THE DUNGENESS CRAB (METACARCINUS MAGISTER) FISHERY IN BURRARD INLET, B.C.: CONSTRAINTS ON ABUNDANCE-BASED MANAGEMENT AND IMPROVED ACCESS FOR RECREATIONAL HARVESTERS

ABSTRACT

Metacarcinus magister

ACKNOWLEDGEMENTS

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b

CHAPTER 1: UNCERTAINTY IN ESTIMATION OF DUNGENESS CRAB ABUNDANCE WITH TRAPS: THE ROLE OF SAMPLING DESIGN AND CATCHABILITY

Introduction

British Columbia Dungeness crab fishery

Metacarcinus magister

Current Dungeness crab management framework

Study area

Research Objectives

Objective 1: Comparison of fixed-station and randomized design

$p(x_i)$ $p(C_i \mid x, z)$

(z_i), (z_i)

z_i i n

0

$CPUE_{trap}$

$CPUE_{ROV}$

$CPUE_{trap} \quad aCPUE_{ROV}^{\ b\ 1}$

b *a*

b *a* *b*

b *a* *b* *b* *b*

$CPUE_{trap}$ *b*

b

Results

Comparison of fixed-station and randomized design

ROV survey

Trap catchability

b

b

b

Discussion

Management Implications

Tables

Table 1.1

Predictor	Type	Description

Table 1.3:

