FRAMEWORK PARTNERSHIP AGREEMENT

RISK CHARACTERIZATION OF CIGUATERA FOOD POISONING IN EUROPE

60th MEETING OF THE EFSA ADVISORY FORUM
8-9 JUNIO UTRECHT
CIGUATERA CFP: CIGUATERA FISH POISONING.

- The most severe poisoning related with marine toxins in seafood (50 000 to 200 000 people affected yearly). (only 5-10% reported)

- Mainly in inter-tropical latitudes. Increasing incidence in non-endemic

- Regulation does not set limits nor an official method.

- Lack of a harmonized, validated detection method.
CIGUATOXINS: Cyclic polyether toxins, produced by dinoflagellates (Gambierdiscus sp) and responsible for symptoms of ciguatera poisoning.

http://pn.bmj.com/content/7/5/316.full

http://www.whoi.edu/science/B/redtide/species/cfp_vectorfish.jpg
WORLDWIDE DISTRIBUTION of Ciguatera cases of poisoning (Red dots) including episodes in the Western Atlantic, Macaronesia (Canary Islands and Madeira). Additionally, only for the Mediterranean, this maps reports (Yellow dots) presence of *Gambierdiscus* spp. in Cyprus, Crete and the Balearic Islands. There is no thorough evidence of Ciguatera poisoning in the Mediterranean.
FIRST RECORDS OF OUTBREAKS IN EU

- Canary Islands: 2004 – Amberjack (Seriola rivoliana) 26 kg : 9 people affected

- Madeira: 2008; Amberjack (Seriola rivoliana) 30 kg : 16 people affected
# Background

Ciguatera outbreaks due to autochthonous fish in the European Union: Spain

<table>
<thead>
<tr>
<th>Date</th>
<th>Place</th>
<th>No. of Cases</th>
<th>Type of fish</th>
<th>Size (kg)</th>
<th>Fish origen</th>
<th>Ctx detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 2008</td>
<td>Tenerife</td>
<td>25</td>
<td><em>Seriola fasciata</em></td>
<td>37</td>
<td>Local market</td>
<td>Yes</td>
</tr>
<tr>
<td>Jan 2009</td>
<td>Tenerife</td>
<td>4</td>
<td><em>Seriola dumerilis</em></td>
<td>67</td>
<td>Sport fishing</td>
<td>Yes</td>
</tr>
<tr>
<td>Sep 2009</td>
<td>Gran Canaria</td>
<td>3</td>
<td><em>Seriola spp.</em></td>
<td>UNK</td>
<td>UNK</td>
<td></td>
</tr>
<tr>
<td>Nov 2009</td>
<td>Tenerife</td>
<td>2</td>
<td><em>Seriola spp.</em></td>
<td>UNK</td>
<td>Sport fishing</td>
<td></td>
</tr>
<tr>
<td>Apr 2010</td>
<td>Tenerife</td>
<td>6</td>
<td><em>Seriola spp.</em></td>
<td>80</td>
<td>UNK</td>
<td></td>
</tr>
<tr>
<td>Jun 2011</td>
<td>Gran Canaria</td>
<td>5</td>
<td><em>Seriola spp.</em></td>
<td>24</td>
<td>Sport fishing</td>
<td>Yes</td>
</tr>
<tr>
<td>Jan 2012</td>
<td>Lanzarote</td>
<td>10</td>
<td><em>Seriola spp.</em></td>
<td>15</td>
<td>Sport fishing</td>
<td></td>
</tr>
<tr>
<td>Apr 2012</td>
<td>Lanzarote</td>
<td>9</td>
<td><em>Seriola spp.</em></td>
<td>26</td>
<td>Sport fishing</td>
<td></td>
</tr>
<tr>
<td>May 2012</td>
<td>Tenerife</td>
<td>4</td>
<td><em>Seriola spp.</em></td>
<td>UNK</td>
<td>Local market</td>
<td></td>
</tr>
<tr>
<td>Dec 2012</td>
<td>Tenerife</td>
<td>12</td>
<td><em>Epinephelus spp.</em></td>
<td>18</td>
<td>Sport fishing</td>
<td>Yes</td>
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<tr>
<td>Dec 2013</td>
<td>Lanzarote</td>
<td>16</td>
<td><em>Epinephelus spp.</em></td>
<td>UNK</td>
<td>Local market</td>
<td>Yes</td>
</tr>
<tr>
<td>Feb 2015</td>
<td>Tenerife</td>
<td>3</td>
<td><em>Mycteroperca fusca</em></td>
<td>3-4</td>
<td>Local market</td>
<td></td>
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<tr>
<td>Apr 2015</td>
<td>Tenerife</td>
<td>3</td>
<td>UNK</td>
<td>UNK</td>
<td>UNK</td>
<td></td>
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<tr>
<td>May 2015</td>
<td>Tenerife</td>
<td>2</td>
<td><em>Pamatomus saltatrix</em></td>
<td>&lt;10</td>
<td>Sport fishing</td>
<td>Yes</td>
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</tbody>
</table>
SANITARY CONTROL MEASURES APPLIED IN THE CANARY ISLANDS BECAUSE OF THE EMERGING PRESENCE OF CIGUATOXIN

