The Philippines PIRE Project
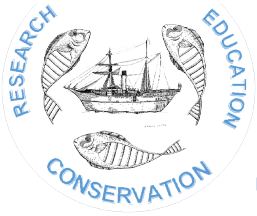
The Philippines PIRE PIPELINE

by Dr. Eric Garcia

SHOTGUN data processing	→	GENOME assembly	→	PROBE develop.	→	CAPTURE data processing	→	POPULATION analyses

Arbor Bio

SSL Pipeline

1st sequencing run

CSSL Pipeline

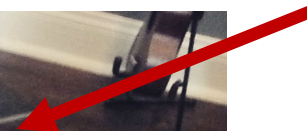2nd sequencing run
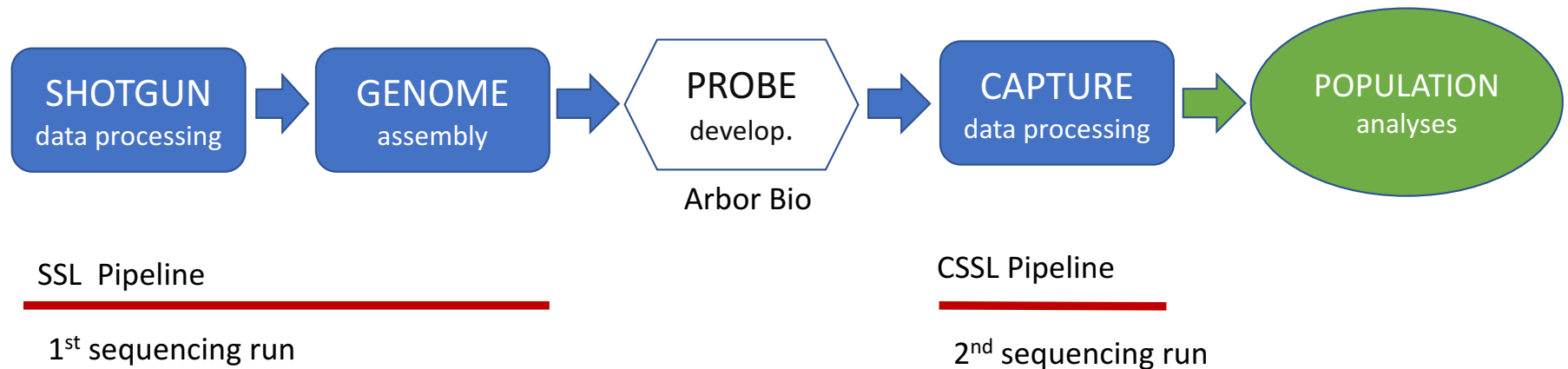
Organism's Genome

Shearing/Digestion

Shearing/Digestion

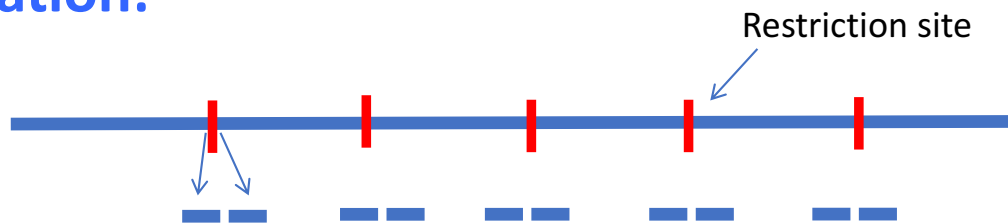**Shotgun boy**

PIPELINES: making sense of genomic data

Raw Data

Quality Control → Mapping Rate

Alignment → Read Coverage of C

mC Calling → Sequencing Depth

Genome

Chromosome — Methylation Level Analysis — Motif Analysis — Methylation Density Analysis

