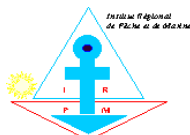
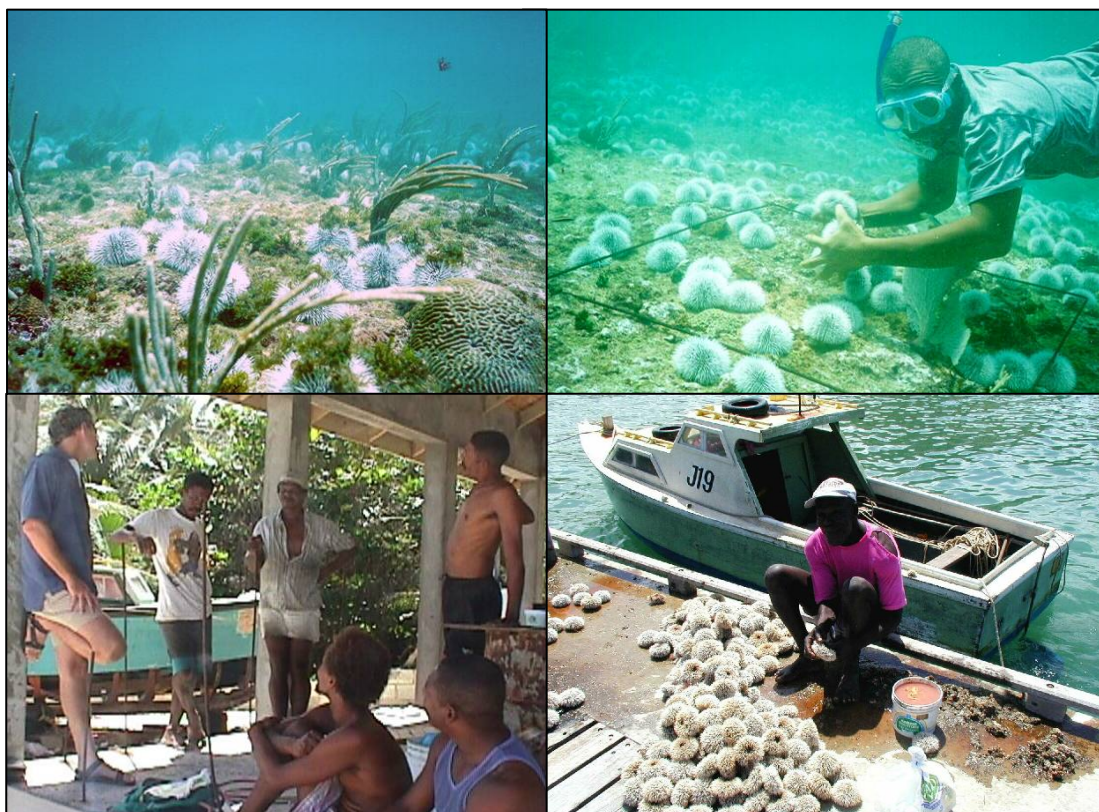


**BIOLOGY AND FISHERY MANAGEMENT OF THE WHITE SEA URCHIN,
TRIPNEUSTES VENTRICOSUS, IN THE EASTERN CARIBBEAN**



Cover photographs:

Left to right from top: white sea urchins on reef (courtesy of BARNUFO); pre-season population abundance survey being conducted in Barbados (courtesy of BARNUFO); consultative meeting with white sea urchin harvesters, Barbados (courtesy of Sharon Almerigi); harvester preparing white sea urchins for sale, Barbados (courtesy of Christopher Parker).

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**BIOLOGY AND FISHERY MANAGEMENT OF THE WHITE SEA URCHIN,
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by

Maria Pena

Project Officer

CERMES, The University of the West Indies

Barbados

Hazel A. Oxenford

Professor of Marine Ecology and Fisheries

CERMES, The University of the West Indies

Barbados

Christopher Parker

Fisheries Biologist

Fisheries Division

Ministry of Agriculture

Barbados

Antoinette Johnson

Laboratory Manager

Department of Environmental Health

Cayman Islands (United Kingdom)

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PREPARATION OF THIS DOCUMENT

This publication was prepared for the Food and Agriculture Organization of the United Nations (FAO) Subregional Office for the Caribbean (FAO/SLC) as a direct output of a Special Workshop on the White Sea Urchin Fisheries in the Eastern Caribbean at the 61st Annual Gulf and Caribbean Fisheries Institute in Le Gosier, Guadeloupe, on 10–14 November 2008. In view of the importance of the collated information obtained from published and unpublished documents on the white sea urchin fisheries in the eastern Caribbean and the request by some countries to address the white sea urchin fishery from a regional perspective, it was considered that a separate document presenting this material would have a greater scientific impact and would be more accessible for information sharing than if simply incorporated into the report of the workshop.