• MANDATORY NOTIFICATION OF CIGUATERA On the basis of the higher incidence of Ciguatera food poisoning in Canary Islands: Annex III amendment of Decree 165/1998 (Canaries Epidemiological Surveillance Network)

• OFFICIAL CONTROL PROGRAMME (started 2009)
• ACTION SCOPE: First selling points, food enterprises and restaurants.
• MEETINGS WITH SPORT FISHING ASSOCIATIONS

General Directorate of Fisheries
Canary Islands Government

General directorate of Public Health
Canary Islands Government
Short communication

Ciguatera fish poisoning on the West Africa Coast: An emerging risk in the Canary Islands (Spain)

Luis D. Boada a,1, Manuel Zumbado a, Octavio P. Luzardo a, Maira Almeida-González a, Steven M. Plakas b, Hudson R. Granade b, Ann Abraham b, Edward L.E. Jester b, Robert W. Dickey B

Rapid communications

Outbreak of ciguatera food poisoning by consumption of amberjack (Seriola spp.) in the Canary Islands, May 2012

D. Rui Ne (dsouza@superoseom.com), P. Matute a, A. García a, P. García a, N. Abadía a

1. Servicio de Epidemiología y Prevención, Dirección General de Salud Pública, Servicio Canario de la Salud, Canary Islands, Spain

TABLE 2

Outbreaks (n=9) and number of cases (n=68) of ciguatera food poisoning, Canary Islands, Spain 2008–2012

<table>
<thead>
<tr>
<th>Outbreak number</th>
<th>Date</th>
<th>Island</th>
<th>Number of human cases</th>
<th>Fish species</th>
<th>Weight (kg)</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15/12/2008</td>
<td>Tenerife</td>
<td>25</td>
<td>Amberjack (Seriola)</td>
<td>37</td>
<td>Local market</td>
</tr>
<tr>
<td>2</td>
<td>25/03/2009</td>
<td>Tenerife</td>
<td>6</td>
<td>Amberjack Corisso (lumbricii)</td>
<td>67</td>
<td>Sport fishing</td>
</tr>
<tr>
<td>3</td>
<td>08/09/2009</td>
<td>Gran Canaria</td>
<td>9</td>
<td>Amberjack Corisso (lumbricii)</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>4</td>
<td>16/12/2009</td>
<td>Tenerife</td>
<td>4</td>
<td>Amberjack Corisso (lumbricii)</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>5</td>
<td>04/06/2010</td>
<td>Tenerife</td>
<td>6</td>
<td>Amberjack Corisso (lumbricii)</td>
<td>80</td>
<td>Sport fishing</td>
</tr>
<tr>
<td>6</td>
<td>08/10/2010</td>
<td>Gran Canaria</td>
<td>5</td>
<td>Amberjack (Seriola)</td>
<td>24</td>
<td>Sport fishing</td>
</tr>
<tr>
<td>7</td>
<td>28/03/2012</td>
<td>Lanzarote</td>
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<td>Amberjack (Seriola)</td>
<td>15</td>
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<td>8</td>
<td>04/06/2012</td>
<td>Lanzarote</td>
<td>4</td>
<td>Amberjack (Seriola)</td>
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<td>9</td>
<td>05/2012</td>
<td>Tenerife</td>
<td>4</td>
<td>Amberjack (Seriola)</td>
<td>Unknown</td>
<td>Local market</td>
</tr>
</tbody>
</table>

