Committee Report

Committee Name :	Research Guidance		
Chairperson:	Robert Rheault		
Date of Meeting:	10/25/2015	**Approved By:**	_____
Recorder:	Chris Sherman	**Printed Name:**	

Committee Members Present:

X Robert Rheault (Chairperson)
X Kristin Derosia-Banick
X Matt Forrester
X Alison Sirois
X AJ Erskine
X Angela Ruple
X Chris Sherman
X Bill Burkhardt

Charges

Charge 1:

Findings & Conclusions:

The committee discussed research which would enhance discussions regarding NSSP controls.

Recommendations:

The ISSC should annually present research needs to the USDA National Institute of Food and Agriculture (NIFA), Ecology and Evolution of Infectious Disease (EEID) and National Institute of Health (NIH), NOAA, Sea Grant and other pertinent groups that support relevant research to inform these organization's funding committees of the value of the industry and the research needs that have been identified by the ISSC Research Committee.

The ISSC should make these research needs widely available on its website.

These needs were identified without priority ranking:

Determination of appropriate re-submergence parameters for thermally abused shellfish.

Alternative PHP methods of reducing vibrios that retain the product attributes of live shellfish such as treatment in: ozone, probiotics (bdellavibrios or vibriovax), ethyl pyruvate, cold high salinity relay

Rapid detection methods for pathogenic strains of Vibrio.

Determine the infectious dose/response for the various pathogenic Vibrio strains.

Investigate how environmental conditions (beyond just temperature and salinity) and cultivation practices impact Vibrio levels and the production of hemo-toxins.

Identify more accurate genetic markers for pathogenicity of vibrios.

Determine how environmental strains relate to clinical strains, in order to better define outbreaks and improve outbreak response.

Identify the processes that impact the uptake and elimination of vibrios and viruses in shellfish such as: attachment mechanisms, role of digestion, role of temperature and pumping/feeding activity, impact of food or lack of food in the water, mechanisms of elimination.

Identify how tidal state, turbulence and depth interact to influence Vibrio uptake and retention.

Refine all elements of the Vibrio Risk Calculator by refining the estimates of serving size, percent served raw/cooked, and estimated ratio of confirmed to unreported cases. Include regional considerations if appropriate.

Validate the use of ice slurry on a regional basis and evaluate shelf life impacts.

Evaluate the impact of prescription and over-counter proton pump inhibitors (such as Prilosec and Nexium) and antacids on the risk of Vibrio infection by evaluating COVIS records and determine if a consumer advisory label for such products would be appropriate.

Vibrio-related issues identified by the ISSC

Is total *V.p*. a valid indicator of risk?
Are there differential effects of validated PHP on virulent subpopulations?
How do environmental factors affect levels of virulent subpopulations?
Compile a collection of *V.p.* strain samples for future virulence research.
Do other bacterial species react to controls the same as *V.v.* and *V.p*.?
What are baseline Vibrio (total and virulent) levels at harvest (in oysters and clams)?
How much Vibrio (total and virulent) growth results from the current time/temperature controls (in oysters and clams)?

Research Priorities

What regional information is needed to refine risk assessments and risk calculator tools for implementation of effective control plans?
What is the significance of salinity to Vibrio levels in shellfish?
Is there a salinity/temperature matrix that determines Vibrio levels?
What are the key virulence factors (or combination thereof) for *V.v.* and *V.p*.?
What are the regional differences in pathogenic strains of *V.v.* and *V.p.*?
What is the percentage of pathogenic strains of Vibrio in growing waters?
Should the "viable but not culturable" state in pathogenic vibrios be a concern?

Other non-vibrio related needs:

Develop rapid test for ASP biotoxin.
Validate the DSP rapid test that is currently under review.

Develop better tools to evaluate whether shellfish have been fully cooked (especially for evaluating imports). The acid phosphatase test has not been fully validated. A quantitative test would be a significant improvement over current organoleptic tests.

Development of tools to allow the culture of Norovirus for enumeration.

We ask that the list of biotoxin research needs developed by the LMRC that was forwarded to the Biotoxin Committee be added to this list.

Investigate the potential risk from *Clostridium botulinum* sporulation and Group II toxin production in shucked shellfish under refrigeration in modified atmosphere packaging.

Examine saxotin delivery impacts on human health (i.e. intraperitoneal vs oral)