Pena, M. H.; Oxenford, H.A.; Parker, C.; Johnson, A.

Biology and fishery management of the white sea urchin, *Tripneustes ventricosus*, in the eastern Caribbean.

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ABSTRACT

The white sea urchin, *Tripneustes ventricosus*, is common in shallow coastal waters of the tropical Atlantic Ocean, and is widely distributed in the Caribbean Sea. The species supports small-scale, commercially important, seasonal fisheries in several islands in the eastern Caribbean including Barbados, Martinique (France) and Saint Lucia, and minor subsistence fisheries in Grenada and Saint Vincent and the Grenadines. However, despite significant management and conservation efforts by some countries, white sea urchin population abundance has declined locally. Understanding the large fluctuations in local population size and implementing sound management practices in the white sea urchin fisheries is critical to the sustainable use of this resource in the future, and would benefit considerably from a sharing of information and management experiences. To this end, this circular has attempted to collate both published and unpublished information on the white sea urchin and its fisheries in the eastern Caribbean and perspectives on past and current management of these fisheries.

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ABBREVIATIONS AND ACRONYMS

| | |
|---------|--|
| BARNUFO | Barbados National Union of Fisherfolk Organisations |
| CANARI | Caribbean Natural Resources Institute |
| CERMES | Centre for Resource Management and Environmental Studies |
| DOF | Department of Fisheries |
| FAC | Barbados Fisheries Advisory Committee |
| FMP | fisheries management plan |
| IFREMER | Institut français de recherche pour l'exploitation de la mer |
| IRPM | Institut régional de pêche et de marine |
| MarGov | Marine Resource Governance in the eastern Caribbean |
| RAPD | Randomly Amplified Polymorphic DNA |
| SEFMAC | Sea Egg Fishery Management Advisory Council |

EXECUTIVE SUMMARY

Stocks of the white sea urchin, commonly known as the sea egg in the eastern Caribbean, have virtually collapsed in recent years, despite serious efforts aimed at conservation and protection by some countries harvesting the resource. Some of the main fishery management measures implemented over the years include annual closed seasons; closed areas; prohibition of harvest with the assistance of scuba gear; multiyear fishing moratoria; minimum size at capture and total individual or area catch quotas.

Despite these efforts, empirical evidence indicates overall declines in white sea urchin stocks, with occasional instances of recovery not being sustained. Given these observations, FAO was requested by some eastern Caribbean countries to address the white sea urchin fishery from a regional perspective.

In response to this request, the FAO Subregional Office for the Caribbean (FAO/SLC), the Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies (UWI) in Barbados, the Institut français de recherche pour l'exploitation de la mer (IFREMER) in Martinique (France) and the Institut régional de pêche et de marine (IRPM) in Guadeloupe (France) collaborated in hosting a Special Workshop on the White Sea Urchin Fisheries in the Eastern Caribbean at the 61st session of the Gulf and Caribbean Fisheries held in Gossier, Guadeloupe on 10-14 November 2008. The main objective of the workshop was to determine the national and/or subregional actions that could be taken for recovery of white sea urchin fisheries in the eastern Caribbean.

Prior to this workshop, the partners collaborated in collating existing information on the biology and management of the white sea urchin fisheries in the eastern Caribbean with specific responsibilities being divided as follows:

- UWI/CERMES – collation and review of published and unpublished information on the white sea urchin and its fishery in the English-speaking eastern Caribbean;
- IFREMER – collation of published and unpublished information on the white sea urchin and its fishery in Martinique and Guadeloupe;
- FAO/SLC – solicitation of national reports on the white sea urchin and its fishery from participating countries.

This synthesis incorporates published and unpublished information on the white sea urchin in the eastern Caribbean – Barbados, Carriacou (Grenada), Grenada, Martinique, Saint Lucia, and Saint Vincent and the Grenadines. The Circular consists of ten chapters. Chapters 1–6 synthesize information on the biology, ecology, population structure and aquaculture potential of the resource. Chapter 7 addresses the exploitation of the resource including the types of fishing equipment used, fishing areas and seasons. Chapter 8 examines the socio-economic importance of the white sea urchin fisheries in the eastern Caribbean. Chapter 9 focuses on the past and current management of the white sea urchin fisheries by country, and Chapter 10 identifies knowledge gaps for the sustainable management of white sea urchin fisheries and provides an overview of current research being conducted on white sea urchin fisheries in the region.

A second output of the collaboration is an annotated bibliography related to the white sea urchin and its fisheries in the eastern Caribbean. It is hoped this bibliography will be used as a reference guide for future research and will be updated regularly as literature is both produced in the future and discovered from previous studies.

Bisessar Chakalall †
Senior Fishery Officer
FAO Subregional Office for the Caribbean