Rev Port Saúde Pública. 2011;29(1):77-87

Artigo original

Biotoxinas emergentes em águas europeias e novos riscos para a saúde pública

Paulo Vale

Instituto Nacional de Recursos Biológicos, I.P. – Instituto de Investigação das Pescas e do Mar, Lisboa, Portugal
Ciguatera cases in European Union travellers

Ciguatera fish poisoning: an emerging syndrome in Italian travelers.
Bavastrelli M¹, Bertucci P, Midulla M, Giardini O, Sanguigni S.

Medicina Clínica

Intoxicación por ciguatoxina en viajeros
Ciguatera poisoning in Spanish travellers
Joaquim Gascón a, Maria Macià a, Inés Oliveira a, Manuel Corachán a

a Sección de Medicina Tropical. Centro de Salud Internacional. Hospital Clínico. IDIBAPS. Barcelona. España.
Ciguatera outbreaks due to imported fish in the European Union

Ciguatera fish poisoning: A first epidemic in Germany highlights an increasing risk for European countries

César Mattei, Irina Vetter, Anneka Eisenblätter, Bernd Krock, Martin Ebbecke, Herbert Desel, Katharina Zimmermann.
CIGUATERA POISONING AN EMERGING RISK IN THE EU

-Madeira and Canary Islands (Macaronesia):
  -Presence of *Gambierdiscus* spp.
  -Fish with CTXs.
  -CFP reported.

- Mediterranean Sea:
  -Presence of *Gambierdiscus* spp.

-Reported cases in hospitals in continental Europe (EU citizens travelling to ciguatera endemic / Imported fish with CTXs).
WHICH ARE THE NEEDS????

Certified reference standards and reference materials are needed
Methods other than the Mouse Bioassay should be further developed, optimised and validated
More information on occurrence in fish and other seafood is needed
Due to their high acute toxicity and emerging occurrence, appropriate strategies to protect human health need to be developed
Further information to better characterise the oral toxicity and relative potencies is needed
Detection of Gambierdiscus

CFP Outbreaks

Raised at AF 2010 - Discussed by EREN in 2012

Spain expressed the need to characterize ciguatera food poisoning in Europe.
13th EREN network meeting (April 2015)

Proposal of a project made by issue was discussed the Spanish Agency for Consumer Affairs, Food Safety and Nutrition (AECOSAN) to EFSA in May 2015

SIGNATURE OF THE FRAMEWORK PARTNERSHIP AGREEMENT 19 MAY 2016
Signature in Parma, 19th of April 2016

EFSA’S FRAMEWORK PARTNERSHIP AGREEMENT
RISK CHARACTERIZATION OF CIGUATERA FOOD POISONING IN EUROPE
NUMBER: GP/EFSA/AFSCO/2015/03
RISK CHARACTERIZATION OF CIGUATERA FOOD POISONING IN EUROPE