Figures

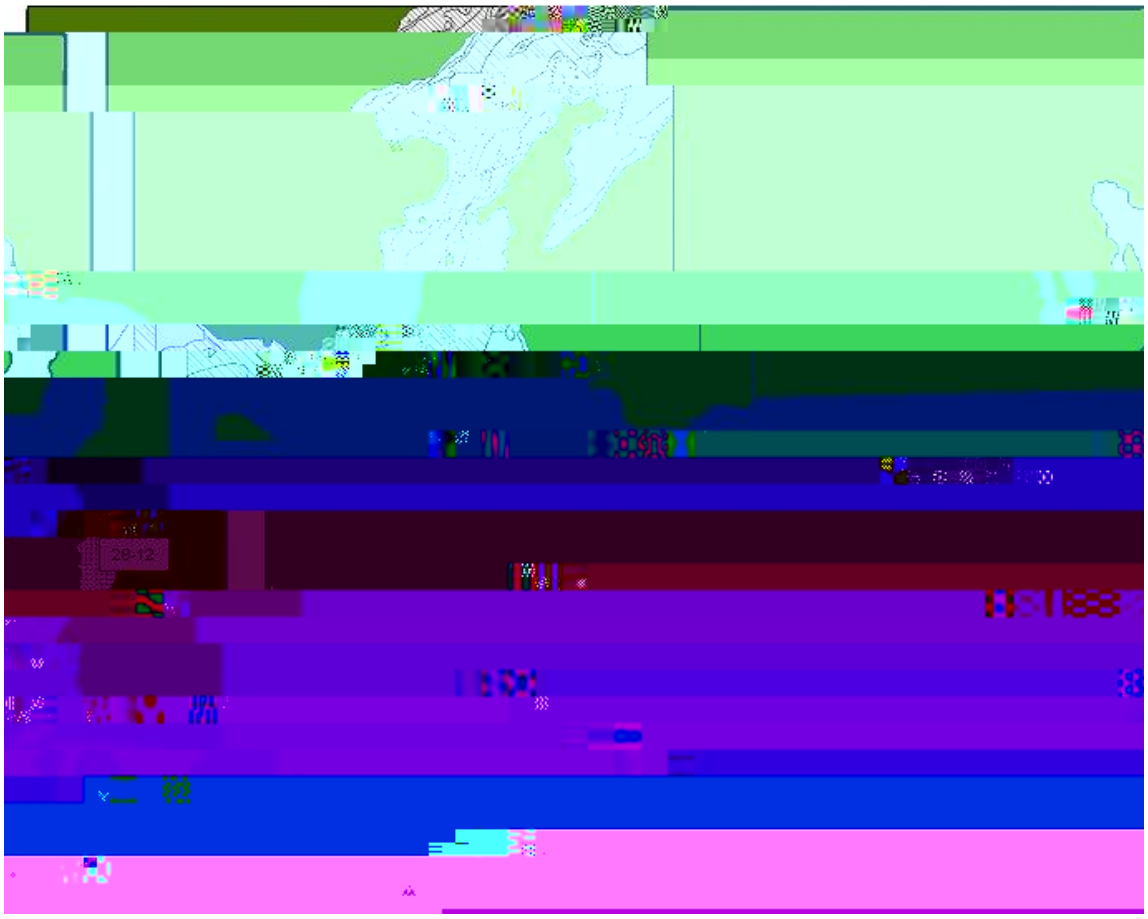


Figure 1.1:

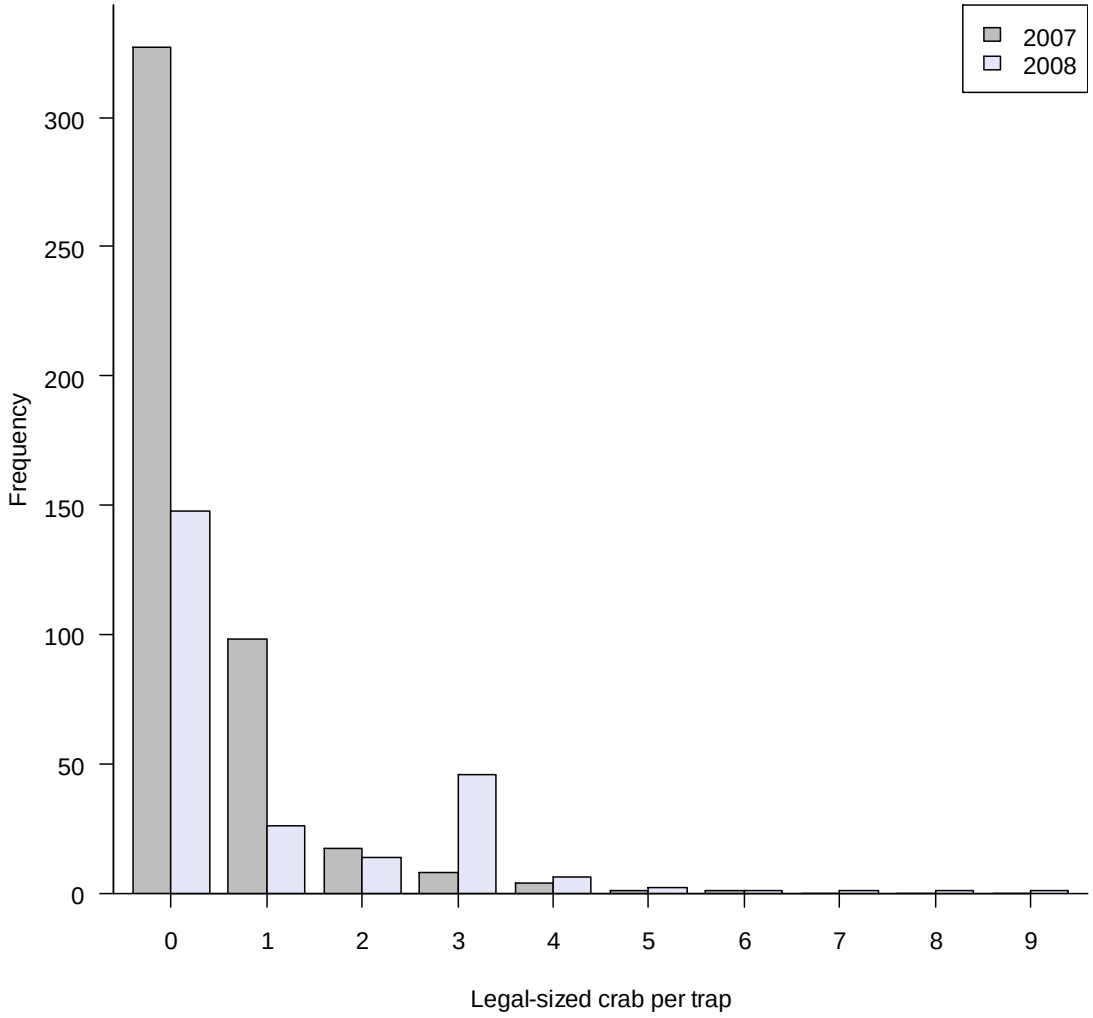

2007
2008
Frequency
300
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
9
Legal-sized crab per trap

