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Les enjeux liés aux levés sismiques dans
l'estuaire et le golfe du Saint-Laurent

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PROCEEDINGS OF THE WORKSHOP ON
EFFECTS OF EXPLOSIVES USE

IN THE
MARINE ENVIRONMENT

January 29 to 31, 1985

Halifax

CANADA OIL AND GAS LANDS ADMINISTRATION

ENVIRONMENTAL PROTECTION BRANCH

TECHNICAL REPORT NO. 5

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MARINE SEISMIC IMPACT STUDY - AN ANNOTATED
BIBLIOGRAPHY AND LITERATURE REVIEW

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ABSTRACT

The International Association of Geophysical Contractors (IAGC), the National Ocean Industries Association (NOIA), the Texas General Land Office (GLO) and Texas A & M University (TAMU) cooperated in the development of a report entitled "Data Base Development for Geophysical Exploration Guidelines - An Annotated Bibliography and Literature Review". The purpose of the report was to obtain and analyze hard copies of all peer-review research on the environmental impacts of all types of seismic energy sources. The review was to ascertain: what was known; what was not known; and the significance of what was not known. Further research, if needed, was to precede the revision of geophysical regulations.

The review concluded that mortality of the most sensitive of adult marine organisms occurs when two critical criteria are simultaneously met. The first criterion is a peak pressure greater than or equal to approximately 40 pounds per square inch. The second criterion is a rise time and decay time of approximately one millisecond or less. (= 225,806 re 10/76

The most vulnerable adult fish has an air bladder, is "oval" in shape and is positioned perpendicular to the impulse.

The two critical criteria could be met under certain conditions by rapid-detonation chemical explosives. The literature indicated that low-velocity chemical explosives could not meet the criterion of rapid rise and decay time. The literature also indicated that non-chemical seismic energy sources had impulse profiles similar to low-velocity chemical explosives. The result is that non-chemical seismic energy sources do not kill adult marine organisms. The accompanying figures illustrate these conclusions (Linton et al. no date).

Linton, T.L., A.M. Landry, N. Hall and D. LaBonascus. no date. Report prepared by Texas A & M University, for the International Association of Geophysical Contractors, Denver, Colorado.