- Determination of the incidence and epidemiological characteristics of ciguatera cases in Europe
- Investigate the spatial and temporal distribution of *Gambierdiscus* spp. in EU waters
- Evaluate the CTX-like toxicity of *Gambierdiscus* spp. Populations;
- Evaluate possible presence of CTXs in fish in EU waters
- Establish a reliable methodological approach to identify and quantify ciguatoxins (CTXs) in fish and microalgae;
- Develop standards and reference material
<table>
<thead>
<tr>
<th>Coordinator</th>
<th>Organisation</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Agencia Española de Consumo, Seguridad Alimentaria y Nutrición</strong></td>
<td>AECOSAN</td>
</tr>
<tr>
<td>Partner 1</td>
<td><strong>Instituto de Salud Carlos III</strong></td>
<td>ISCIII</td>
</tr>
<tr>
<td>Partner 2</td>
<td><strong>Institut de Recerca i Tecnologia Agroalimentaries</strong></td>
<td>IRTA</td>
</tr>
<tr>
<td>Partner 3</td>
<td><strong>Universidad de Vigo</strong></td>
<td>UVigo</td>
</tr>
<tr>
<td>Partner 4</td>
<td><strong>Portuguese Authority for Food and Economic Safety</strong></td>
<td>ASAE</td>
</tr>
<tr>
<td>Partner 5</td>
<td><strong>Instituto Nacional de Saúde Doutor Ricardo Jorge, I.P.</strong></td>
<td></td>
</tr>
<tr>
<td>Partner 6</td>
<td><strong>University of Thessaly</strong></td>
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</tr>
<tr>
<td>Partner 7</td>
<td><strong>Federal Institute for Risk Assessment</strong></td>
<td>BfR</td>
</tr>
<tr>
<td>Partner 8</td>
<td><strong>Canary Health Service (Servicio Canario de la Salud)</strong></td>
<td>SCS</td>
</tr>
<tr>
<td>Partner 9</td>
<td><strong>Universidad de Las Palmas de Gran Canaria</strong></td>
<td>ULPGC</td>
</tr>
<tr>
<td>Partner 10</td>
<td><strong>Instituto Português do Mar e da Atmosfera</strong></td>
<td>IPMA</td>
</tr>
<tr>
<td>Partner 11</td>
<td><strong>State General Laboratory (SGL) / Ministry of Health</strong></td>
<td>SGL</td>
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<tr>
<td>Partner 12</td>
<td><strong>French Research Institute for Exploitation of the Sea</strong></td>
<td>IFREMER</td>
</tr>
<tr>
<td>Partner 13</td>
<td><strong>Aristotle University of Thessaloniki</strong></td>
<td></td>
</tr>
<tr>
<td>Collaborator</td>
<td>Ministry of Health, Nicosia Cyprus</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regional Ministry of Agriculture, Livestock, Fisheries and Water the Canary Islands Government</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural Park of Madeira</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direção Regional das Pescas of Madeira</td>
<td></td>
</tr>
</tbody>
</table>

| Advisory Board | Dr. Ronald L. Manger  
Fred Hutchinson Cancer Research Ctr, Seattle, WA |
|----------------|-------------------------------------------------|
|                | Dr. Robert Dickey  
Marine Science Institute (UTMSI), Austin Texas |
|                | Dr. Takeshi Yasumoto  
JFRL, Japan |
|                | EFSA |
|                | ECDC |
|                | COM |
|                | JRC |
PARTNERS, COLLABORATORS AND ADVISORY BOARD

Dr. Ronald L. Manger

Dr. Robert Dickey

Dr. Takeshi Yasumoto
FRAMEWORK PARTNERSHIP AGREEMENT
NUMBER: GP/EFSA/AFSCO/2016
Risk characterization of ciguatera food poisoning in Europe

AECOSAN : FPA leader and coordinator.

- SPECIFIC AGREEMENT NUMBER 1 : MANAGEMENT AND SCIENTIFIC COORDINATION
- SPECIFIC AGREEMENT NUMBER 2 : DETERMINATION OF THE INCIDENCE AND EPIDEMIOLOGICAL CHARACTERISTICS OF CIGUATERA CASES IN EUROPE
- SPECIFIC AGREEMENT NUMBER 3: EVALUATION OF CTXs IN SEAFOOD AND THE ENVIRONMENT AND OBTENTION OF REFERENCE MATERIAL
- SPECIFIC AGREEMENT NUMBER 4 : CHARACTERIZATION OF CIGUATOXINS PRESENT IN EU CONTAMINATED PROFILES BY LC_MS/MS and HRMS: DEVELOPMENT OF STANDARDS AND SECONDARY REFERENCE MATERIALS
GOVERNANCE

Governing Board (Management and Scientific): AECOSAN + All the partners

This board will work as an Executive committee, representing the interests of all the specific partners leading the SG, but presided by AECOSAN which will be the ultimately institution taking decisions. The board will deal with both scientific and management issues affecting the project and the different contracts.