Genomic Features

PCA — DMR Analysis — Clustering Analysis

DMR Annotation & Enrichment Analysis

Genome

Chromosome

Genomic Features
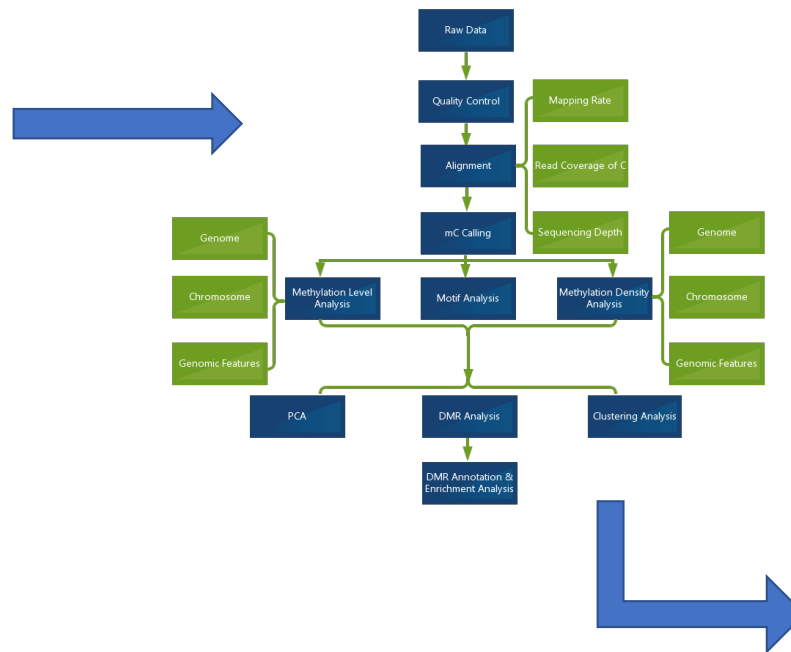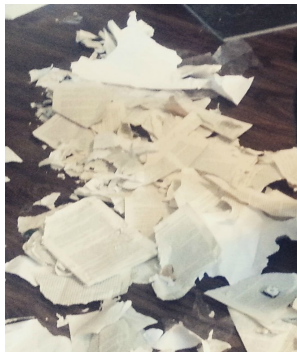
PPP Pipeline

RAD library preparation:

DNA Prep

Sbf1 genome digestion

Restriction site

Shotgun library preparation:

DNA Prep

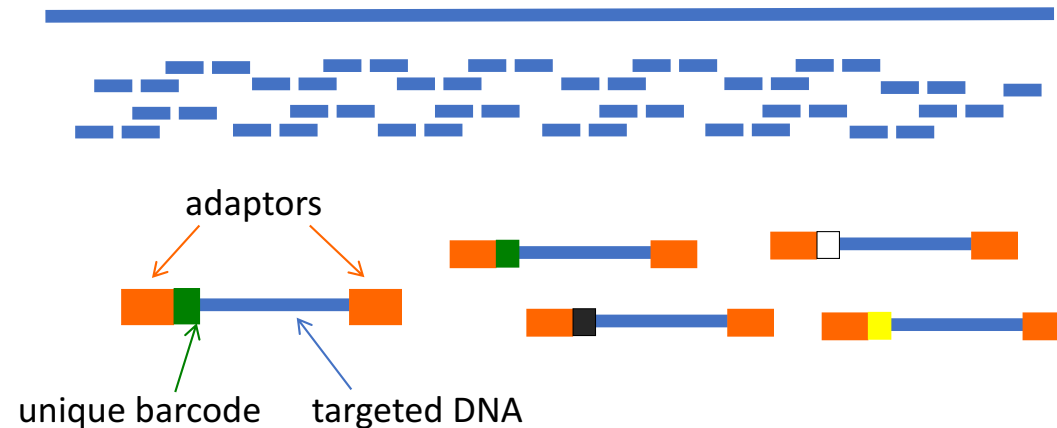Shotgun

PPP Pipeline - SSL

Shotgun library preparation:

