

Understanding and Managing Imposter Phenomenon Within the Marine Sciences: Insights From 314 Years of Cumulative Experience

Christopher Cvitanovic^{1,2}, Tracy Ainsworth³, Annette Breckwoldt⁴, Amy Diedrich^{5,6}, Michael Fabinyi^{7,8}, Priscila F. M. Lopes^{9,10,11}, Albert Norström^{12,13}, Stefan Partelow^{14,15}, Greta Pecl^{16,17}, Jerneja Penca¹⁸, Vitor Renck^{2,3,19}, Alex Sen Gupta^{2,20,21}, Jan M. Strugnell^{5,22}, and Adriana Vergés^{2,3,23}

¹ School of Business, University of New South Wales – Canberra, Australia

² Centre for Marine Science and Innovation, University of New South Wales – Sydney, Australia

³ School of Biological, Earth, and Environmental Sciences, University of New South Wales – Sydney, Australia

⁴ Programme Area “Societal Impact”, Leibniz Centre for Tropical Marine Research (ZMT), Germany

⁵ Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University, Australia

⁶ College of Science and Engineering, James Cook University, Australia

⁷ Climate, Society and Environment Research Centre, University of Technology Sydney, Australia

⁸ Crawford School of Public Policy, The Australian National University, Australia

⁹ Department of Ecology, Universidade Federal do Rio Grande do Norte, Brazil

¹⁰ Research Institute of the University of Bucharest (ICUB), University of Bucharest, Romania

¹¹ Institute of Biological Research Cluj, Romania

¹² Stockholm Resilience Centre, Stockholm University, Sweden

¹³ Future Earth, Royal Swedish Academy of Sciences, Sweden

¹⁴ Center for Life Ethics, University of Bonn, Germany

¹⁵ Faculty of Agricultural, Nutritional, and Engineering Sciences, University of Bonn, Germany

¹⁶ Institute for Marine and Antarctic Studies, University of Tasmania, Australia

¹⁷ Centre for Marine Socioecology, University of Tasmania, Australia

¹⁸ Science and Research Centre Koper, Mediterranean Institute for Environmental Studies, Slovenia

¹⁹ Instituto do Mar, Federal University of São Paulo, Brazil

²⁰ Climate Change Research Centre, University of New South Wales – Sydney, Australia

²¹ Australian Research Council Centre of Excellence in Antarctic Science, University of New South Wales – Sydney, Australia

²² Securing Antarctica's Environmental Future, James Cook University, Australia

²³ Sydney Institute of Marine Science, Australia

Correspondence: Christopher Cvitanovic (c.cvitanovic@unsw.edu.au)

Submitted: 19 May 2026 **Accepted:** 27 May 2026 **Published:** 15 July 2026

Issue: This commentary is part of the issue “Tides of Change: Reflective and Practical Skills for the Next Generation of Marine Researchers” edited by Christopher Cvitanovic (University of New South Wales), Annette Breckwoldt (Leibniz Centre for Tropical Marine Research), Asha de Vos (Oceanswell / University of Western Australia Oceans Institute), Leonie Dziomba (Leibniz Centre for Tropical Marine Research), Shannon McLaughlin (Wageningen University), Salanieta Kitolelei (Leibniz Centre for Tropical Marine Research / University of the South Pacific), Sangeeta Mangubhai (Talanoa Consulting), and Denis Karcher (Royal Swedish Academy of Sciences), fully open access at <https://doi.org/10.17645/oas.i551>

Abstract

Imposter phenomenon is widely felt in academia, yet its lived experience within marine science remains underexplored. To address this gap, in this commentary we draw on the collective reflections of a diverse group of interdisciplinary marine researchers who have (and continue to) experience imposter phenomenon. We examine how it emerges, how it affects our careers, and how we have learned to navigate it. Our experiences reveal a broad range of triggers, including toxic or exclusionary work cultures, disciplinary gatekeeping, comparison and performance pressure, gendered expectations, life transitions, and identity-linked insecurities such as not fitting normative assumptions about what a “marine scientist” looks like. The impacts of imposter phenomenon were similarly varied: withdrawal from professional communities, reduced confidence, self-limiting behaviours, avoidance of visibility, career instability, and emotional or physical strain. Building from this, we outline strategies that have helped us manage our imposter phenomenon over time. Supportive relationships (through mentorship, peer networks, and community) were central, as were professional therapy, leadership coaching, and building mental-health literacy. Many of us found strength in reframing negative thoughts, setting boundaries, seeking inclusive environments, and building confidence through meaningful work and collaborations. Maintaining and prioritising physical well-being, time in nature, and simple acts of kindness also played important roles in helping us overcome the challenges posed by imposter phenomenon. Importantly, several of us came to see that imposter phenomenon can carry a productive dimension. It can foster reflexivity, humility, and critical self-awareness, qualities essential for thoughtful and ethical marine research. By sharing our own experiences, we hope to help build a marine science community where doubt is met with compassion and care, diverse forms of expertise and knowledge are valued, and all of us can do our best work without questioning our right to be here.

Keywords

academic identity; belonging; empathy; imposter syndrome; mental health; reflexivity; self-doubt; well-being

1. Introduction

Imposter phenomenon was first described by Clance and Imes (1978) to characterise high-achieving individuals, originally professional women who, despite clear external evidence of success, experience persistent self-doubt and a fear of being exposed as intellectually fraudulent (see Appendix 1 in the Supplementary File). Subsequent research has demonstrated that imposter phenomenon is not limited by gender, discipline, career stage, ethnicity, or location; it affects students, early-career researchers, and senior professionals across a wide range of fields and sectors (Bravata et al., 2020), including the sciences. Individuals experiencing imposter phenomenon often attribute their achievements to luck or external circumstances rather than competence, live with an intense fear of being “found out” in relation to self-perceived limitations, and focus disproportionately on perceived shortcomings (Figure 1). These patterns can manifest as perfectionism, chronic self-criticism, and a reluctance to internalise positive feedback, among others.

