



**Asia Pacific Economic Cooperation (APEC)
Laboratory Capacity Building Workshop
Thailand – August 2011**

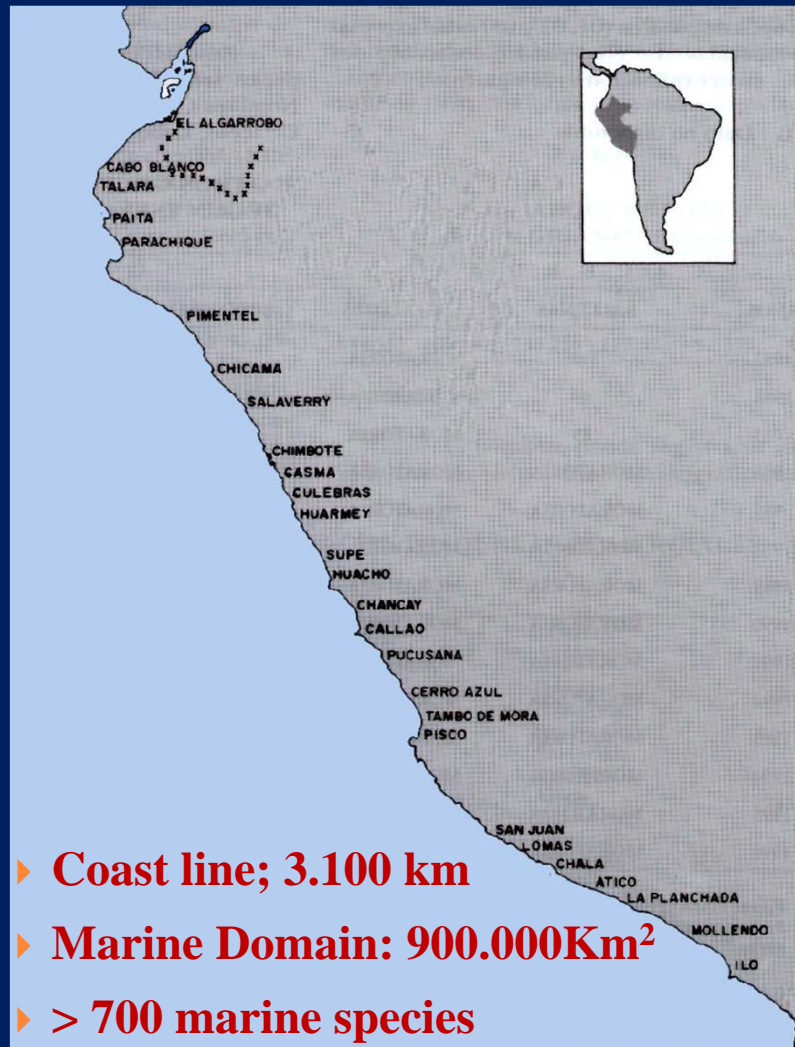
**DATA FOR PUBLIC HEALTH
DECISION MAKING**

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PERU: FISHERY COUNTRY



Government Fishery Institution:

INSTITUTO TECNOLÓGICO PESQUERO DEL PERÚ - ITP

:



- ▶ ISO/IEC 17025/2006
 - ▶ Sensory
 - ▶ Microbiology
 - ▶ Chemistry
 - ▶ Biotoxins

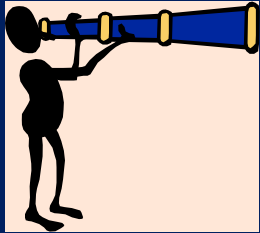
Accredited Methodologies at LABS - ITP

- ▶ FDA, USDA, UE, AOAC, BAM, ISO
 - ▶ 3 Sensory
 - ▶ 13 Microbiology*
 - ▶ 14 Chemistry (5 validated)*
 - ▶ Instrumental Methodologies:
- ▶ LOD
- ▶ LOQ