Figure 1.3:

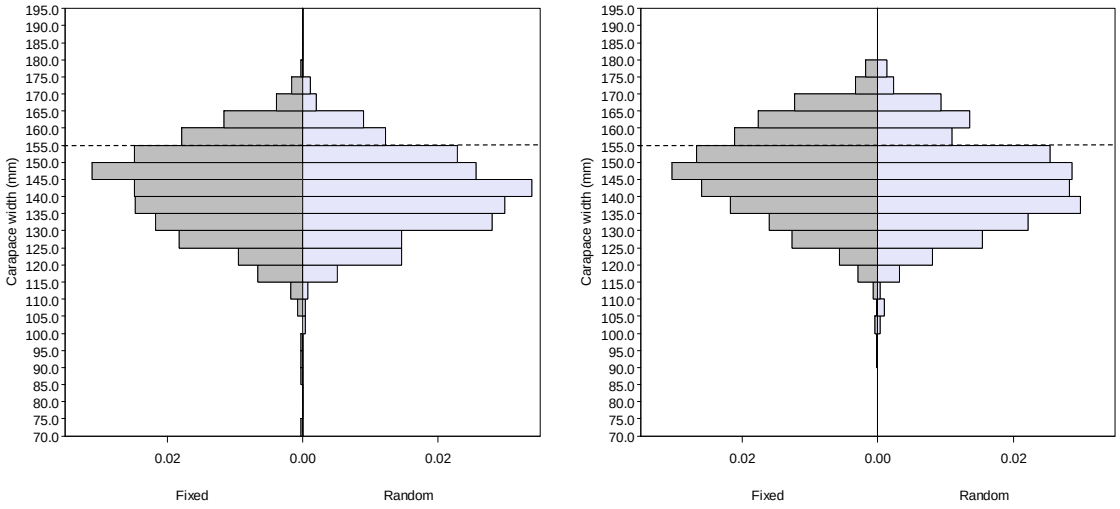
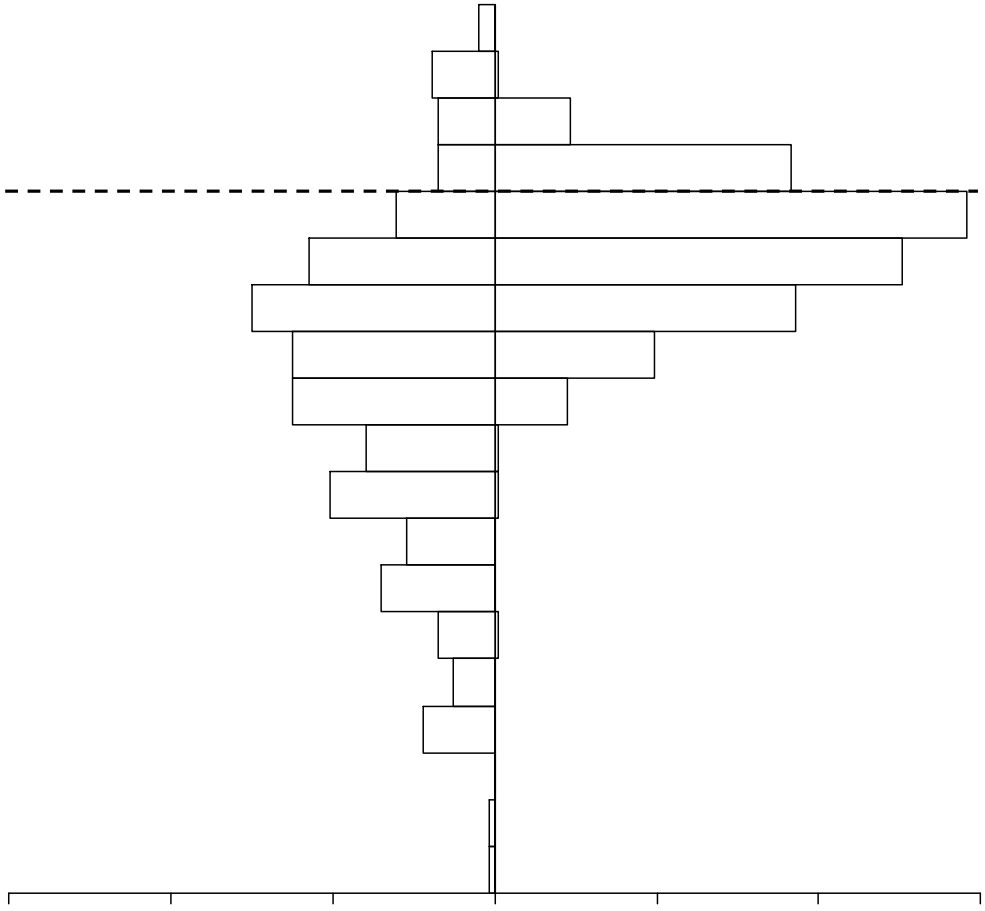