The consequences of imposter phenomenon extend beyond momentary insecurity. Within academic settings, studies consistently link imposter phenomenon to anxiety, depression, burnout, and reduced physical and psychological well-being (Cader et al., 2021; Kananifar et al., 2015). For many, the internal cycle

of self-doubt, overwork, and fear of exposure becomes emotionally and physically exhausting, undermining confidence, and limiting the ability to contribute fully within academic and professional environments. These challenges are particularly pronounced in doctoral candidates and early-career researchers, who often face high performance expectations, competitive job markets, the uncertainties associated with short-term contracts, and increasing pressure to publish, collaborate across disciplines, and secure funding (Wang & Li, 2023). And beyond the impacts of imposter phenomenon on individuals alone, broader workplace culture, productivity, and research excellence can also suffer. Thus, fostering cultures and strategies to reduce the impacts of imposter phenomenon can help individuals as well as support better interdisciplinary research practices that are needed to address global marine challenges (e.g., Blythe & Cvitanovic, 2020).

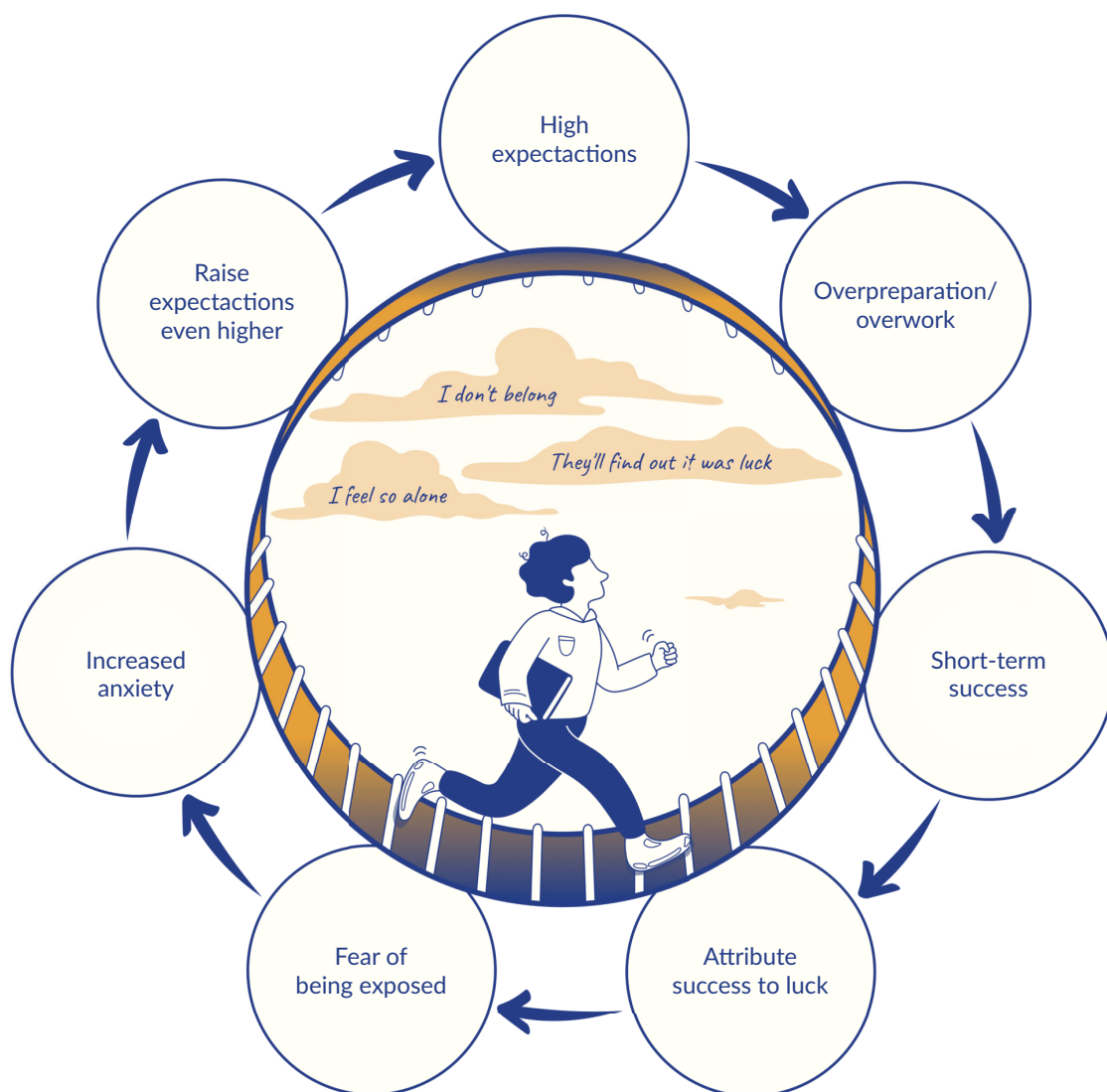


Figure 1. Although researchers experience imposter phenomenon in a wide variety of ways (as we discuss in the next section of the commentary), this sequence reflects one of the most commonly described models of how imposter phenomenon operates, and is used for illustrative purposes only. In this conceptualisation, the cycle commonly begins with unrealistically high expectations of oneself, prompting overpreparation and excessive effort. Although this often results in short-term success, the achievement is attributed to luck rather than ability. This misattribution fuels fear of being exposed as a fraud and heightens anxiety, which in turn drives individuals to raise their expectations even further, returning them to the start of the cycle.

Within marine science, the pressures associated with imposter phenomenon are often amplified by features of the field. Marine researchers often operate at the interface of science, public discourse, and policy (Cvitanovic et al., 2015), where high levels of media and public attention create persistent expectations to communicate clearly, remain publicly accountable, and demonstrate societal relevance (Brodie et al., 2022). Much of the work addresses politically charged issues (e.g., climate impacts, coastal development, fisheries conflicts, biodiversity loss) requiring interaction with government agencies and regulatory processes, where scientific uncertainty is scrutinised and sometimes instrumentalised. Fieldwork adds another layer of complexity: logistical risk, team hierarchies, and instances of exclusionary or hyper-masculine cultures can increase vulnerability and intensify self-doubt, particularly for early-career researchers and those from underrepresented groups. These dynamics compound the challenge of navigating diverse knowledge systems and cross-sector collaborations (Vozzo et al., 2025). Yet, despite the prevalence and impact of imposter phenomenon within the marine sciences, open conversations about it remain limited, particularly among senior researchers whose experiences could offer valuable guidance to early-career colleagues.