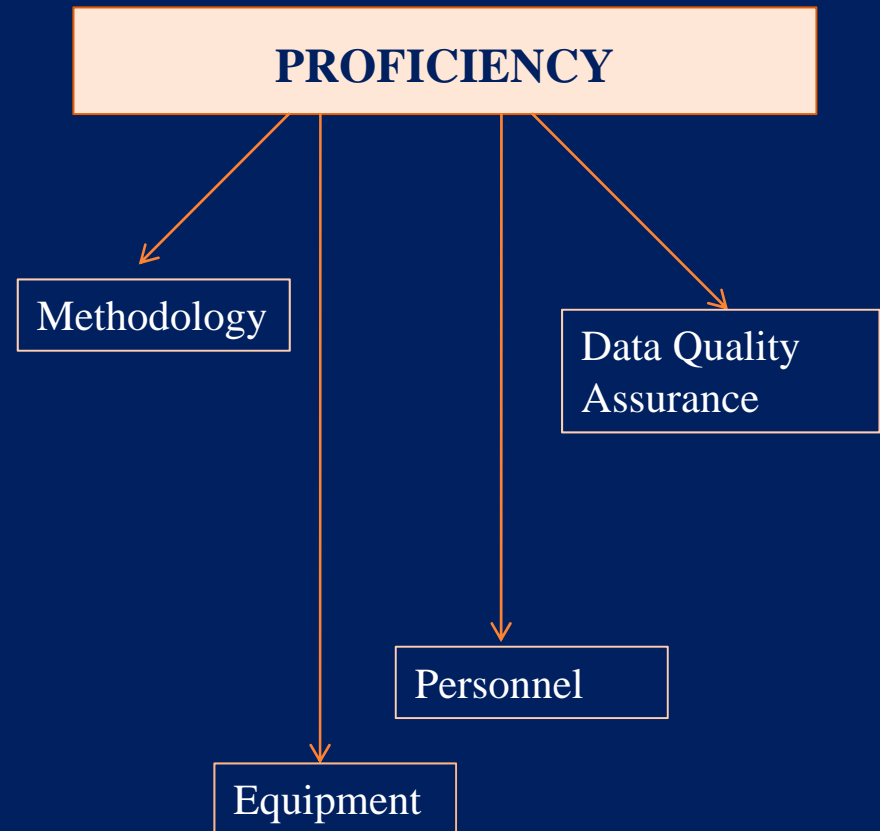


▶ * Uncertainty (except for qualitative results)

Accredited Methodologies. Enough?



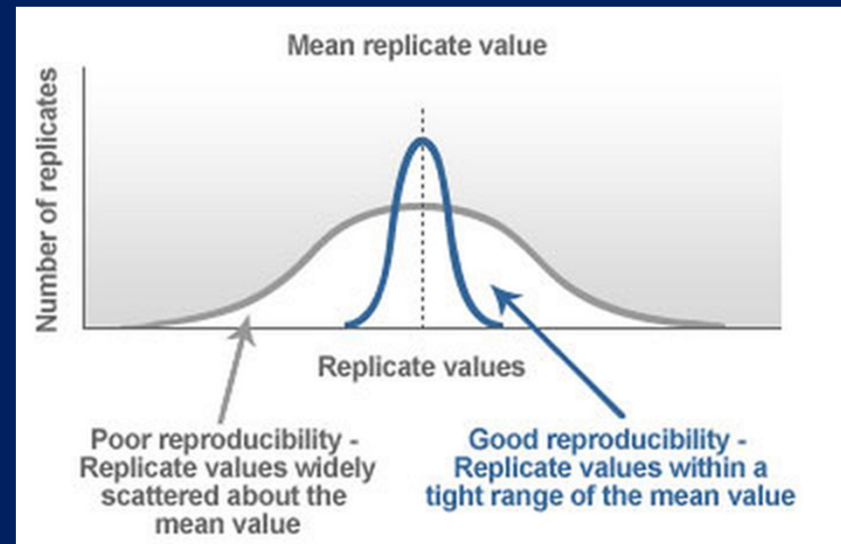
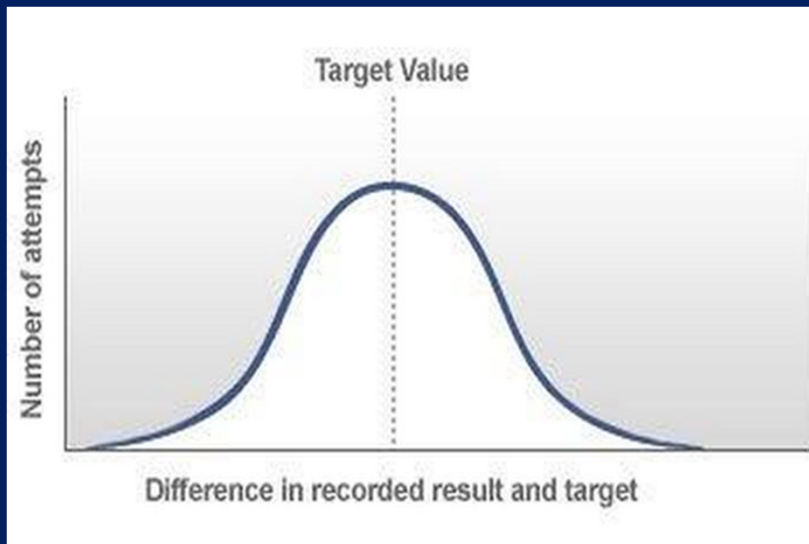
- ▶ Clients must be sure that accredited food tests are consistently monitored for levels of proficiency.
- ▶ Proficiency at performing test analysis must be demonstrated .



