

SAB - Ecological Processes Standing Committee meeting 11/15/2013

NJDEP Office of Science conference room

1:00 – 3:00 pm

Members present:

Michael Weinstein

Carolyn Bentivegna

Paul Bovitz

Zeyuan Qiu

Members not present:

Charles Harman

Robert Hoke

Ursula Howson

Jonathan Kennen

DEP Staff Present

Joe Bilinski

Mihaela Enache

Bob Hazen

Leo Korn

Nick Procopio

Summary:

Dr. Weinstein introduced the latest draft of the report for discussion and mentioned the need to include case histories for land-use and ecohydrology from Dr. Qiu and Dr. Kennen, respectively. Dr. Weinstein also noted the possibility to include a case history for fate and transport if someone could write it.

Dr. Weinstein requested assistance in preparing an appendix of available Bayesian software with strengths and weaknesses of each. A second appendix describing the use of dataloggers to amass data is also needed and a volunteer is needed to develop it. Dr. Weinstein suggested the committee could get information from other agencies including NOAA and MACOORA as well as some of the universities.

Dr. Weinstein reviewed the status of each of the Department's request:

Task 1 – Literature review: this is nearly complete

Task 2 – Case studies: Four case studies have been developed. Two or three more need to be included.

Task 3 – Use of data loggers: This will be reviewed in an appendix

Task 4 – Synthesis of case studies to practical uses: Much of this is completed but more is needed to make or suggest practical application of the analyses presented.

Draft report comments included:

- Reduce jargon and to include hyperlinks to definitions and examples.
- Remove the word empirical from the title and replace it with inference.
 - Perhaps create a box describing empirical Bayesian analysis.
- Include a very simple example. A coin flip example was suggested (see below).

The Committee discussed the outline for section 4.0 – A Bayesian Framework for New Jersey

1. Introduction (preamble to “Application of Bayesian Inference”)

- a. Challenges and use of Bayesian methods as a tool.
 - b. Risk assessment/uncertainty in Bayesian models
 - c. Strength and weaknesses
- 2. Each individual topic will have information covering
 - a. Challenges specific to each topic
 - b. Potential applications in NJ
 - c. Science informing policy – is there value added from Bayesian inference

Topic sections for section 4.0 include:

- i. Land-use/land-cover (Zeyuan Qiu)
- ii. Hydroecology (Jonathan Kennen, Paul Bovitz)
- iii. Urban settings (Ursula Howson)
- iv. Threatened and endangered species (Carolyn Bentivegna)
- v. Policy and decision making (Charles Harmon)
- vi. Monitoring and data management (undetermined)

Dr. Weinstein requested write-ups be sent to him by mid – late December.

Dr. Weinstein suggested that the report would require an opening example, such as the “coin-flip” example, to best illustrate a practical, user friendly explanation of Bayesian theory and application (i.e. large data set vs. small). Dr. Leo Korn (OS) was asked to provide a synopsis and thorough explanation of this example.

Next Meeting:

Dr. Weinstein will reach out to Dr. Ed Green and request to have him present his follow-up presentation about Bayesian geospatial models at an upcoming meeting.