This commentary seeks to address that gap. Drawing on our 314 cumulative years of experience working across disciplines and geographies, we explore how imposter phenomenon manifests within the marine sciences, how it has shaped our careers, and what strategies we have found effective in navigating it (see Appendix 2 in the Supplementary File). Our reflections highlight that there is no single way to experience imposter phenomenon; its triggers and impacts differ widely, reminding us of the importance of empathy and care for the diverse ways colleagues carry and interpret self-doubt. We also seek to show that imposter phenomenon is not exclusively harmful. Moments of uncertainty can prompt deeper reflexivity, humility, and a commitment to continual learning; qualities with the potential to strengthen scientific practice and collaboration. Thus, rather than viewing imposter phenomenon solely as a barrier, we suggest that acknowledging and engaging with it can support personal growth and more compassionate research cultures.

In writing this commentary, it is also important to note that, as a collective of marine researchers who have remained in the field, our reflections inevitably carry a form of survivorship bias. Despite periods of doubt, harm, and instability, we each found ways to continue in science, while many others do not. We acknowledge that imposter phenomenon contributes to stalled careers, quiet departures, and the loss of people whose perspectives and expertise are deeply needed in marine research. Their absence from our author group is itself part of the problem we seek to highlight. That is, by sharing the supports and conditions that have helped us navigate these experiences, we hope to reduce the sense of isolation that often accompanies imposter phenomenon and to prompt more compassionate and systemic forms of support.

Finally, we emphasise that this commentary is not a substitute for professional care. Some of the impacts of imposter phenomenon described herein link to mental health challenges. This commentary discusses approaches of solidarity and care—for self and others—that the authors have adopted when facing imposter phenomenon. In doing so, it is important to note that this commentary does not offer, or replace, professional mental health support. Many universities in which marine scientists study, or work, offer specialised services, or referral information, where mental health support can be accessed (and which many of us have accessed).

2. Experiences With Imposter Phenomenon

In this section, we describe our own experiences with imposter phenomenon and surface the diversity of ways it emerges, is felt, and affects our professional and personal lives. By sharing these reflections, we challenge the assumption that imposter phenomenon follows a uniform path or that it naturally diminishes as careers progress. Instead, our experiences show that imposter phenomenon can appear, disappear, and re-emerge at any stage, shaped by shifting contexts, expectations, and identities (Figure 2). We believe that highlighting this variability is essential for building more empathetic and supportive research cultures. That is, when we acknowledge that imposter phenomenon does not look or feel the same for everyone, we create space for more honest conversations that reduce the stigma that often surrounds these experiences (Panda & Das, 2025). The insights that follow highlight the range of triggers and impacts within our author group and are not intended to be exhaustive; they illustrate both shared patterns and the individuality of each journey.

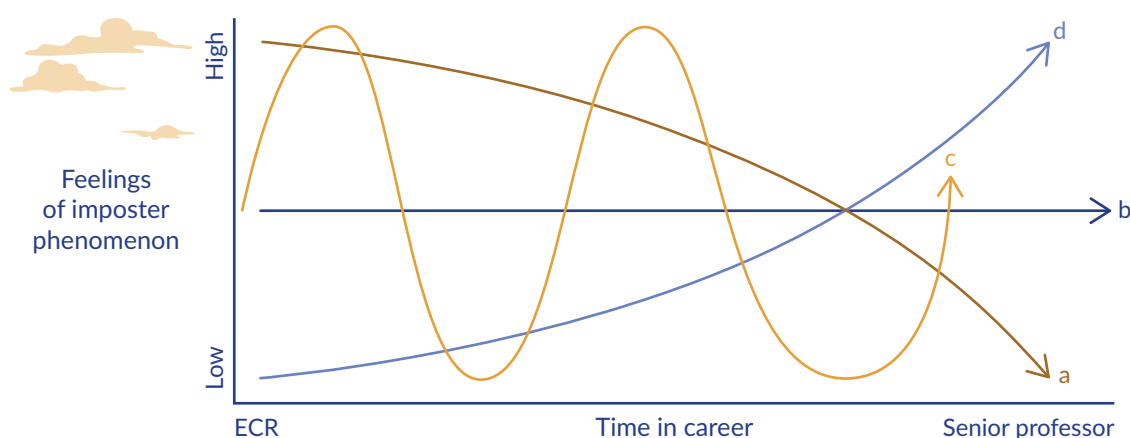


Figure 2. While imposter phenomenon is often discussed in the context of early-career researchers (ECRs), our experiences show that its trajectory can take many forms. Within our author group, the four main models were (a) starting high and decreasing over time, (b) being consistent over time, (c) having a cyclical nature that is driven by specific events (e.g., presenting at conferences), or (d) developing throughout one's career and remaining high even in the later stages. This representation highlights that imposter phenomenon is highly individual and does not follow a "typical" pattern.

2.1. Triggers of Imposter Phenomenon

Our experiences reveal that imposter phenomenon can be triggered by a wide range of personal, cultural, and structural factors. While some of these are situational, many are relational or cumulative, shaped by the environments we work in, the expectations placed upon us, and the identities we carry. Below, we synthesise the key triggers that emerged across our collective reflections (see Figure 3 for a visual representation).

2.1.1. Toxic or Exclusionary Work Cultures

For many of us, imposter phenomenon was triggered in environments where interactions were experienced as dismissive or exclusionary, and in some cases involved bullying or harassment. Hierarchical structures and dominant "silverback" (i.e., senior) voices at times left little room for alternative perspectives and were effective in removing other voices from workplace cultures. In such cases, being excluded from collaborations, in some

instances through threatening behaviours from peers, reinforced the sense of not being “good enough,” not belonging, or being pushed out. These environments eroded psychological safety and made even genuine achievements feel fragile.

2.1.2. Comparison, Performance Pressure, and Academic Norms

For many of us, imposter phenomenon has been triggered by constant comparison with peers who seemed to advance more quickly, publish more prolifically, or secure prestigious fellowships and positions with greater ease. Working in leading academic institutions, or alongside colleagues who appeared effortlessly brilliant, often made us feel as though we were falling behind. We also grappled with narrow disciplinary expectations of what counts as “rigorous” or “excellent” scholarship, and with the pressure to publish and do so in specific journals or speak the “right” disciplinary language. At times, we questioned whether our work was “marine enough,” “scientific enough,” or even welcome within certain scholarly communities. These pressures made it easy to interpret normal challenges as evidence that we did not belong.