Uncertainty

- ▶ A procedure followed N times (highly unlikely results be always the same)
- ▶ Plotting data: a normal distribution curve.

**GOOD REPRODUCIBILITY
HIGH PROFICIENCY
SMALL SD**



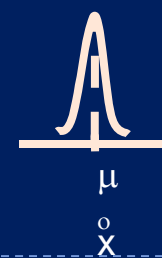
A TARGET VALUE IS NECESSARY

- ▶ Uncertainty: value of potential errors while performing a particular procedure

Why is a target needed?



- ▶ Average (mean value) from data obtained from replicates (same procedure).
- ▶ Proficiency
 - ▶ Spread of values
 - ▶ Based on N° results closest to the mean value.
 - ▶ (Confidence Interval)



Data: Interpretation and Decisions



Accept ? Refuse?

- ▶ Decisions are based on science
- ▶ Sampling
- ▶ Type of food
- ▶ Methodology

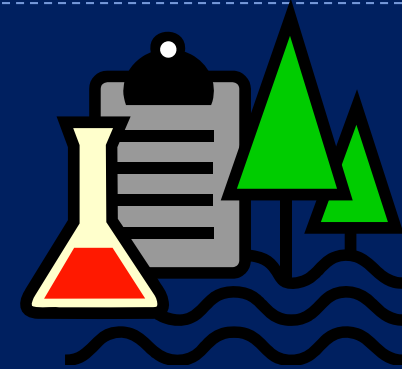
Do data detect and quantify food safety risks?