DNA Prep

Shotgun

Lib. Prep

Ligation of Adaptors and unique barcode

1st Sequencing Run

adaptors

unique barcode   targeted DNA

Next Generation, high throughput *illumina* sequencing

r1 - forward

r2 - reverse

Pair-end Sequencing

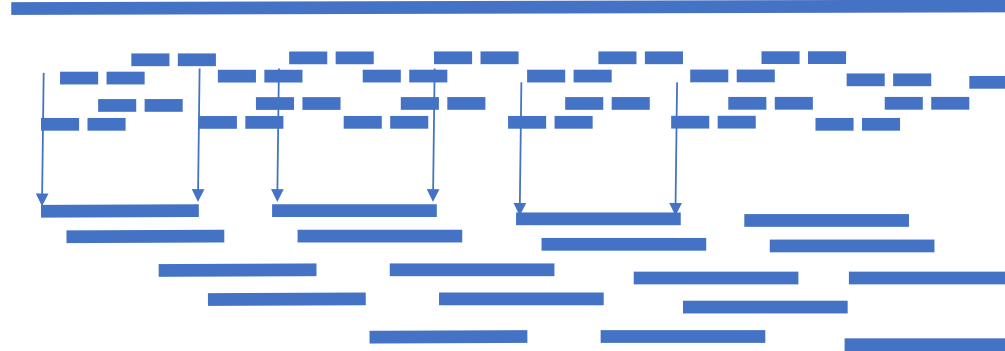# PPP Pipeline - SSL

Bioinformatics: fq pre-processing

Quality Filter

Remove Adapters

Remove Duplicates

1   3   6

5   4   2

Decontaminate
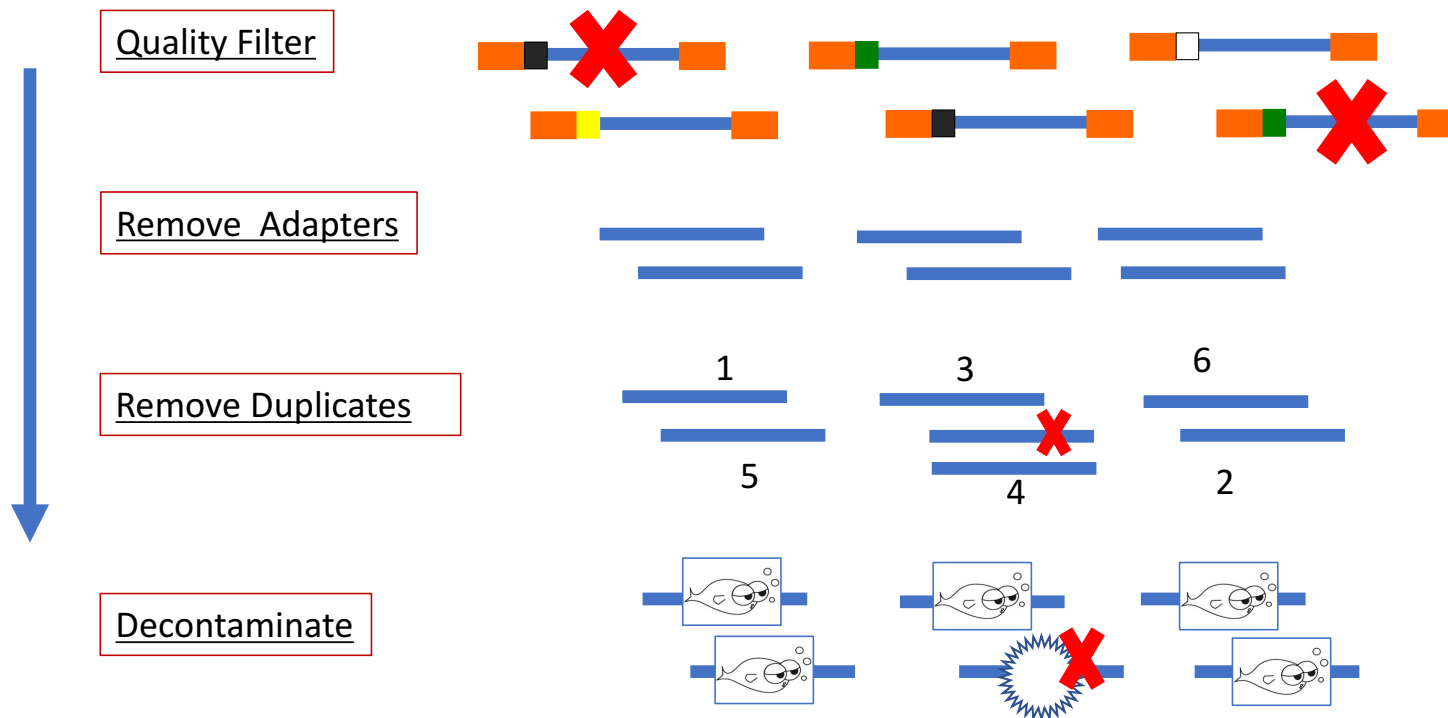
PPP Pipeline - SSL
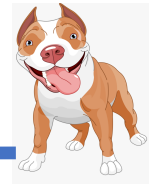
Genome