2.1.3. Interdisciplinary and Boundary-Crossing Challenges

For those of us working across disciplinary boundaries, imposter phenomenon was often triggered by feeling insufficiently grounded in any one field. Moving between social and natural sciences for example, or being one of the few social scientists in predominantly natural science environments, sometimes left us feeling marginal, misunderstood, and/or isolated. Our methods were at times dismissed as “not real science,” and non-traditional career paths (e.g., valuing applied outcomes or community engagement) were at times interpreted as signs of lesser scientific capability. These experiences made us question whether we were legitimate members of the marine science community, even when our contributions were meaningful and needed.

2.1.4. Gendered Expectations and Bias

For some of us, gendered dynamics also played a significant role in triggering imposter phenomenon. Working in male-dominated environments, many of us were not taken seriously, spoken over, and have had our perspectives ignored and our expertise questioned. These experiences intersected with internalised societal messages about women’s abilities; messages many of us absorbed long before entering academia. The confidence with which some male colleagues asserted their views (with or without substance) contrasted sharply with our own hesitations. These dynamics reinforced the belief that we needed to work harder, know more, or continually prove ourselves simply to be seen as competent.

2.1.5. Life Transitions, Caregiving, and Structural Barriers

Closely connected to the above, major life transitions were also powerful triggers of imposter phenomenon, and were often experienced unevenly across genders. For many of us, becoming a parent early in a career, navigating pregnancy or loss, or managing the invisible expectations placed on mothers and fathers, created a sense of falling irreparably behind. In several cases, people experienced sleep deprivation, post-natal depression, or limited family support while trying to sustain research productivity alongside raising a child or undergoing any other life transition. Others took on caregiving responsibilities for elderly relatives or moved countries without a secure position, compounding feelings of instability, inadequacy, and a sense that “my

career path is not the normal career path.” Without visible role models or institutional support, one all too easily believed that motherhood and caregiving were incompatible with a scientific career. Our feelings of imposter phenomenon resulting from this were exacerbated by, at times, non-supportive and un-empathetic leadership, and institutions that made us feel inadequate, and as if it was our own fault.

2.1.6. Cultural, Class, and Identity-Based Triggers

For some of us, cultural, linguistic, and socioeconomic backgrounds strongly shaped experiences of imposter phenomenon. Individuals who grew up in modest or working-class families, or in countries with histories of colonialism, overexploitation, and/or inequality, often entered academic spaces that felt far removed from their upbringing. Implicit, and at times explicit, messages suggested that our contributions were less valuable or that they did not fully belong. Language can become a powerful trigger for those of us who are non-native English speakers (this being a dominant language in science), as we take more time to process meanings and fear that our “imperfect” English (e.g., manifested via our accent or word choices) will make us appear less competent. This led to excessive time rewriting emails or presentations, feelings of intense anxiety about question-and-answer sessions, and meant that we often participated less in intellectual discussions. Cultural norms around confidence—such as the contrast between “Western assertiveness” and Brazilian modesty—also influenced how we perceived ourselves relative to peers. Identity-linked insecurities also emerged, such as feeling inadequate in marine science because we could not swim, snorkel or dive, or lacked early exposure to activities assumed to be universal in the field (e.g., boating).

2.1.7. Personality Traits and Internal Expectations

For some of us, imposter phenomenon was fuelled by our own internal and individual expectations. Perfectionism, high personal standards, insecurity, and a tendency toward self-criticism made it difficult to recognise our achievements or accept that “good enough” could be sufficient, instead attributing our success to “luck.” Introversion and discomfort with self-promotion (something that many of us are uncomfortable with) sometimes led us to underestimate our contributions or assume others were more capable. Strong self-reflection, while valuable, could also spiral into feelings of self-doubt and anxiety.

2.1.8. Cognitive Load, Role Complexity, and Leadership

As our careers progressed, new responsibilities introduced fresh triggers of imposter phenomenon. Juggling multiple projects, administrative duties, teaching, societal engagement, and leadership roles often left us feeling “stretched thin” and unable to engage deeply with the literature or with our own research. Stepping into senior positions and (often self-imposed) mandates created uncertainty about whether we were contributing effectively. These pressures challenged the assumption that imposter phenomenon naturally diminishes with seniority; for many of us, it simply took new forms that were less visible but equally destabilising. As outlined earlier, for some of us, our feeling of imposter phenomenon did not emerge until these later stages of our career.

2.1.9. “High-Stakes” Visibility and Evaluation

Finally, moments of visibility (e.g., presenting to highly qualified audiences or being evaluated by disciplinary communities where we felt marginal) triggered acute episodes of imposter phenomenon for some of us. These situations amplified fears of being exposed publicly as inadequate, even when we were well-prepared and experienced. The intensity we felt in these moments often lingered long after the event itself, reinforcing doubts about our competence.

