1. Chapter 1 – Project Background & Introduction
   1. An overview of delta smelt
   2. Methods of fish genome assembly
   3. Sex determination in teleost fish
   4. Dissertation Outline
   5. References
2. Chapter 2 – Genome assembly of *Hypomesus transpacificus* (delta smelt)
   1. Abstract
   2. Background
   3. Tissue collection
   4. Isolation of high molecular weight genomics DNA extraction
   5. Library prep and sequencing
      1. Linked-read
      2. Long-read
      3. Hi-C
   6. Post sequencing quality control
   7. Assembly
      1. Long-read sequencing assembly to create Draft Assembly A using ipa
      2. Scaffolding Draft Assembly A with linked-reads to produce Draft Assembly B using Scaff10X
      3. Incorporation of hi-c sequencing data with Draft Assembly B to produce Draft Assembly C using SALSA2
      4. Anchoring Draft Assembly C scaffolds into chromosomes using chromonomer to produce a chromosome-level Final Assembly
      5. Genome assembly statistics
      6. Cytogenetic analysis
      7. Genome assembly discussion
3. Chapter 3 – Genetic monitoring of genetic diversity wild delta smelt
   1. Abstract
   2. Background
   3. Sample acquisition & sequencing
   4. Read processing & alignment
   5. Principal component analysis for hybrid detection
   6. Contemporary NE estimation
   7. Historical NE estimation
   8. NE discussion

Chapter 4 – Identification of sex markers in delta smelt