reads

Genome Assembly

contigs

PPP Pipeline - SSL

Genome

reads

Genome Assembly

contigs

Scaffolds

PPP Pipeline - SSL

Genome

reads

Genome Assembly

contigs

Scaffolds
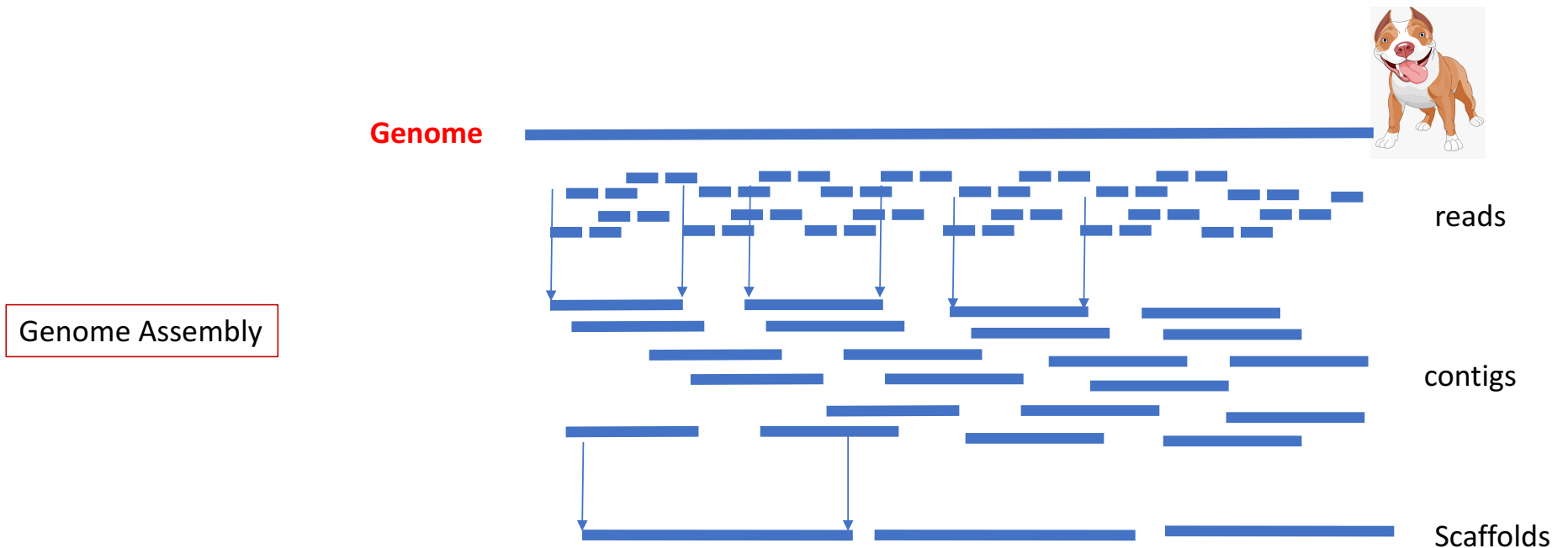
Assembly
3 independent libraries + allLibs
(1 contemporary individual)
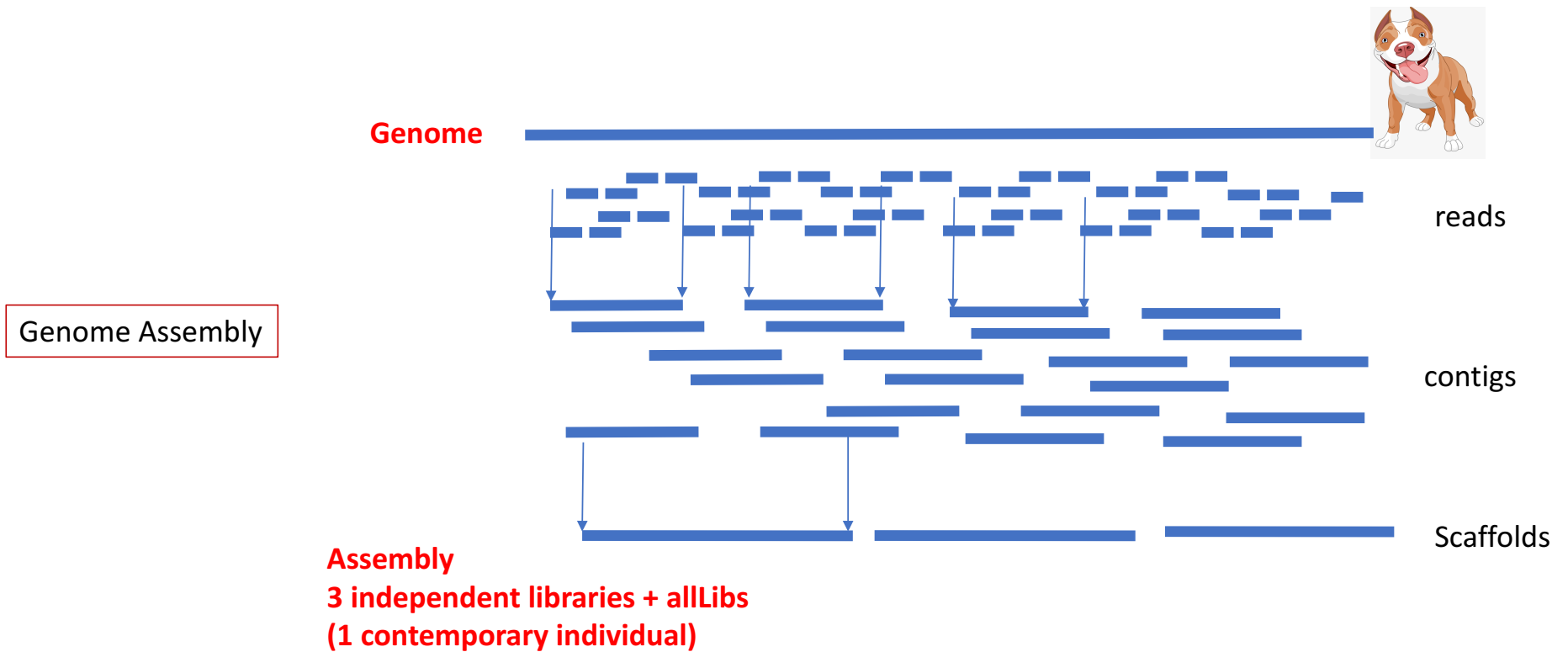
PPP Pipeline - SSL