Advisory Board: AECOSAN, Dr. Ronald L. Manger (Fred Hutchinson Cancer Research Ctr, Seattle, WA), Dr Robert Dickey (Marine Science Institute (UTMSI), Austin Texas) and Dr. Takeshi Yasumoto (JFRL, Japan), EFSA (Observer), ECDC, COM and JRC.
SA 1: MANAGEMENT AND SCIENTIFIC COORDINATION

PARTNERS: AECOSAN, ASAE

MAIN TASKS

- To facilitate cooperation and scientific advancement of all four Specific Agreements foreseen;
- Favour scientific cooperation among partners within the Governing Board and facilitate interchange of information with the Advisory Board;
- Ensure scientific coherence and data integration among all four Specific Agreements;
- Integrate the different results of the specific agreements in order to provide EFSA with the main goals of the FPA in terms of the risk characterization of the Ciguatoxin poisoning in the EU;
EXTERNAL COMMUNICATION PLAN: ECP

TO WHO?

- Operators
- Sport fishing associations
- Food safety competent authorities
- Sanitary competent authorities
- Consumers
- Scientific community
- Advisory forum
- EFSA’s panels and SC

HOW

- Webpage
- Flyers
- Seminars/workshops/meetings
- Interactions with other projects/initiatives

Surveys; Awareness campaigns; Flyers; Web & Social Networks
SA3: Evaluation of CTXs in seafood and the environment for the risk assessment of ciguatera fish poisoning

**MAIN TASKS:**

- **Isolation of* Gambierdiscus* spp. from EU waters:** Madeira, Canary Islands, Crete, Cyprus, Balearic Islands and toxicity evaluation.;; Species identification; Isolation and culturing of microalgae for Toxicity evaluation (by cell-based assay, CBA) and large-scale culture of the most interesting toxicogenic strains.

- **Evaluation of CTXs in fish for human consumption,** from EU waters: from Macaronesian islands and the Mediterranean Sea (Canary Islands Madeira, Crete, Cyprus and Balearic Islands). Collection of fish samples from the field and from the market (muscle and liver if available), toxicity evaluation by CBA and confirmation by LC-MS/MS in collaboration with Grant 4.

- **Development of primary reference material (Linked to Grant 4):** screening of samples, Identification of toxin profiles and quantification of toxins in reference material (microalgae and fish), stock of reference material containing CTXs.

- Gathering of **environmental data Literature and data search** for the future development of models to understand the ecology of ciguatera.
Sampling for *Gambierdiscus* spp. from the field and fish from the field and the market

Environmental data:

Madeira  
Canary Islands  
Balearic Islands  
Crete  
Cyprus

**Toxicity evaluation with a cell-based assay**

Neuro2a cells  
MTT viability assay  
Quantification

Isolation of *Gambierdiscus* spp., identification, establishment of cultures of *Gambierdiscus* spp. in the laboratory (low-scale and large-scale)

Extraction of *Gambierdiscus* spp., fish samples and purification of extracts

Identification and quantification of CTXs with LC-MS/MS (In collaboration with GRANT 4)
SG3 Partners:

- Institut de Recerca i Tecnologia Agroalimentàries, IRTA, Generalitat de Catalunya (Spain)
- Universidad de Las Palmas de Gran Canarias, ULPGC (Spain)
- Canary Health Services, SCS, Gobierno de Canarias (Spain)
- Instituto Portugues do Mar e da Atmosfera, IPMA (Portugal)
- Aristotle University of Thessaloniki, AUT (Greece)
- State General Laboratory, SGL, Ministry of Health (Cyprus)

SG3 Collaborators:

- Regional Ministry of Agriculture, Livestock, Fisheries and Water, Gobierno de Canarias (Spain)
- Direção Regional das Pescas of Madeira (Portugal)
- Natural Park of Madeira (Portugal)
To characterize the risk associated with Ciguatera poisoning, by developing an efficient analytical methodology with ability to confirm the identity of the toxins involved in the contamination of phytoplankton and fish samples, as well as developing standards and reference materials to be used for this evaluation and characterization as well as to help participants in the project to set up the evaluated methodologies.
Specific Agreement No. 4: characterization of ciguatoxins present in EU contaminated profiles by LC_MS/MS and HRMS: development of standards and secondary reference materials

MAIN TASK:

• Development of a Standard Operating Procedure (SOP) for the Liquid Chromatography coupled with tandem Mass Spectrometry (LC-MS/MS) analysis of Ciguatoxins present in different matrices (phytoplankton and fish)

• Application of the LC-MS/MS to all the samples previously identified as positive in the Grant responsible for Identification (now Grant 3)

• Confirmation by High Resolution Mass Spectrometry (HRMS) of the CTXs profile of the contaminated samples previously evaluated by LC-MS/MS.