- ▶ Two scopes:
 - ▶ Quality
 - ▶ Food Safety *

▶ * Not negotiable

Legislative Standards & Labs results

- ▶ If FSO = less than 2.5, but LR= 2,53
 $2.5 \pm \text{??????}$



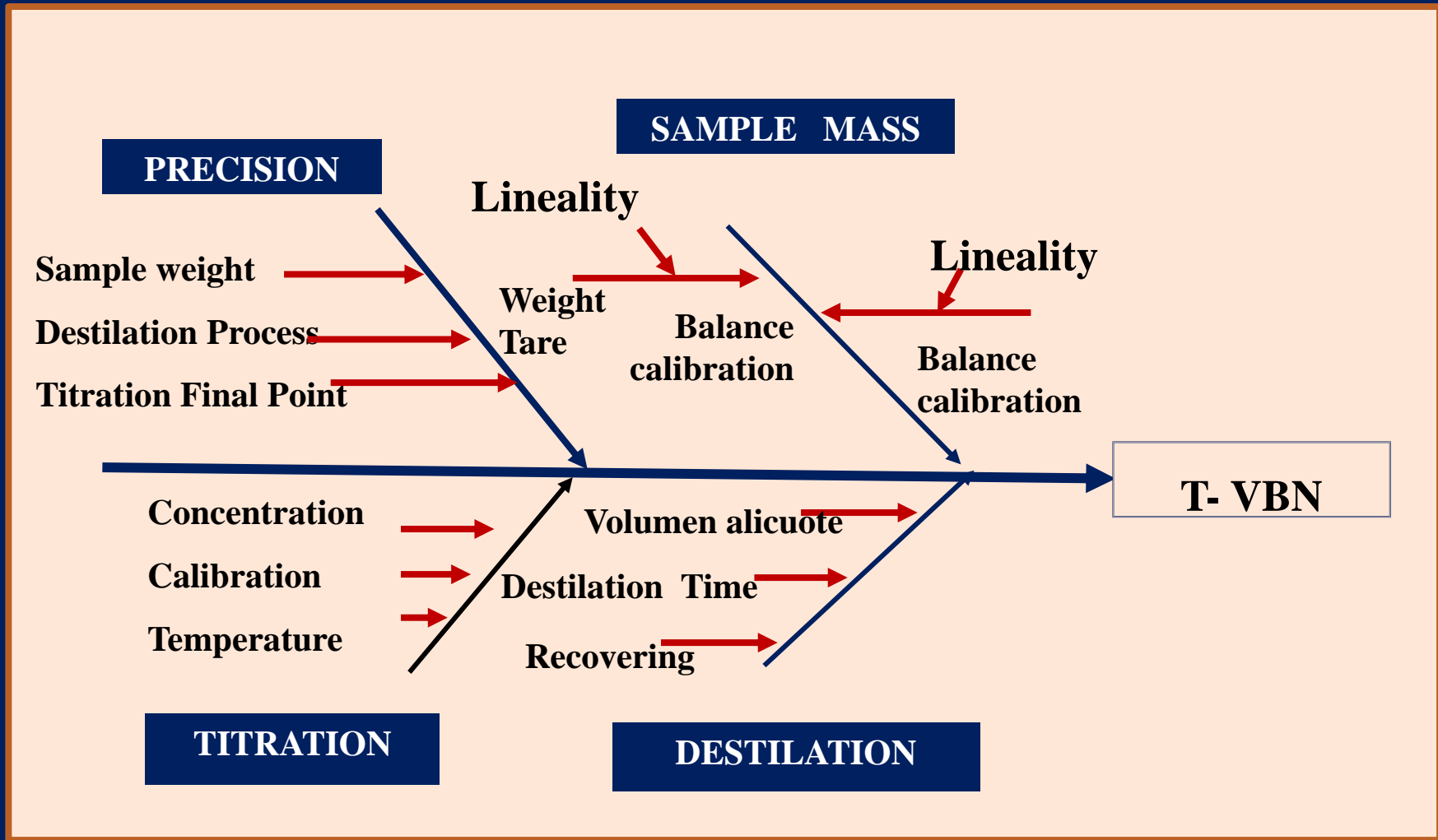
- ▶ Decision Criteria: Uncertainty
 - LQ?
 - LD?
 - Equipment
 - Methodology
 - Personnel
 - (antagonism/synergism, matrix effect)