Bioinfomatics | assembler comparison

QUALITY
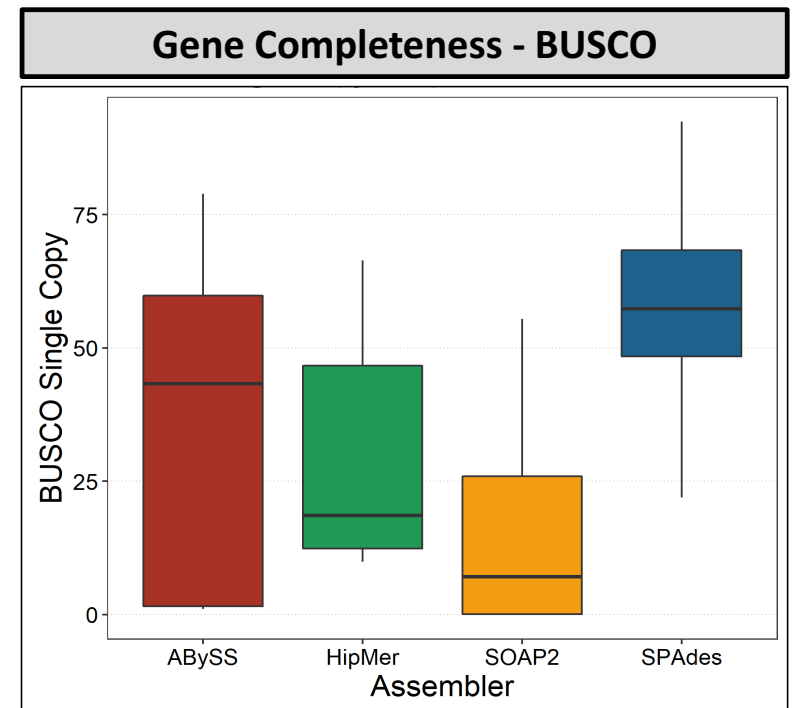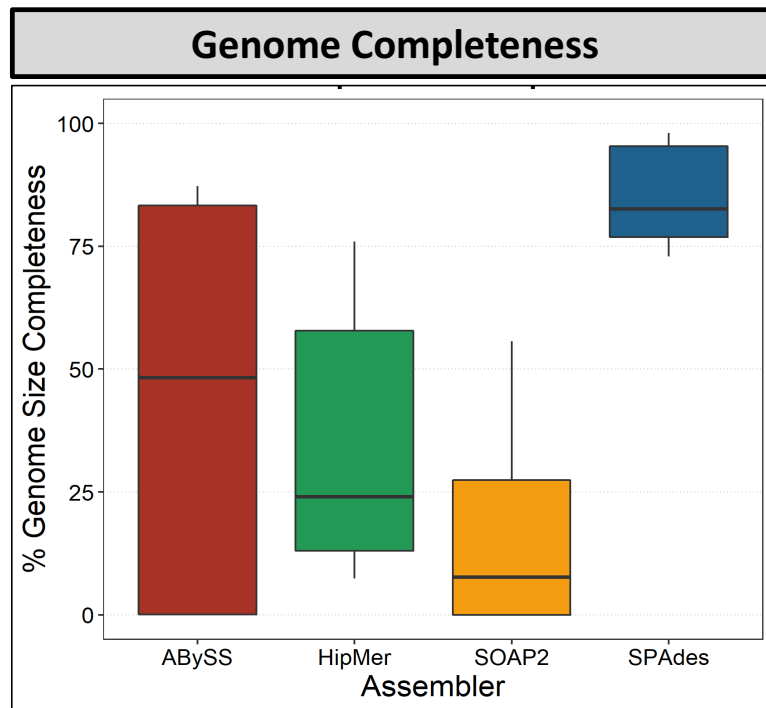
PPP Pipeline - SSL

Best assembly QUAST BUSCO

PSMC

mtDNA

Probe Development

Design

PPP Pipeline - SSL
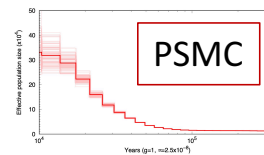
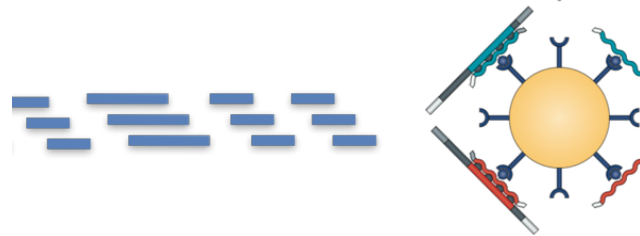**Best assembly** QUAST BUSCO