• Development of CTX standards and secondary reference materials from contaminated fish

• Intercomparative study through Proficiency Testing of the methodologies developed and applied by Partners and collaborators involved in the Project, as well as testing materials (standards and secondary reference materials) developed in this project through the collaboration with the EU Reference laboratory for marine biotoxins (EURLMB)
DELIVERABLES

SOP for LC-MS determination of CTXs

Identification of CTXs

Confirmation of CTXs (accuracy mass)

CTXs standards

Intercomparison Report

Fish tissue RM

Ifremer

HARMONIZATION
PARTNERS & COLLABORATORS

Development of standards for CTXs

Confirmation of CTX identity
TIMELINE

- Signature of FPA, signature of 4 SG, Kick-off meeting
- Report, GB meeting, AB meeting
- Final report, final scientific report, Workshop

Length of SG: 4 years since signature date
Kick off meeting Madrid 31 May, 1, 2 June 2016
Specific Agreement No. 2: Determination of the incidence and epidemiological characteristics of ciguatera cases in Europe

MAIN TASKS:

• To establish a ciguatera case definition.
• To identify data sources for ciguatera cases and outbreaks.
• To elaborate the surveillance protocol.
• To collect ciguatera cases and outbreaks.
• To analyse the information.
• **To produce a report.**
DETERMINATION OF THE INCIDENCE AND EPIDEMIOLOGICAL CHARACTERISTICS OF CIGUATERA CASES IN EUROPE

Leader: Instituto de Salud Carlos III, CNE (National Centre of Epidemiology), Spain

Partner:
- Instituto Nacional de Saúde Doutor Ricardo Jorge, Portugal;
- University of Thessaly, Greece;
- Canary Health Service (Servicio Canario de la Salud), Spain;
- BfR, Germany

Collaborators: Maria G. Koliou, Ministry of Health, Nicosia Cyprus;

OTHER MEMBER STATES MAY JOIN AS THEY WILL BE ASKED TO CONTRIBUTE ON A VOLUNTARY BASIS TO THE REPORTING OF CIGUATERA CASES
Canary Islands case definition

2. Definición de caso de “Intoxicación por Ciguatera”:

Consumption of fish of a risk specie

Neurological symptoms: paraesthesia in lips, hands and extremities; pruritus; reversal of hot and cold sensations, pain and weakness of the lower extremities.

Gastrointestinal symptoms: vomiting, diarrhoea, nausea and abdominal cramps.

Confirmation: detection of CTX in fish

http://www3.gobiernodecanarias.org/sanidad/scs/contenidoGenerico.jsp?idDocument=bb1799ed-b4c0-11de-ae50-15aa3b9230b7&idCarpeta=0f67aaf7-9d88-11e0-b0dc-e55e53ccc42c
Ciguatera cases are not reported to the ECDC*
Data sources

ECDC
European Centre for Disease Prevention and Control

Food- and waterborne diseases and zoonoses Programme

The ECDC FWD Programme covers the following diseases:
- Anthrax
- Botulism
- Cholera
- Cryptosporidiosis
- Echinococcosis
- Enterohemorrhagic Escherichia coli (leads to E. coli)
- Escherichia coli (C. coli)
- Food- and waterborne

Related health topics
- Anthrax
- Botulism
- Cholera
- Cryptosporidiosis
- Echinococcosis
- Enterohemorrhagic Escherichia coli (leads to E. coli)
- Escherichia coli (C. coli)
- Food- and waterborne

All urgent inquiries

UI-089  17/09/2010 04:45 PM  marine toxin  1  17/09/2010 04:45 PM  06/07/2013 05:07 AM
## Data sources