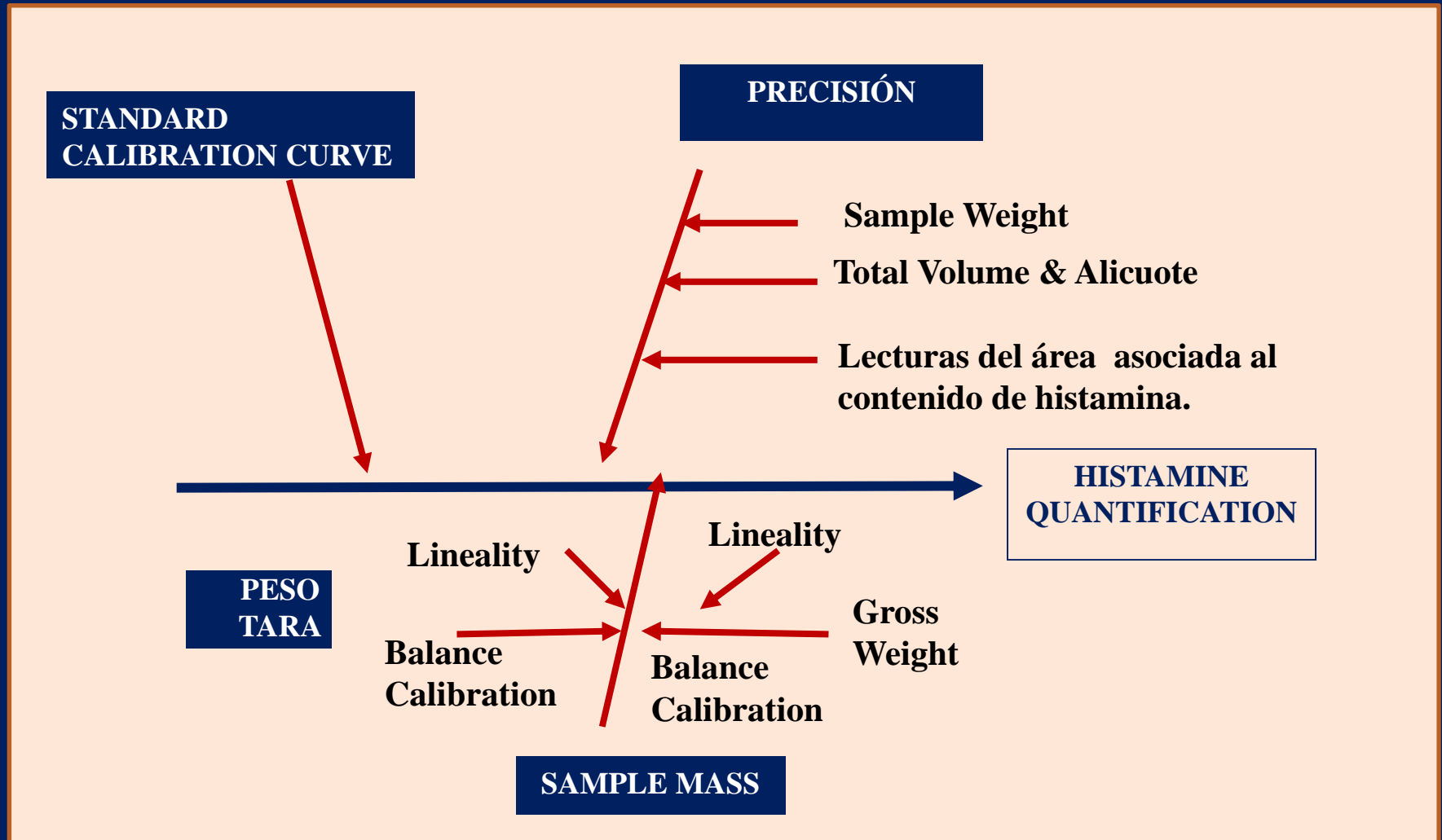
Uncertainty:

Total Volatile Bases (N) In Frozen Fish

REF. Official Bull.EU. (CE) N° 1022/2008 Commission October 2008 (L 277/18, L277/19, L277/20).



