequester carbon; and maintaining and restoring wetland ecosystem services, particularly for biodiversity and climate resilience.

In 2019, signers of the Baltimore Proclamation **urge** policymakers and natural resource managers to **elevate** the role of wetlands when developing sustainable solutions to the rapid and pervasive global changes in climate and land use by:

- protecting existing high carbon wetlands such as peatlands (including those underlain by permafrost) and coastal wetlands;
- increasing the continuing sequestration of carbon in wetlands;
- protecting and restoring the biodiversity and ecological function of wetlands and their essential ecosystem services;
- working collaboratively across disciplines to meet global environmental challenges as they work to protect and restore wetlands.

The participants also recognize the essential ecological, economic, cultural and spiritual contributions to human well-being, including climate mitigation and resilience that wetlands

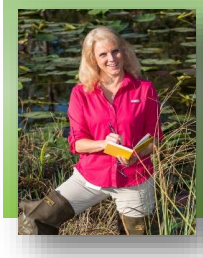
contribute to nations around the world and request all wetland managers and scientists to share this statement and encourage policy makers in all countries and regions to integrate wetlands into local to global sustainable solutions in order to address the dual challenges of climate and land use change.

Wetland Professional Certification Program

The Professional Wetland Scientist program is an international initiative with more than 2000 Professional Wetland Scientists (PWS) and Wetland Professionals In Training (WPIT). Membership indicates qualified wetland professionals, educators, consultants and others who uphold the highest level of professional and ethical standards. If you are interested in applying or would like further information visit https://www.wetlandcert.org and have a look at the information flyer below.

Society of Wetland Scientists - Professional Certification Program

An International Organization with over 2,000 Professional Wetland Scientists certified since 1994





The **Society of Wetland Scientists** was formed to promote understanding, conservation, protection, restoration, science-based management and sustainability of wetlands. The Society developed a program in 1994 for certification of wetland science training and experience to meet the needs of professional ecologists, hydrologists, soil scientists, educators, agency professionals, consultants, and others who practice wetland science. The **Professional Certification Program (PCP)** is aimed at serving the public and governments' need to identify qualified individuals to assess and manage wetland resources.

What is a PWS or WPIT?

Professional Wetland Scientist or PWS

- ✓ Meets stringent academic and work experience standards
- ✓ Adheres to high level of professional ethical standards
- ✓ Conducts & practices wetland science in multi-disciplinary work environments
- ✓ Holds special international designation that is comparable to other professions, such as a Professional Engineer or Landscape Architect

WPIT (Wetland Professional in Training)

- ✓ Meets stringent academic standards
- ✓ Works on gaining qualifying employment experience and/or some types of volunteer experience in wetlands
- ✓ Adheres to professional ethical standards

What are the requirements?

Academic Requirements – PWS / WPIT*

- ✓ 15 credits in Biological Sciences, such as biology, botany, zoology, ecology, etc.
- ✓ 15 credits in Physical Sciences, such as chemistry, soils, hydrology, geology, etc.
- ✓ 6 credits in Quantitative Sciences, such as math, computer science, statistics, etc.
- ✓ 15 credits in Specialized Wetland Course Work (PWS *only*), such as wetland plant taxonomy, wetland hydrology, soil morphology, wetland mapping, wetland restoration / creation / mitigation, wetland delineation, wetland ecology & management, etc.

* Before applying, applicants must have earned a Baccalaureate degree or higher.

Qualifying Work Experience – PWS

After earning a Baccalaureate degree or higher, required experience is:

- ✓ 5 years of full-time professional experience while working in consulting, industry, non-profit, public or academic sectors.
- ✓ Experience calculated on percentage of time devoted specifically to professional wetland activities which can be pro-rated
- ✓ Statement of Expertise essay
- ✓ 5 references attesting to your qualifications

Fees (USD)	Developed Countries		Developing Countries	
	SWS Member	SWS Non-Member	SWS Member	SWS Non-Member
PWS	$300	$400	$100	$140
WPIT	$100	$200	$30	$60

How do you apply? Visit https://www.wetlandcert.org/

For questions or help with submitting your application, contact:
Adrianna Borczyk., Program Coord. ABorczyk@association-resources.com
Toll Free: 877.226.9902 | Fax: 847.885.8393

John Lowenthal, Certification Standards — John.Lowenthal@cardno-gs.com
Rob Shannon, Certification Review — rds13@psu.edu
Robbyn Myers, Outreach — bgerobbyn@comcast.net

Bring a friend!

Do you have a friend with a watery-bent? Do you have colleagues in the wetlands space? Please share this newsletter with them! We'd love to bring more people together who are working, studying or just interested in the wonderful world of wetlands.

If they'd like to know more about the benefits of being an SWS member, visit www.sws.org

Questions? Comments? Reply to this email, we'd love to hear from you!