

**Louie Azzolini**

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**From:** Janet Hutchison [jhutchison@nucleus.com]  
**Sent:** Wednesday, November 20, 2002 9:27 AM  
**To:** Louie Azzolini  
**Cc:** Terry Demarco; J. Michael Thoms; Bob TURNER  
**Subject:** Technical terms



All Technical  
Terms.doc

Louie

I have attached Stantec's technical terms for the interpreters. If Mr. Thoms has anything to add for the socio-economic sessions they should be to you before the end of the week.

Regards

Janet

## **Wildlife Technical terms**

- Population Viability** The ability of a population (plant or animal) to persist over time. Viability is usually measured in terms of the probability to persist over a given period of time.
- Population Dynamics** The processes that determine a population's structure. These processes include mortality, birth rate, emigration into other populations and immigration from other populations.
- Population Demography** The structure of a population, including age and sex ratios, mortality and birth rate. Population demography can be seen as a result of population dynamics.
- Viability Analysis** The study of factors that contribute to the persistence of a population. The goal of viability analysis is to calculate the probability of how long a population might persist.
- Natural Variation** Contrary to the popular notion that nature persists in a determined balance, modern ecology stresses the continuous change in ecosystems. This ongoing change is a result of countless factors that counteract each other with different factors gaining more influence in each time period and in each geographic area. Populations rise and decline and species assemblages vary through time and space as a result.
- Impact Definitions** Impacts must be clearly defined in terms of their severity and strength. Impacts are usually measurable in different aspects such as the area of impact, the duration, frequency, magnitude etc. Each of these aspects, because it must be measurable, needs to be clearly defined as to what needs to be measured. A magnitude, for example, usually refers to a combination of frequency, duration, or area. If natural variation is known to occur, e.g. availability of a habitat may change plus or minus 20 % in the course of 100 years because of floods or fire, then natural variability can be used as a benchmark. Alternatively, a change of for example 20% can be taken as a bench mark to define a goal above which an impact is considered either high or some mitigation action needs to be implemented. In either case impact definitions must include a rationale for a certain benchmark. This rationale may either be biological (such as natural variation or population viability) or socio-economic and cultural where a given impact is considered unacceptable by stakeholders.

- Impact Ratings** Refer to a scale of impact severity set against benchmarks identified in impact definitions. If a benchmark is a 20% change, then an impact could be rated as "high" when 20% is exceeded or "low" if it is not exceeded. This can be further refined into more rating classes such as "negligible, low, moderate, high and extreme".
- Zone Of Influence (ZOI)** The zone of influence usually refers to an area within which a response of plants or animals can be measured. The ZOI is not a study area in EIAs, because the ZOI is different for every plant and animal species considered. The study area is typically a compromise within the wide range of possible ZOIs.
- Predictive Accuracy** In impact assessments, the ability to predict the outcome of a proposed project in terms of its effects on the environment. The better the baseline information the higher is the predictive accuracy. Because no ecosystem is known perfectly, no prediction can be perfect; monitoring of the actual effects serves the purpose of adjusting the operation of the project if the effects deviate from those predicted in EIAs.
- Adaptive Management** Management of the operation of a project reflecting monitoring results and changing to address the monitoring results.
- Home-range** The range within which an animal finds all its needs such as food and cover. A home range can be determined either for a season or for a whole year or for a lifetime. Home range is not to be confused with territory, because in a home range individuals of the same species and sex can overlap (sometimes a whole population is considered to have a home range), in territories individuals exclude each other from the area and a defended border is usually apparent.
- Parametric Test** Refers to a statistical analysis that requires a certain "quality" and structure of data. Parametric tests differ from non-parametric tests in that their requirements on data are stricter than requirements of non-parametric tests, their power of detecting true differences between two treatments or areas is higher. In other words, if data quality is sufficient more powerful tests such as ANOVA (analysis of variance) can be used. However, many field data do not meet these requirements.

### **Aquatic Technical Definitions**

<b>Chlorophyll a</b>	The pigment in plants that allows them convert water and carbon dioxide to organic compounds in the presence of light (photosynthesis).
<b>Cyanobacteria</b>	Blue green algae (not true algae) which are more properly defined as a photosynthetic bacteria. They are commonly found in lakes, ponds and wetlands.
<b>Zooplankton</b>	Small aquatic animals that may be visible in the water.
<b>Benthic invertebrates</b>	Aquatic organisms such as insects that live on bottom substrates for at least part of their life cycle.
<b>Flocculent</b>	A chemical that causes impurities in water to form lumps or masses that are more easily removed.
<b>Aquatic toxicity</b>	The ability of a substance to cause harmful health effects to aquatic plants and animals.
<b>Sublethal effects</b>	Prolonged or long-term exposure causing an adverse health effect.

### **Hydrogeological Technical Definitions**

<b>Faults</b>	A fracture of fracture zone along which has been displacement of the sides relative to one another.
<b>Fracture</b>	Breaks in rocks due to intense mechanical forces.
<b>Hydraulic Conductivity</b>	A coefficient of proportionality describing the rate at which groundwater can move through a porous medium
<b>Hydraulic gradient</b>	The rate of hydraulic head decrease over distance, along the direction of maximum decrease.
<b>Hydraulic head</b>	Equal to the piezometric level (head) in a porous medium Piezometric level – the elevation reached by the water in an open ended tube inserted into the soil/rock
<b>Leach</b>	To remove chemicals, minerals from the soil/rock by water passing through it.
<b>Lithology</b>	The physical characteristic of a rock

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**Mineralized groundwater** Groundwater that contains elevated concentrations of total dissolved solids.

**Storativity** The volume of water an aquifer releases from, or takes into storage, per unit surface area of the aquifer per unit change in hydraulic head.