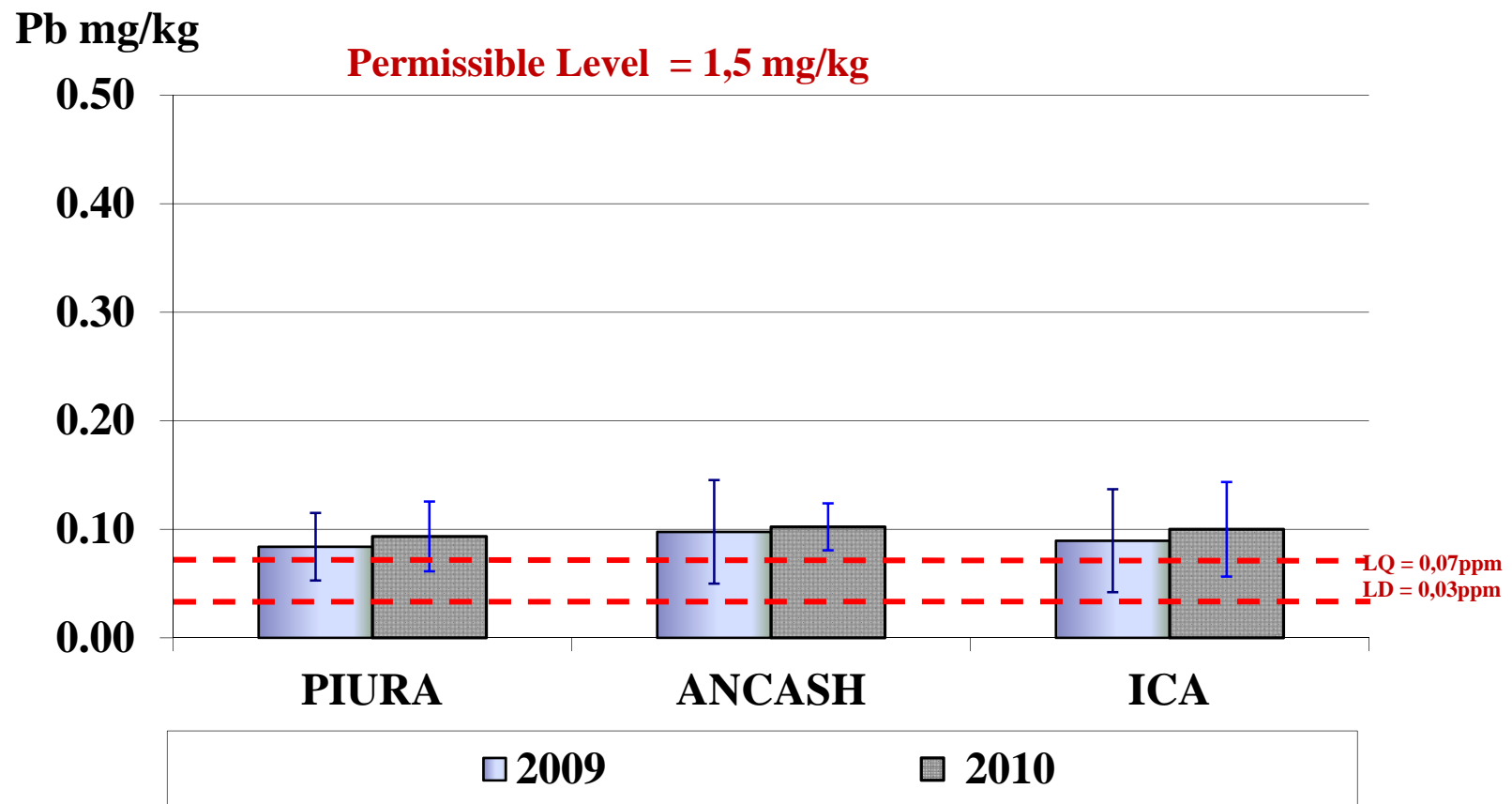
Cause-Effect Diagram for Histamine Quantification