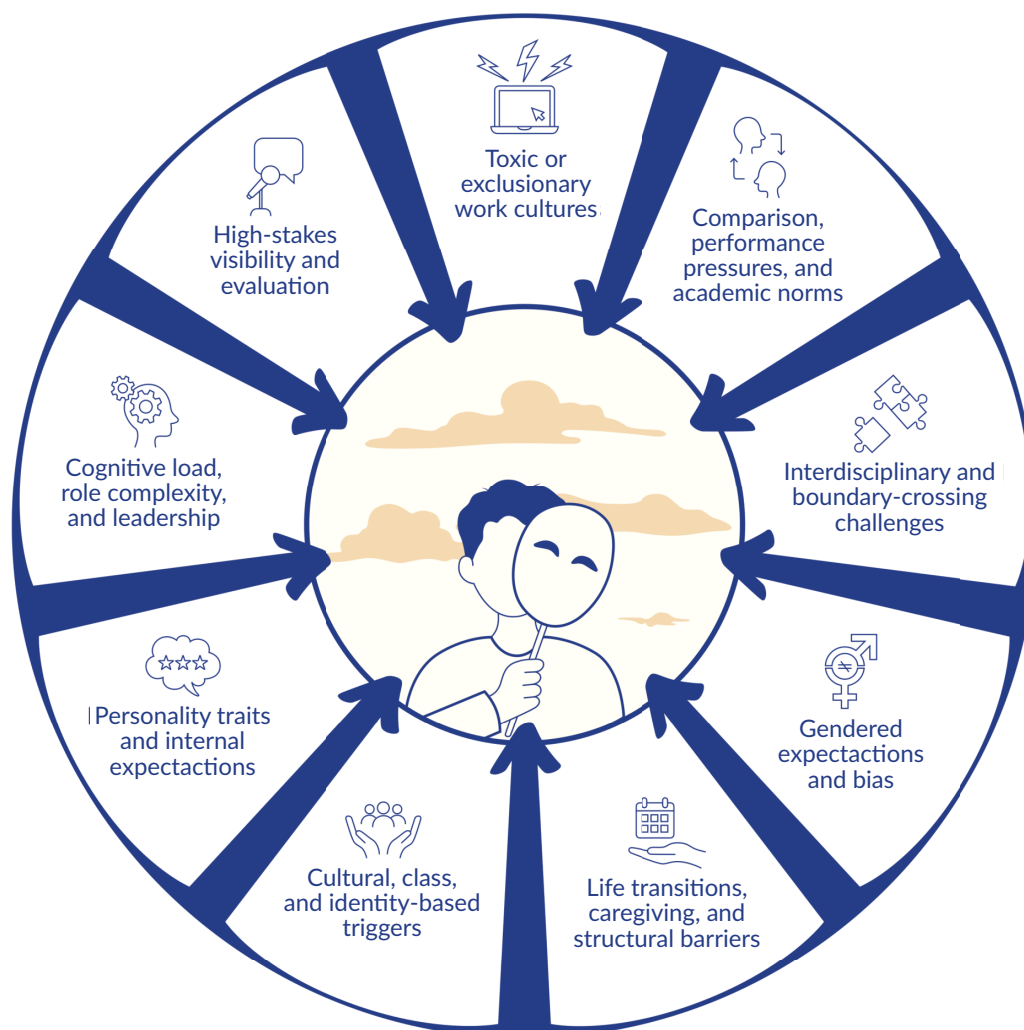


Figure 3. Visual representation of the main triggers of imposter phenomenon based on the authors' experiences.

3. Impacts of Imposter Phenomenon

The nine triggers we described above did not remain abstract or fleeting; they shaped how many of us moved through (and continue to move through) our careers, how we “show up” in our communities, and how we understand our place in science and research. Imposter phenomenon left marks that were emotional, behavioural, and sometimes structural, influencing not only how we felt but what we did (and did not) allow ourselves to pursue. In this section, we reflect on the impacts these experiences had on our behaviour, our

confidence, our opportunities, our well-being, and our scientific trajectories—recognising that these impacts were as varied and individual as the triggers themselves. In presenting the following impacts, we note that many of them overlap, as lived experiences rarely fall into neat boxes. Even so, we keep them distinct here to honour the nuance and individuality of our experiences. We acknowledge that some of these may be challenging to read, but we aim to give readers space to recognise the specific ways imposter phenomenon may resonate with their own journeys.

3.1. Withdrawal, Isolation, and Loss of Community

For many of us, imposter phenomenon led to withdrawal from the very communities we hoped to belong to. When negative experiences were internalised or when exclusionary cultures were interpreted as reflections of personal inadequacy, some of us pulled away, sometimes physically, sometimes emotionally. We felt lonely in our work, disconnected from teams or networks, and unsure where we fit in. These feelings shaped our engagement with the broader scientific community. In several cases, people avoided conferences, workshops, and group discussions, and missed out on informal moments of connection (that often spark collaborations).

3.2. Reduced Confidence and Self-Limiting Behaviours

Imposter phenomenon also diminished confidence for many of us, affecting how we shared ideas, perspectives, and expertise. Others hesitated to voice opinions in group settings, to reach out for collaborations, or to put ourselves forward for awards. A number of us avoided media interviews or avoided any form of public visibility. Others found ourselves unable to open emails containing manuscript or grant decisions, convinced they would confirm our worst fears. These self-limiting behaviours often went unnoticed by others (including our families and friends) but had real consequences for our careers (e.g., not applying for promotions or prestigious grants), shaping the opportunities we pursued and the recognition we received.

3.3. Career Instability, Reconsideration, or Withdrawal

At its most acute, imposter phenomenon made some of us question whether we should continue in science at all. Triggering events left us feeling physically sick, anxious, or convinced that we would have to quit our jobs. Some of us explored alternative career paths or looked for roles that would take us away from environments where we felt inadequate. Others felt paralysed after returning from maternity or health leave, or believed to have already “missed the boat” in academia.

3.4. Avoidance of Disciplinary Spaces or Environments

Imposter phenomenon also influenced the environments we gravitated toward. Some of us sought out spaces where disciplinary identity mattered less, or avoided situations tied to identity-linked insecurities, such as field activities or social events that assumed particular skills or comfort levels. Others avoided writing papers that felt too exposing or too conceptually ambitious, even when we cared deeply about the ideas. These choices sometimes meant missing out on informal conversations, networking opportunities, or disciplinary visibility. Over time, this shaped the trajectories we followed and the communities we felt able to join.

3.5. Emotional and Physical Toll

For many of us, imposter phenomenon carried a significant emotional and physical toll. Feelings of fear, anxiety, and chronic self-doubt were common, and in some cases manifested physically (for example, as obsessive compulsive disorder [OCD]). Some of us felt sick for months after triggering events; others experienced stunted creativity, diminished productivity, or a pervasive sense of fragility in our work. The cumulative weight of these experiences affected our ability to engage fully in our research.

3.6. Self-Sabotage and Missed Opportunities

For some of us, imposter phenomenon led to active self-sabotage. We talked ourselves out of opportunities, convinced ourselves we were not competitive, or prepared weaker applications because we believed others were more deserving. We avoided submitting proposals, delayed writing papers, or assumed we would not succeed in certain contexts or countries. Some of us refused nominations for awards we had been put forward for. These patterns often reinforced themselves; the more we held back, the more evidence there seemed to be that we did not belong.

3.7. Constrained Intellectual Contribution and Creativity

Imposter phenomenon also shaped the substance of our scientific work. Some of us doubted our right to contribute to conceptual debates or to challenge dominant assumptions in the field. We held back ideas that felt too ambitious or too personal, even when they were grounded in deep expertise, and lived experience. At times, chronic self-doubt stunted our creativity, slowed our writing, or made it difficult to think expansively. These impacts were often invisible to others but deeply felt by us, shaping not only what we produced but how we imagined our place in the field.

