

MINERALS

- Ash content- measure of total minerals
- 0.4-2% in fish
- Fish and shellfish contains 90 naturally occurring elements
- Macroelements- Ca, P, Mg, Na, K, Cl – present in g/kg quantity
- Microelements- Trace elements which are present in mg/kg quantity-Co, Fe, I, Mn, Mo, Se, Zn and F

Calcium & Phosphorus

- Ca&P together accounts for 70-80% of minerals in skeleton
- Approx. 99% Ca and 80-85% P present in bones as calcium phosphate and hydroxyapatite
- Remaining portions of Ca & P found in extracellular fluids, intracellular structures and cell membranes

MAGNESIUM

- Located in bone
- Required for membrane transport, generation and transmission of nerve impulses, contraction in muscle and oxidative phosphorylation
- Mg in muscle- 25- 45 mg/100g
- Lobster, squid and shrimp- above 50 mg /100g

SODIUM& CHLORINE

- Principal extracellular cation and anion
- Na- 60 mg/100g in fish, 120-400mg in shellfish
- Chloride- maintenance of electrolytic balance

POTASSIUM

- 198-440 mg/100g- fish
- Participate in neuro muscular functions

IRON

- Most types of fish contain iron, providing up to about 10 percent of the RDA in an average serving
- Shellfish – higher %
- Dark muscle of fish more iron than light muscles

ZINC

- Essential for growth, reproduction , wound healing and normal functioning of immunological system
- OYSTERS- rich source of zinc-182 mg/100g
- Fish- 5-40mg/100g

MANGANESE- cofactor of enzymes- 0.1-0.4 mg/kg

COPPER- for iron utilization, cofactor for enzymes in glucose metabolism, synthesis of hemoglobin

- 2 mg/kg in fish and higher in mollusc

SELENIUM

- Fish higher selenium than red meat and poultry

IODINE

- Abundant in marine plants, fish and shellfish

- Needed for biosynthesis of thyroid hormones
- 0.3-3mg/kg in fish

FLOURINE

- Fish highest flourine among all foodstuff of animal origin
- Antarctic krill- 1000 mg/kg