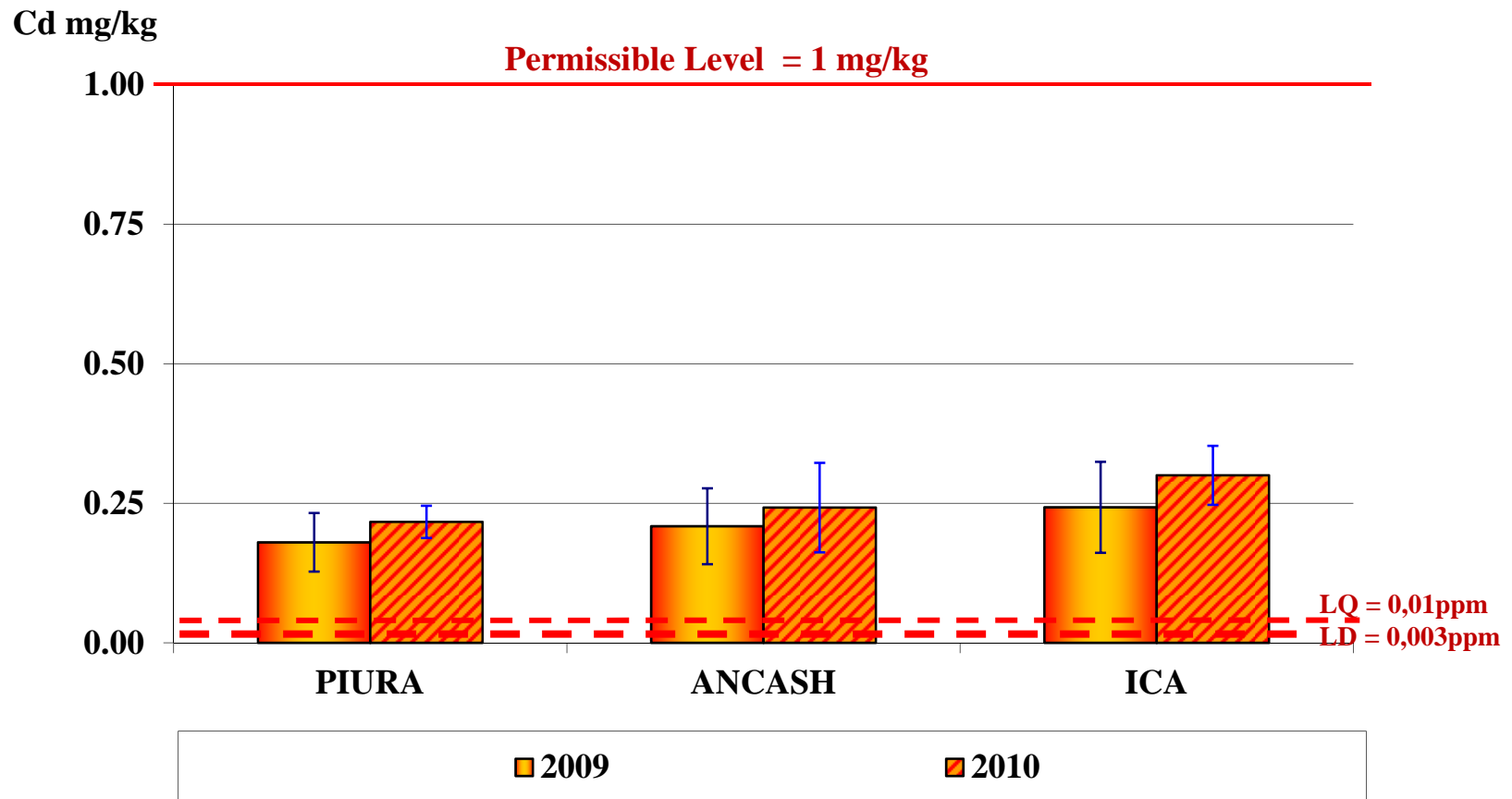
Acceptance Criteria for Uncertainty Estimation Measures

CONCENTRATION	EXPANDED UNCERTAINTY	ACCEPTABLE CONCENTRATION RANGE	
100g / 100g	4%	96 a 104	(g / 100g)
10g / 100g	5%	9.5 a 10.5	(g / 100g)
1g / 100g	8%	0.92 a 1.08	(g / 100g)
1g / Kg.	11%	0.89 a 1.11	(g / kg.)
100 mg / kg	16%	84 a 116	(mg / kg)
10 mg / kg	22%	7.8 a 12.2	(mg / kg)
1 mg / kg	32%	0.68 a 1.32	(mg / kg)
< 100 ug / kg	44%	56 a 144	(ug / Kg.)