PSMC

mtDNA

Probe Development

Design
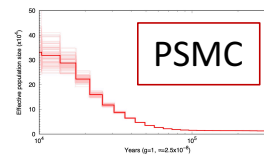
Capture

**all individuals
historical and contemporary**

2nd illumina Sequencing Run

r1 - forward

r2 - reverse

Pair-end Sequencing

PPP Pipeline - CSSL
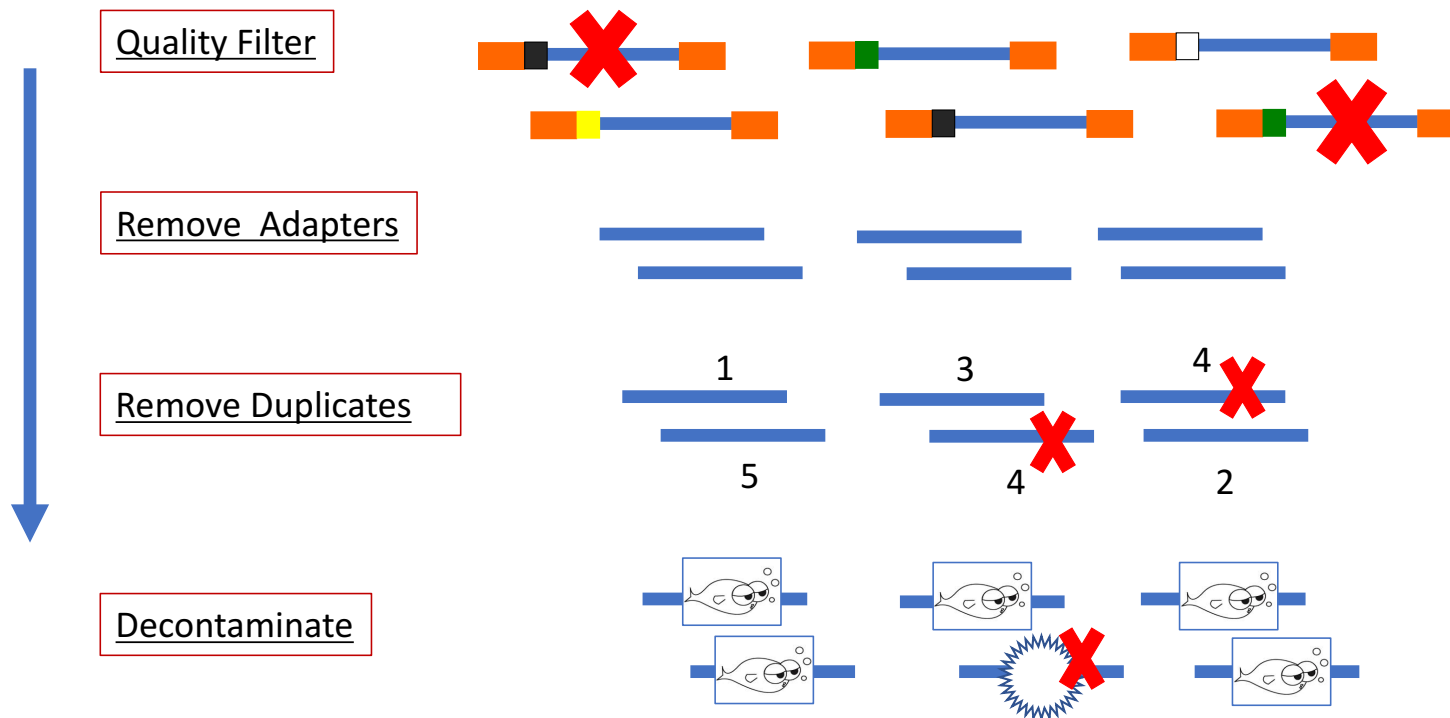
Bioinformatics: fq pre-processing

Quality Filter

Remove Adapters

Remove Duplicates

Decontaminate

PPP Pipeline - CSSL

Bioinformatics: fq pre-processing