4. Strategies for Managing and Overcoming Imposter Phenomenon

Just as our experiences of imposter phenomenon were varied, so too were the ways we learned to navigate and manage its effects—our “coping mechanisms.” These strategies did not emerge all at once, nor did they “fix” imposter phenomenon in any permanent sense. Instead, they accumulated gradually through relationships, reflection, and lived experience. What follows are the approaches that helped us manage, challenge, and sometimes transform our imposter feelings. We recognise that not every strategy will be applicable to every person, yet we offer them as a starting point, for others to reflect on how they might be best able to tackle the triggers and impacts of imposter phenomenon within their own circumstances and contexts. Finally, in sharing these strategies, it is important to note that they did not serve as a panacea to our experiences of imposter phenomenon, but they did create moments of clarity that slowly reshaped our relationship *with* imposter phenomenon.

4.1. Mentorship, Peer Networks, and Community

For many of us, the most powerful strategy to counter the impacts of imposter phenomenon came through relationships with people we trusted. Supportive peers and mentors (formal, informal, or implicit) provided reassurance, perspective, and advocacy at moments when our confidence faltered. They helped us interpret

harsh reviews or difficult environments as systemic issues rather than personal failings, and co-modelled alternative ways of being a scientist, including interdisciplinary, applied, or non-conventional paths. Honest conversations with colleagues revealed that many others felt the same way, dissolving the illusion that imposter phenomenon was an inherent and individual flaw. Working with people who brought encouragement, humour, empathy, inspiration, care, and generosity helped us feel grounded and valued.

4.2. Therapy, Psychological Support, and Mental Health Literacy

Professional support was transformative for several of us. Long-term therapy, leadership coaching, and mental health literacy helped us recognise imposter phenomenon as a psychological pattern rather than a reflection of our abilities. These tools enabled us to challenge limiting beliefs, understand how others' behaviours might stem from their own insecurities, and develop healthier mindsets around work-life balance. Leadership coaching, in particular, helped some of us reframe what leadership looks like, and recognise that introversion, quiet thinking, and relational intelligence are strengths rather than deficits. Over time, these practices made the emotional spikes of imposter phenomenon less destabilising and less enduring.

4.3. Reframing, Self-Reflection, and Cognitive Strategies

Many of us learned to interrupt the automatic negative interpretations that fuel imposter phenomenon. We asked ourselves what we would say to a friend in the same situation, and tried to extend that same compassion inward. We learned to “own” what we did not know, rather than seeing it as evidence of inadequacy. Some of us compulsively revisited past publications or checked citations to counter distorted self-judgements and remind ourselves of the amount of literature we studied and the knowledge we possess. Others reminded themselves of the purpose behind their work, the communities they aimed to support, the ideas and concepts they hoped to advance, or the change they wanted to contribute to. These reframing practices did not eliminate imposter phenomenon, but they helped us hold it with more perspective and less self-criticism.

4.4. Boundary-Setting and Selective Engagement

Over time, many of us became more deliberate about the environments and relationships we invested in. We stepped back from people who were dismissive, competitive, or draining, and gravitated toward colleagues who energised and supported us. We learned to recognise when workplace cultures were contributing to our self-doubt, and to distinguish between situations we could influence and those we needed to step away from. Some of us sought out institutions that valued interdisciplinarity or created inclusive spaces, recognising that imposter phenomenon is easier to manage when the environment is not actively undermining confidence.

4.5. Building Confidence Through Collaborative Action and Purpose

For many of us, confidence grew through doing the work, especially in contexts where our contributions were recognised and valued. Engaging in international groups with shared purpose, working on timely, broadly relevant tasks such as assessments or advisory boards, and collaborating on projects with trusted colleagues, helped us see the beneficial and positive impact of our efforts. These experiences provided tangible evidence that countered self-doubt. For some, embracing interdisciplinary work, teaching it, publishing about it, or

seeing senior scholars succeed in similar spaces, helped legitimise approaches that once felt marginal. Celebrating successes (both small and big), whether submitting a paper or finishing data collection, reinforced a growth-oriented mindset and helped us recognise progress rather than only shortcomings.

4.6. Physical Well-Being, Nature, and Embodied Practices

Several of us found that physical practices played a crucial role in managing imposter phenomenon. Prioritising exercise, building movement into our routines, and spending time in nature helped regulate the emotional intensity of self-doubt. Swimming, surfing, gym sessions, river dips, solitary hours in the dunes, and bush walks, became grounding rituals that supported both physical and mental health. Protecting sleep, recovery, and healthy habits (e.g., limiting media consumption and watching our nutrition) also helped create stability needed to navigate moments of insecurity.

4.7. Inclusivity, Kindness, and Supportive Practices

Small acts of kindness had outsized effects. Colleagues who actively sought to create more inclusive environments to accommodate insecurities—such as finding ways to include someone who could not swim—helped dismantle long-held feelings of shame or inadequacy. Supportive peers who helped process rejection, laugh through setbacks, or normalise failure, made difficult moments feel survivable. Institutional cultures that provided tools, training, or explicit support for well-being, also played a role in helping us feel seen and valued.

4.8. Age, Experience, and Shifting Priorities

Finally, time and experience softened the grip of imposter phenomenon for some of us. With age (and also increased responsibility for colleagues) came a clearer sense of what mattered, a reduced concern with external judgement, and a growing ability to let go of unrealistic expectations. These experiences, and a shifting of priorities, brought a kind of liberation, a reminder that confidence can grow not only from achievement, but from perspective over time.

5. Looking Forward: Rethinking Imposter Phenomenon

Our reflections show that imposter phenomenon in marine science is not simply a private struggle or an individual flaw, but a shared experience shaped by multiple structural, social, and individual factors. Yet, many of us also came to recognise that imposter phenomenon can also be seen as a force for good. The reflexivity, humility, and critical self-awareness that often accompany these feelings are not weaknesses; they are qualities that matter deeply in contemporary scholarship. In a system that still (despite ongoing efforts to change) all too often rewards confidence over care, quantity over quality, and specific expertise over interdisciplinary curiosity, imposter phenomenon sometimes reminds us to pause, to question, and to stay attentive to the complexities of the work we do. While the emotional cost is real, the reflexive stance that imposter phenomenon can prompt—the willingness to examine our assumptions, acknowledge uncertainty, and remain open to learning—is also part of what makes the thoughtful, ethical, and collaborative science we strive for possible.



Figure 4. Our strategies for “breaking the hamster wheel” cycle of imposter phenomenon. These strategies enabled us to move beyond the cycle of imposter phenomenon, to a place where we can sit comfortably with it.