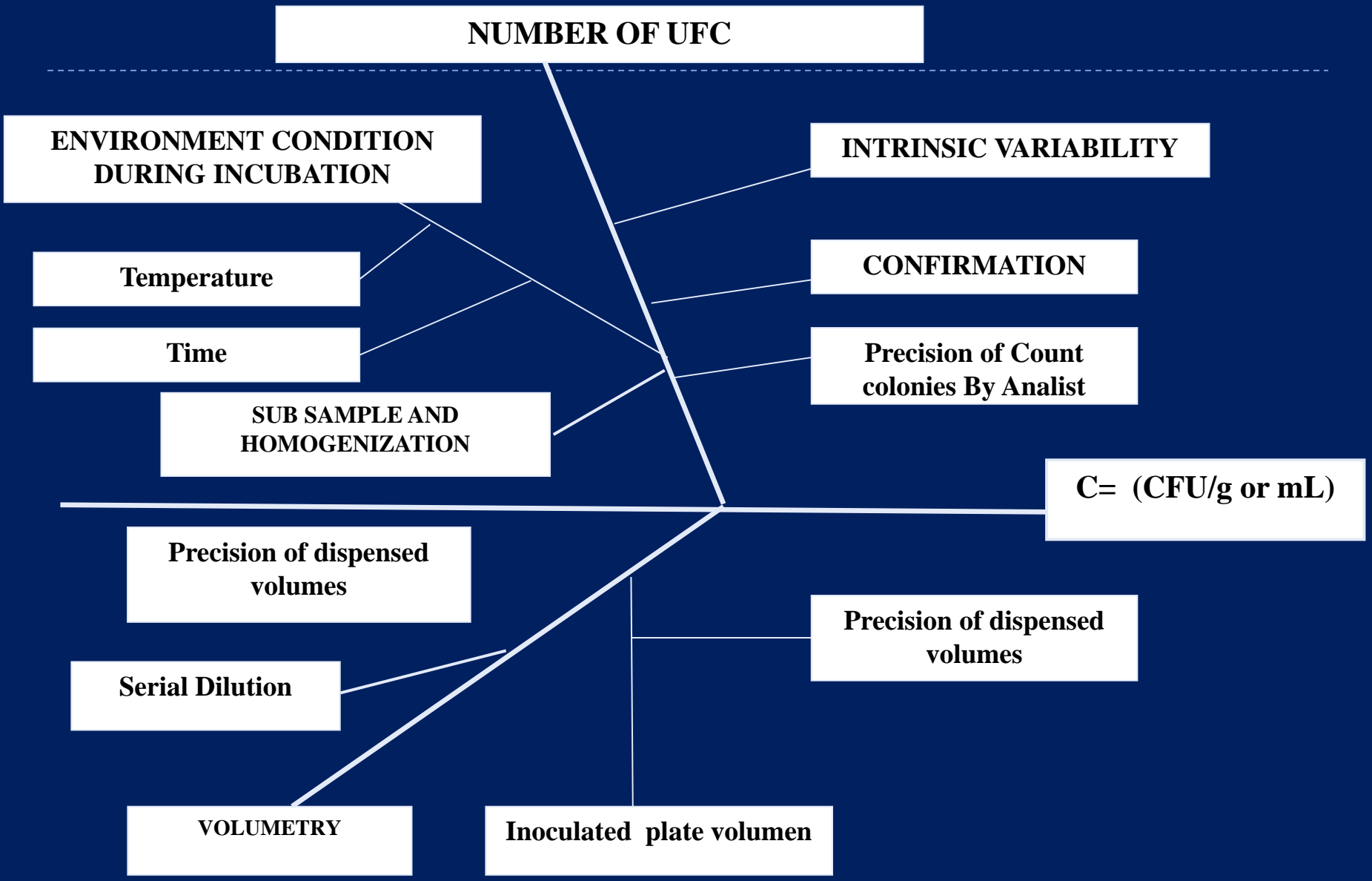
Lead: SCALLOPS *Argopecten purpuratus*



Cadmium: SCALLOPS *Argopecten purpuratus*



QUANTITATIVE MICROBIOLOGY: Cause – effect diagram methods



“ITP - MANUAL : UNCERTAINTY FOR CATEGORY II”

▶ Fishmeal:

- ▶ Humidity: FAO: Food and Nutrition Paper. Pp: 205 T14/7. NTP : 204.030 / 1986
- ▶ Fat: LABS-ITP-FQ-003-09 Method. 2009
- ▶ Ash: Food and Nutrition Paper- pp 228 T14/7. NTP 204.022 (1982)
- ▶ Protein: MÉTODO LABS-ITP-FQ-001-09.2009

▶ Fish Sausage:

- ▶ Sodium Chloride; AOAC: 937.09. 2005 (18th edition)
 - ▶ Humidity: FAO. Food and Nutrition Paper. pp. 205 T14/7. 1986
 - ▶ Fat: Método LABS-ITP, FQ-003-09.
 - ▶ Protein: LABS-ITP-FQ-001-09. Method
 - ▶ Ash: FAO, Food and Nutrition paper pp, 228 T 14/7. 2009
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“ITP - MANUAL : UNCERTAINTY FOR CATEGORY II”

▶ Fishoils

- ▶ Free fatty acids: AOAC: 940.28. 2005 (18th edition)
- ▶ Anisidine: NTP: 209.217. 1983
- ▶ Peroxide Value AOAC: 965.33- 2005 (18th edition)



▶ Fresh or frozen: fish, seafood:

- ▶ Volatile Basis: Diario Oficial de la Unión Europea. REGLAMENTO (CE) N° 1022/2008 de la comisión del 17 de octubre del 2008 (L 277/18, L277/19, L277/20).
- ▶ Histamine: Método LABS-ITP-FQ-005-2009





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