



Contents lists available at ScienceDirect

# Marine Pollution Bulletin

journal homepage: [www.elsevier.com/locate/marpolbul](http://www.elsevier.com/locate/marpolbul)



## Guest Editorial

### Reefs in trouble – The real root cause

In this “International Year of the Reef” it is paramount that we truly understand the root cause of coral reef decline around the world and take swift action to remedy the situation if there is to be any hope for our children to enjoy the benefits of these valuable natural resources. This exigency is great because we consider coral reefs a leading indicator of global ecological degradation and we are on a fast track to potentially lose this entire ecosystem from the face of the earth – a dubious global human environmental distinction.

The real root cause of coral reef decline is not carbon dioxide emissions, rising sea surface temperatures, ocean acidification, coral disease, over fishing, destructive fishing techniques, eutrophication, sedimentation, sewage, herbicides, pesticides, African dust, increasing human populations or any of the other individual or synergistic combinations of stressors affecting coral reefs locally, regionally or globally – these are only symptoms of much bigger and more profound problem.

At its core, the real root cause of coral reef decline, when objectively looking at the evidence, seems to be attributable to innate human species behavior characteristics determined by how we are genetically hard-wired. It raises two key questions.

- (1) Does the human species, when operating in very large groups such as a nations, have the genetic capability to live sustainably with its environment?
- (2) Does the human species have the genetic ability to create and maintain systems of national governance that makes sustainable environmental stewardship possible?

The answers to these two questions have important ramifications for the future of not only coral reefs, but for ourselves and our children, and the other species that inhabit this planet.

With respect to question (1): We are able to make conservation and sustainability progress on small scales and when working with small numbers of people (Birkeland, 2007).

But when operating as a large group, such as a nation, the behavioral characteristics of the human species take on different characteristics, especially when decision-making is driven by competing national political and economic interests.

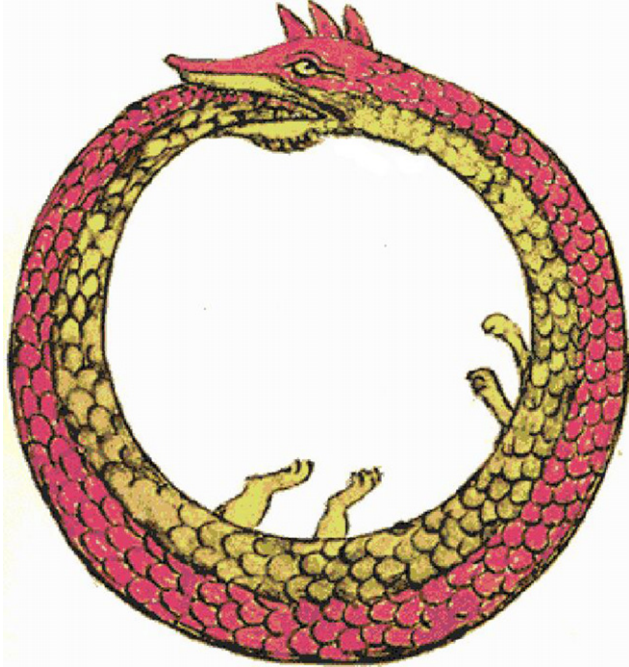
While no one has any real quantitative data, one can just look around and see that the forces of environmental degradation and destruction in the world are many orders of magnitude greater than our conservation successes and, as a result, our best collective global environmental stewardship efforts fall short of global sustainable living (Speth, 2008).

In regard to question (2): Our every day experience in the United States (and in many other countries) informs us that the state of our governance, where wealthy business and special interests use campaign financing, lobbying, and media control to manipulate government policy and public perceptions is not a viable system for conserving coral reefs or for sustainable living because it is predicated on the fact that; “He who owns the political trump card wins” (i.e., gets the corporate tax break, the favorable legislation, the permit to pollute, or the favorable “blind eye”). It is a great system for creating corporate profit and socializing expense at global cost, but it does not produce clean air and water in natural environments or enhance biodiversity. The growing marine dead zones at the mouths of our major rivers are just one big indication of the failure of “the best system of government money can buy” under which we operate in the United States.

To save our coral reefs, and ourselves, we must truly understand what we are as a human species. Are we, as history indicates, just like any other animal that outstrips its carrying capacity and suffers a dramatic population decline? Or do we really have the capability, when operating as a very large group such as a nation or group of nations, to govern ourselves effectively and live sustainably with our environment?

If it is the latter, and we all hope it is, we must change the policies under which we operate and the perceptions that guide them! The age-old practice of social groups moving upstream of their neighbors to “give rather than receive” polluted water – the perception of eco-winners and losers – has morphed into the situation where the “stream” is entirely circular. Like Ouroboros, the mystical serpent eating its tail (Fig. 1), there is no fountainhead – the world is source-less. The concept of “others” rooted in every language on the planet is obsolete within a global perspective. We must design and maintain a system of human governance that balances human population growth and consumption with carrying capacity and that accurately values ecosystem services in the economic equation – and do it fast (Jameson, 2006)!

Our children will soon find the true answers to these questions because the climate change challenge is not only a big chemistry experiment, it is also an unprecedented biological and social experiment that will determine if we are really different than other animal species. Can society evolve from community to global consciousness? The results of this seminal experiment in living will be “the defining moment” for the human species that not only sheds important light onto who we really are with respect to our innate genetic characteristics and capabilities – but will also define the human legacy in history.



## References

- Birkeland, C., 2007. Pacific islanders' awareness of responsibility. Reef Encounter 34, 34–35. 95
- Jameson, S.C., 2006. How protected are coral reefs? Science 314 (5800), 757–760. 96
- Speth, J.G., 2008. The Bridge at the End of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability. Yale Univ Press, New Haven and London. 97

Stephen C. Jameson 101  
 Chairman, Coral Seas Inc – Integrated Coastal Zone Management, 102  
 4254 Hungary Run Road, 103  
 The Plains, VA 20198-1715, 104  
 United States 105  
 Tel.: +1 703 754 8690; fax: +1 703 754 9139 106  
 E-mail address: sjameson@coralseas.com 107

Available online xxxx 109

**Fig. 1.** Ouroboros. 1478 drawing by Theodoros Pelecanos, in alchemical tract titled *Synosius*.

UNCORRECTED PROOF