At the same time, our reflections highlight the importance of recognising imposter phenomenon as a shared experience rather than a solitary burden. Many of us found reassurance in discovering how common these feelings are, even among senior colleagues we admire. Knowing that others, including those further along in their careers have felt lost, unsure, or out of place, helped dismantle the illusion that confidence is the norm and doubt the exception. This recognition also underscores the need for more open conversations about imposter phenomenon, not only in informal settings but within our institutions, networks, and conferences. Creating spaces where researchers of any career stage can speak honestly about uncertainty, failure, and vulnerability, helps normalise these experiences and reduces the isolation that often accompanies them.

We also note that many of the strategies to address imposter phenomenon that we have outlined also strongly align with broader evidence on supporting marginalised groups in marine science (e.g., Sherlock et al., 2022). Across these studies, fostering inclusive and supportive workplace cultures emerges as

essential, with recommended actions including improving organisational culture, enhancing flexibility, and addressing systemic inequities that undermine confidence and well-being. Mentoring, constructive feedback, networking opportunities, and recognition of contributions are consistently highlighted as effective strategies that counter imposter feelings in marine science (e.g., Cvitanovic et al., 2026; Shellock et al., 2023). Together, these bodies of work reinforce that addressing imposter feelings requires not only individual-level tools but also meaningful structural and cultural change within research institutions.

These reflections, therefore, also point to the need for cultural and structural change. Many of us emphasised the importance of institutional environments that value diverse forms of scholarship, including interdisciplinary and applied work, and that recognise strengths beyond publication metrics. Early-career researchers, in particular, need a higher education system and culture that nurtures rather than exhausts them, environments where mentorship is accessible, where commitment is rewarded, where different academic identities are respected, where power asymmetries are alleviated, and where linguistic barriers and care are acknowledged rather than hidden (Penca et al., 2024). A more inclusive and expansive understanding of marine science will help ensure that researchers with varied trajectories, skills, and perspectives feel they belong.

Finally, we emphasise the importance of knowing ourselves—understanding why we chose this work, what we value, and how we can shape our careers in ways that align with our strengths and well-being. Imposter phenomenon may never disappear entirely, and for some of us it remains a companion we expect to live with. But it no longer defines us. Through supportive relationships, intentional practices, and the slow accumulation of experience, we have learned to hold imposter phenomenon differently: to recognise it when it arises, to understand where it comes from, and to let it inform rather than derail us. In doing so, we have found ways to move forward with greater clarity, confidence, and empathy, for ourselves, for each other, and for the communities we serve. In naming these experiences through this commentary, we hope to help build a marine science community where doubt is met with compassion, where diverse forms of expertise are valued, and where all of us can do our best work without having to question our right to be here.

Acknowledgments

We thank S. McCormack from Visual Knowledge for help developing graphics for the commentary, and A. G. Cvitanovic for reviewing and commenting on an earlier draft. We also thank K. Peters and H. Österblom for useful insights that contributed to the development of this commentary. PFML thanks CNPq for a productivity grant (302365/2022-2) and by the Romanian Ministry of Research, Innovation and Digitalization (760054-JUST4MPA, within PNRR-III-C9-2022-I8). JMS is supported by the Australian Research Council (ARC) SRIEAS grant SR200100005: Securing Antarctica's Environmental Future. JP acknowledges funding by the Slovenian Research Agency, research programme P5-0453, and the European Union, GA 101217089. VR acknowledges the São Paulo Research Foundation (FAPESP), Brazil (process numbers #2022/10321-8, #2023/08372-6 and #2025/00827-0). Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible.

Funding

Publication of this article in open access was made possible through the institutional membership agreement between the University of New South Wales and Cogitatio Press.

Conflict of Interests

In this article, editorial decisions were undertaken by Asha de Vos (Oceanswell / University of Western Australia Oceans Institute), Leonie Dziomba (Leibniz Centre for Tropical Marine Research), Shannon McLaughlin (Wageningen University), Salanieta Kitolelei (Leibniz Centre for Tropical Marine Research / University of the South Pacific), Sangeeta Mangubhai (Talanoa Consulting), and Denis Karcher (Royal Swedish Academy of Sciences).

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

References

- Blythe, J., & Cvitanovic, C. (2020). Five organizational features that enable successful interdisciplinary marine research. *Frontiers in Marine Science*, 7, Article 539111.
- Bravata, D. M., Watts, S. A., Keefer, A. L., Madhusudhan, D. K., Taylor, K. T., Clark, D. M., Nelson, R. S., Cokley, K. O., & Hagg, H. K. (2020). Prevalence, predictors, and treatment of impostor syndrome: A systematic review. *Journal of General Internal Medicine*, 35(4), 1252–1275.
- Brodie, S., Addey, C. I., Cvitanovic, C., Dias, B. S., Frainer, A., García-Morales, S., Jiang, S., Kaikkonen, L., Lopez, J., Mathesius, S., Ortega-Cisneros, K., Pennino, M. G., Peters, C. A., Selim, S. A., Shellock, R., & Vaidianu, N. (2022). Editorial: Solving complex ocean challenges through interdisciplinary research: Advances from early career marine scientists. *Frontiers in Marine Science*, 9, Article 913459. <https://doi.org/10.3389/fmars.2022.913459>
- Cader, F. A., Gupta, A., Han, J. K., Ibrahim, N. E., Lundberg, G. P., Mohamed, A., & Singh, T. (2021). How feeling like an imposter can impede your success. *Case Reports*, 3(2), 347–349.
- Clance, P. R., & Imes, S. A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice*, 15(3), 241–247.
- Cvitanovic, C., Hobday, A. J., van Kerkhoff, L., & Marshall, N. A. (2015). Overcoming barriers to knowledge exchange for adaptive resource management; the perspectives of Australian marine scientists. *Marine Policy*, 52, 38–44.
- Cvitanovic, C., Mackay, M., Kelly, R., Andreotta, M., McLaughlin, S., Malinconico, N., Jurrius, L. H., & Allan, G. (2026). From surviving to thriving: The role of informal mentorship for early career inter and transdisciplinary researchers. *Ocean and Society*, 3, Article 12089. <https://doi.org/10.17645/oas.12089>
- Kananifar, N., Seghatoleslam, T., Atashpour, S. H., Hoseini, M., Habil, M. H., & Danaee, M. (2015). The relationships between imposter phenomenon and mental health in Isfahan universities students. *International Medical Journal*, 22(3), 144–146.
- Panda, S., & Das, M. (2025). Impostor syndrome in academic and professional contexts: A systematic review of prevalence, psychological impact, cultural influences, and intervention strategies. *International Journal of Indian Psychology*, 13(3), 1229–1240.
- Penca, J., Barbanti, A., Cvitanovic, C., Hamza-Chaffai, A., Elshazly, A., Jouffray, J. B., Mejjad, N., & Mokos, M. (2024). Building competences for researchers working towards ocean sustainability. *Marine policy*, 163, Article 106132.
- Shellock, R. J., Cvitanovic, C., Mackay, M., McKinnon, M. C., Blythe, J., Kelly, R., van Putten, I. E., Tuohy, P., Bailey, M., Begossi, A., Crona, B., Fakoya, K. A., Ferreira, B. P., Ferrer, A. J. G., Frangoudes, K., Gobin, J., Goh, H. C., Haapasaari, P., Hardesty, B. D., . . . Wysz, M. S. (2022). Breaking down barriers: The identification of actions to promote gender equality in interdisciplinary marine research institutions. *One Earth*, 5(6), 687–708. <https://doi.org/10.1016/j.oneear.2022.05.006>

