



**SUMMARY OF THE AQUATIC ASSESSMENT FOR STONE BAY
MCB, CAMP LEJEUNE, JACKSONVILLE, NORTH CAROLINA
RESTORATION ADVISORY BOARD MEETING
AUGUST 3, 1999**

Introduction: An assessment of Stone Bay was initiated by the Environmental Management Division (EMD) based on concerns expressed by the Restoration Advisory Board (RAB). The RAB was concerned with the potential impact of the Stone Bay Rifle Range on the aquatic environment. The safety fan of the rifle range extends into a portion of Stone Bay.

Initial Study: An initial assessment of surface water and sediment from Stone Bay was conducted in the summer of 1998. Results from this study indicated no impact to the bay from rifle range activities. According to USEPA ecological guidance, no further assessment activities were required.

Continued concern expressed by the RAB initiated the Aquatic Assessment for Stone Bay. This assessment was conducted in January of 1999.

Purpose: To determine the potential impact of copper and lead from spent ammunition at the rifle range on the aquatic environment of Stone Bay.

Media Analyzed: Sediment and shellfish tissue (clams, mussels, and oysters).

Lines of Evidence:

- Comparison of sediment concentrations to sediment screening values (SSVs)
- Comparison of tissue concentrations to literature values
- Calculation of USEPA-approved ecological receptor models
- Comparison of sediment concentrations, tissue concentrations, and models to reference area concentrations

Findings:

- *Sediment* - Concentrations were below USEPA Region IV SSVs. (No further action is required.)
- *Clam Tissue* - Concentrations were slightly above reference concentrations. (No literature values are available for comparison.)
- *Mussel Tissue* - Concentrations were above reference concentrations and slightly above literature values.
- *Oyster Tissue* - Concentrations were below reference concentrations. Lead concentrations were slightly above literature values.
- *Receptor Models* - Two versions of the model were initially conducted. No risks to the heron or mink were detected above reference station models.
- *Reference Comparison* - Study area concentrations and model results were similar to reference area concentrations and model results.

Conclusion:

Based on the lines of evidence presented above, rifle range activities have not caused any additional stress to the aquatic environment within Stone Bay.

Additional Evaluation:

Due to continued concern expressed by the RAB, an additional site-specific heron model was generated and presented in a draft memorandum to the Aquatic Assessment. No unacceptable risk was demonstrated in the site-specific model.

**USEPA Review
of Assessment
and Memorandum:**

“Maximum detected concentrations of copper and lead were below Region IV screening levels. These levels are very protective of ecological health . . . No further assessment is necessary . . . the other activities described in the document are above what Region IV would require. Any ERA (Ecological Risk Assessment) activities for copper and lead in Stone Bay would be completed at this point.” - USEPA Region IV

Therefore, USEPA Region IV has recognized that EMD has gone beyond the expectations set forth by Ecological Risk Assessment guidance in the evaluation of the Stone Bay aquatic environment. Also, it is agreed that no further ecological assessment is necessary as levels of copper and lead fall within the acceptable range of ecologically protective values.