

**Developing an assessment framework for Goose Barnacles (*Pollicipes polymerus*) incorporating advancements in technology and Local Ecological Knowledge in Clayoquot Sound off the West Coast of Canada**

A survey methodology and analytical procedures for estimating goose barnacle (*Pollicipes polymerus*) bed area, biomass and developing harvest controls in waters off the West Coast of Canada using First Nation's Local Ecological Knowledge (LEK) is presented. Previous stock assessment information to support the development of harvest control rules relied on limited information. New data gathered by mapping bed areas ( $m^2$ ) with Global Positioning System (GPS) came together with analytical procedures using bootstrapping to estimate Goose Barnacle density ( $kg/m^2$ ) from archived survey data and generated a total biomass estimate per rock. LEK biomass estimates of 'harvestable' goose barnacles were collected and a quantitative relationship between the total estimated biomass per rock and LEK was developed.

Bed area was mapped using GPS for six rocks in Clayoquot Sound. Replicate surveys were conducted and variability between surveyors averaged 12.3%. Goose Barnacle density data sampled from 19 rocks between 2000 and 2003 were used in the quantitative estimates of biomass for the six rocks with GPS derived bed areas. Densities ranged from 0 to 39  $kg/m^2$  and averaged 7  $kg/m^2$ . LEK is used to estimate the 'harvestable' biomass which takes into consideration size range for market, population recovery potential, accessibility and availability. LEK 'harvestable' biomass was compared to total biomass estimates and was found to represent 4.6% of the quantitatively estimated mean biomass for the six rocks surveyed using GPS. The utility of using LEK exclusively to estimate total rock biomass, with the 4.6% relationship, is being explored for regional assessment and harvest control purposes.

**Key Words:**

Goose Barnacles; Stock Assessment; biomass estimation; indigenous; Harvest control

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