- Shellock, R. J., Cvitanovic, C., McKinnon, M. C., Mackay, M., van Putten, I. E., Blythe, J., Kelly, R., Tuohy, P., Maltby, K. M., Mynott, S., Simmonds, N., Bailey, M., Begossi, A., Crona, B., Fakoya, K. A., Ferreira, B. P., Ferrer, A. J. G., Frangoudes, K., Gobin, J., . . . Wisz, M. S. (2022). Building leaders for the UN Ocean Science Decade: A guide to supporting early career women researchers within academic marine research institutions. *ICES Journal of Marine Science*, 80(1), 56–75. <https://doi.org/10.1093/icesjms/fsac214>
- Vozzo, M. L., Christofidis, M., Griffiths, L., Kelly, R., Manion, M. L., Barmand, S., Bolin, J. A., Fuenzalida-Miralles, P. A., Harris, M. L., Issell, A., Kuempel, C. D., Martinez Diaz, M., Murunga, M., Palmer, S. R., Schaefer, N., & Simpson, J. (2025). Advancing ocean sustainability through better science integration: Perspectives of early career ocean professionals. *Frontiers in Ocean Sustainability*, 2, Article 1526776. <https://doi.org/10.3389/focusu.2024.1526776>
- Wang, Y., & Li, W. (2023). The impostor phenomenon among doctoral students: A scoping review. *Frontiers in Psychology*, 14, Article 1233434.

About the Authors



Christopher Cvitanovic is a transdisciplinary marine scientist at UNSW Canberra, and deputy director of the UNSW Centre for Marine Science and Innovation. His research is focused on advancing the theory and practice of knowledge exchange at the interface of science and policy to support the governance of marine systems.



Tracy Ainsworth is a Scientia associate professor at the University of New South Wales, Australia, with expertise in coral biology, coral disease and histopathology, coral–microbe interactions, and cell biology. She applies this expertise to understanding coral health, bleaching, and disease susceptibility.



Annette Breckwoldt (PhD) is a senior interdisciplinary marine scientist at the Leibniz Centre for Tropical Marine Research (ZMT) in Bremen, Germany, focusing on transdisciplinarity in the marine social sciences, small-scale fisheries, coastal realities, and ocean–society relations.



Amy Diedrich (PhD) is a professor in the College of Science and Engineering, and the Head of the Centre for Sustainable Tropical Fisheries and Aquaculture at James Cook University. She is an applied marine social scientist, and her research seeks to improve livelihood outcomes in vulnerable small-scale fishing communities experiencing social and ecological change.



Michael Fabinyi is a professor at the Climate, Society and Environment Research Centre at the University of Technology Sydney, and a visiting fellow at the Crawford School of Public Policy, The Australian National University. His research interests are focused on small-scale fisheries, coastal livelihoods, agrarian change, and seafood trade.



Priscila F. M. Lopes is a professor at the Universidade Federal do Rio Grande do Norte and a researcher at the University of Bucharest. Her work focuses on socioecological systems, including fishers' local ecological knowledge, small-scale fisheries co-management, and socioecological resilience.



Albert Norström is associate professor at the Stockholm Resilience Centre, Stockholm University, and science director of the Earth Commission. His work examines resilience, sustainability transformations, social-ecological systems, and the science–policy interface for achieving a safe and just future.



Stefan Partelow is a professor of environmental governance at the University of Bonn, Germany. He leads the Governance and Transformation group at the Center for Life Ethics, and is PI of the European Research Council (ERC) Starting Grant project called SharedSeas (2025–2029), examining how to scale effective ocean governance.



Gretta Pecl is a professor in marine ecology at the University of Tasmania and an IPCC lead author. She leads interdisciplinary research on climate-driven species redistribution, linking ocean change to ecosystems, fisheries, and human well-being.



Jerneja Penca is a senior research associate at the Science and Research Centre Koper, Slovenia, where she leads the Mediterranean Institute for Environmental Studies—a transdisciplinary research department. Her work focuses on governance for sustainability in marine and terrestrial systems, linking knowledge about how these systems work with transformation for sustainability from local to global scales.



Vitor Renck is a trained ecologist and interdisciplinary marine post-doctoral researcher at the Federal University of São Paulo and at the University of New South Wales. His work explores the intersection of ethnobiology, human ecology, transdisciplinarity, and decolonial approaches, with a strong focus on the knowledge and practices of small-scale fishing communities.



Alex Sen Gupta (PhD) is a physical oceanographer and climate scientist based at the Climate Change Research Centre and the Centre for Marine Science and Innovation at the University of New South Wales (UNSW). He is a theme leader in the ARC Centre of Excellence in Antarctic Science and the Future of Australia's Oceans. His research spans a wide range of topics focused on the ocean's role in the climate system. Recent projects have explored how climate change is affecting ocean circulation, the drivers of atmospheric variability around Antarctica, biases in climate models, and the distribution of tuna across the tropical Pacific.



Jan M. Strugnell (PhD) investigates the evolution and function of marine organisms using genomic techniques. Her research encompasses both applied and blue-sky questions. She works on organisms from a range of environments, from the tropics to Antarctica.



Adriana Vergés is a professor in marine ecology and director of the UNSW Centre for Marine Science and Innovation. Her work focuses on understanding the impacts of climate change on marine ecosystems and developing solutions for the protection and restoration of kelp forests and seagrass meadows.