



## ACSA Publications Listing

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*Journal Articles - Conference Proceedings Articles*  
*Dissertations - Books & Chapters*

### From the moderators

Thank you to everyone who contributed to this issue of the ACSA Publications Listing.

The ACSA Publication Listing is a quarterly electronic listing of publications in the field of citizen science within the Australian community. The listing is intended to share information with those interested in the Australian citizen science community. The deadline for contributions is announced two weeks prior to the listing. Contributions may be submitted at any time.

Please only submit those publications where you are the author (to prevent duplication) and only include those that have been accepted for publication.

Julie Banfield & Jessie Cappadonna

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### Abstracts of recently published journal articles

#### **Assessing National Biodiversity Trends for Rocky and Coral Reefs through the Integration of Citizen Science and Scientific Monitoring Programs**

**Rick D. Stuart-Smith<sup>1</sup>, Graham J. Edgar<sup>1</sup>, Neville S. Barrett<sup>1</sup>, Amanda E. Bates<sup>2</sup>, Susan C. Baker<sup>3</sup>, Nicholas J. Bax<sup>1</sup>, Mikel A. Becerro<sup>4</sup>, Just Berkhout<sup>1</sup>, Julia L. Blanchard<sup>1</sup>, Daniel J. Brock<sup>5</sup>, Graeme F. Clark<sup>6</sup>, Antonia T. Cooper<sup>1</sup>, Tom R. Davis<sup>7</sup>, Paul B. Day<sup>1</sup>, J. Emmett Duffy<sup>8</sup>, Thomas H. Holmes<sup>9,10</sup>, Steffan A. Howe<sup>11</sup>, Alan Jordan<sup>12</sup>, Stuart Kininmonth<sup>1</sup>, Nathan A. Knott<sup>13</sup>, Jonathan S. Lefcheck<sup>14</sup>, Scott D. Ling<sup>1</sup>, Amanda Parr<sup>15</sup>, Elisabeth Strain<sup>16</sup>, Hugh Sweatman<sup>17</sup>, Russell Thomson<sup>18</sup>**

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Reporting progress against targets for international biodiversity agreements is hindered by a shortage of suitable biodiversity data. We describe a cost-effective system involving Reef Life Survey citizen scientists in the systematic collection of quantitative data covering multiple phyla that can underpin numerous marine biodiversity indicators at high spatial and temporal resolution. We then summarize the findings of a continental- and decadal-scale State of the Environment assessment for rocky and coral reefs based on indicators of ecosystem state relating to fishing, ocean warming, and invasive species and describing the distribution of threatened species. Fishing impacts are widespread, whereas substantial warming-related change affected some regions between 2005 and 2015. Invasive species are concentrated near harbors in southeastern Australia, and the threatened-species index is highest for the Great Australian Bight and Tasman Sea. Our approach can be applied globally to improve reporting against biodiversity targets and enhance public and policymakers' understanding of marine biodiversity trends.

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## **New opportunities for conservation of handfishes (Family Brachionichthyidae) and other inconspicuous and threatened marine species through citizen science**

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Volunteer divers participating in the Reef Life Survey (RLS) program actively assist species conservation efforts by generating data for threat assessments and population trend monitoring, through in-water restoration efforts, and through outreach of marine conservation messages. Up to 2014, standardised underwater visual survey data provided by RLS divers described densities of 495 cryptic fish species at over 1200 sites distributed around Australia. Each species was recorded on 34 separate transect blocks on average, allowing the first assessments of population trends for many species. These data highlight the threatened and data deficient status of endemic Australian handfish species. At least five shallow-water handfish species are potentially threatened, including the smooth handfish *Sympterychthys unipennis*, which has not been sighted for over 200 years, but is yet to be included on any threatened species list. RLS divers undertook directed searches at key historical locations for two handfish species, the red handfish *Thymichthys politus*, now only known from a single reef, and Ziebell's handfish *Brachiopsilus ziebelli*, with no confirmed sighting for over a decade. From a total of 100 h of underwater search effort, only four red handfish were recorded, all at a site threatened by adjacent human activity. These and other handfish species should be considered for inclusion on the IUCN Red List given that populations are either very small or have vanished, spawning substrates have probably declined, and the species lack a larval dispersal stage. More importantly, the absence of information on the conservation status of the majority of marine species needs urgent attention, including through expanded citizen science efforts, if management intervention is to occur and extinctions minimised.

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Abstracts of recently published conference proceedings articles

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Abstracts of recently published dissertations

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Abstracts of recently published books and chapters

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