

# **Enhancing Human Health**

**Combined sessions A & B**

**Consensus Document  
of  
24 participants**

# Priority Challenges

- **Understand complexity of ocean systems, including characteristics needed to assess human health risks**
- **Integrate approaches and data across fields**
- **Foster discovery and development of new marine bio-products**
- **Monitor, assess, predict, and prevent risks from pathogens, toxins and other chemical contaminants**
- **Facilitate communication for effective decision-making at all levels**
- **Conduct integrated epidemiologic studies to assess human health risks and benefits**

# Priority Expected Results

- **OHH research, education, outreach fully institutionalized and enhanced communication network established**
- **Improved monitoring, surveillance systems, models, databases, and prediction to enhance public health and inform policy and decision-makers**
- **Rapid discovery and application of ocean bio-products through broad public-private consortia, resulting in improved human health and enhanced private sector returns**
- **Basic knowledge for sustainable coastal development to minimize adverse environmental impacts on people and animals**
- **Mechanistic models derived from marine species to improve understanding of human disease**
- **Improved human nutritional status through consumption of high quality seafood**

# Priority Research Needs

- **Optimize marine bio-product acquisition, characterization, and production using cross-disciplinary methods**
- **Develop the best tools and methods to assess microbes and chemicals of public health interest**
- **Integrate ocean data and models with human epidemiologic studies**
- **Conduct basic science studies to understand mechanisms of oceans and human health interactions and impacts**
- **Use marine species to develop new mechanistic models of human disease processes and toxicology**

# Priority Infrastructure Needs

- **Develop effective communication and education networks, including platforms for technology transfer**
- **Develop research standard materials and protocols**
- **Build interdisciplinary research capacity, including cross-disciplinary training and cross-agency collaborations**
- **Develop and maintain infrastructure needed to explore questions of public health significance (e.g. platforms, submersibles, & sensors)**
- **Develop data infrastructure to:**
  - **integrate human health databases with ocean databases**
  - **implement a system to provide and disseminate data products**
- **Provide public health surveillance and rapid response capability**

# Relationship to Cross-Cutting Themes

- **Observations and Infrastructure**
  - **Sensors of value to human health essential**
  - **Data management issues reiterated---form, connectivity, temporal**
  - **Robust observing system, a national fleet, and industry participation**
- **Enhancing Our Basic Understanding of the Oceans**
  - **Variability and change, lack of current predictive ability, and species/events of harm to humans**
  - **interdisciplinary studies on complex ocean issues including HABs, emerging pathology/disease, and potential for intervention**
- **Ocean Education**
  - **Interdisciplinary training, team-building exercises, and extensive education activities at all levels in all venues**
  - **Communication leading to an educated, empowered Public capable of effective decision-making**