*of 17 November 2003*


**EU summary report on zoonoses, zoonotic agents and food-borne outbreaks 2012**

### Table OUT15. Strong-evidence food-borne outbreaks caused by other causative agents in the EU, 2012

<table>
<thead>
<tr>
<th>Agent</th>
<th>Country</th>
<th>N</th>
<th>Human cases</th>
<th></th>
<th></th>
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<td></td>
<td>Cases</td>
<td>Hospitalised</td>
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<td>Latvia</td>
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<td>16</td>
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<td>0</td>
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<td>Slovenia</td>
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### Table 35. Strong-evidence food-borne outbreaks caused by other causative agents (excluding strong-evidence water-borne outbreaks), 2013

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<th>Causative agent</th>
<th>Country</th>
<th>N outbreaks</th>
<th>Cases</th>
<th>Hospitalised</th>
<th>Deaths</th>
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### Data sources

**Table 37:** Strong-evidence food-borne outbreaks caused by other causative agents (excluding strong-evidence water-borne outbreaks), 2014

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<thead>
<tr>
<th>Causative agent</th>
<th>Country</th>
<th>Number</th>
<th>Cases</th>
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<th>Deaths</th>
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Data sources

Notification details - 2015.0088

ciguatoxins in wild-caught fish (Caranx spp and others) from Sri Lanka

Reference: 2015.0088
Notification date: 27/01/2015
Last update: 05/01/2016
Notification from: France (FR)
Classification: information for attention
Risk decision: serious

Notification type: food - information for attention - border control - consignment released
Action taken: informing authorities
Distribution status: distribution restricted to notifying country
Product category: wild-caught fish (Caranx spp and others)

Hazards

<table>
<thead>
<tr>
<th>Substance / Hazard</th>
<th>Category</th>
<th>Analytical result</th>
<th>Units</th>
<th>Sampling date</th>
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<td>ciguatoxins</td>
<td>biotoxins (other)</td>
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</tbody>
</table>

Countries/organisations concerned (D = distribution, O = origin)

France (D)  Sri Lanka (O)
Surveillance protocol

Questionnaire Canary Islands

✓ Demographic information
✓ Clinical information
✓ Epidemiological information
✓ Contact details of the reporting person
Surveillance protocol

Questionnaire Florida

Ciguatera Case Report Form V36, March 2013
This form is designed to be filled out electronically and attached to the case in Merlin. Please complete the Extended Data screen in Merlin using information collected here.

*Blue fields are REQUIRED

Merlin case number: County number: Investigator:

PROFILE DETAILS

*Last name: First name: Middle:

Parent or guardian name:

*Gender: Male Female Unk

*Birth (mm/dd/yy):

*Race: American Indian/Alaska Native Asian/Pacific Islander Other

*Ethnicity: Hispanic Non-Hispanic Unk

*Street address:

City: *State: *Zip code: *County:

Home phone: Other phone: Emergency phone:

CASE INFORMATION

*Imported: Acquired in FL Acquired in US, not in FL Acquired outside US Unk

*Outbreak: Outbreak-associated Sporadic Unk

Outbreak ID:

*Case classification: Primary Secondary Unk

Reporter type: Reporter’s name:

FLORIDA HEALTH

Surveillance protocol

Questionnaire Secretariat of the Pacific Comunity
EU/EFSA
Risk characterization of ciguatera in Europe.
Recommendations.
A framework for the future prediction of ciguatera.

PARTNERS AND COLLABORATORS WITHIN THE FPA
Exchanging and sharing samples, methods, know-how.
Consolidate and increase links.
Scientific collaborations.

RISK MANAGERS
Better tools and strategies for environmental and public health/food safety institutions that will have to manage ciguatera.

SCIENTIFIC COMMUNITY
Provide high standard scientific papers and communications.
HOW TO COLLABORATE IN THE PROJECT (SG2): WHAT DO WE NEED

• ADVISORY FORUM: To provide the list of persons in charge of reporting food-borne outbreaks to EFSA.

• REPORTING AUTHORITIES: updated information on food-borne outbreaks due to ciguatoxins (marine biotoxins).
  – Food-borne outbreaks not sent to EFSA.
  – More information from all ciguatoxin (marine biotoxins) outbreaks.

CONTACT: mvarelam@isciIII.es