Carapace width (mm)
195.0
190.0
185.0
180.0
175.0
170.0
165.0
160.0
155.0
150.0
145.0
140.0
135.0
130.0
125.0
120.0
115.0
110.0
105.0
100.0
95.0
90.0
85.0
80.0
75.0
70.0
0.02
0.00
0.02
Fixed
Random
Carapace width (mm)
195.0
190.0
185.0
180.0
175.0
170.0
165.0
160.0
155.0
150.0
145.0
140.0
135.0
130.0
125.0
120.0
115.0
110.0
105.0
100.0
95.0
90.0
85.0
80.0
75.0
70.0
0.02
0.00
0.02
Fixed
Random

Figure 1.4:



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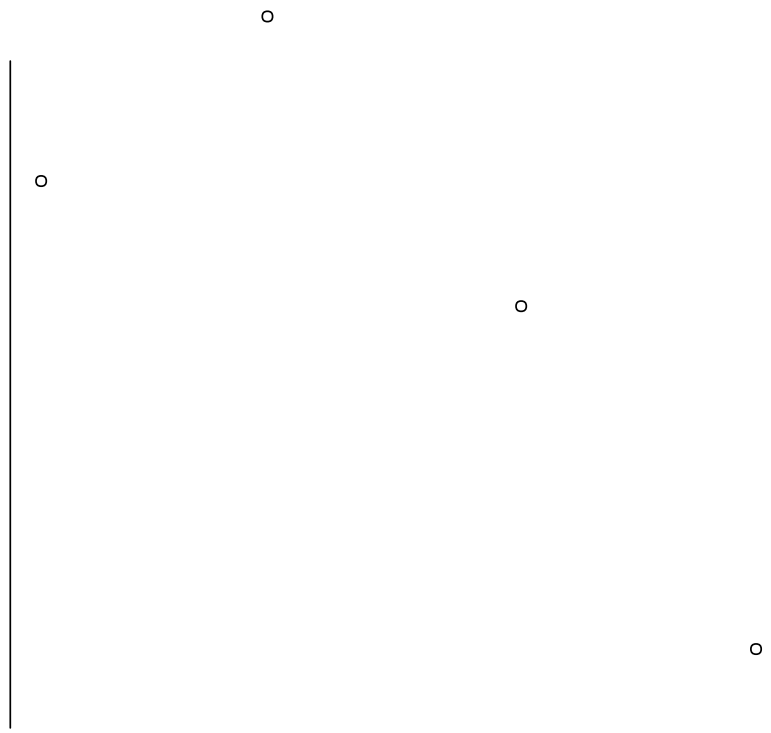
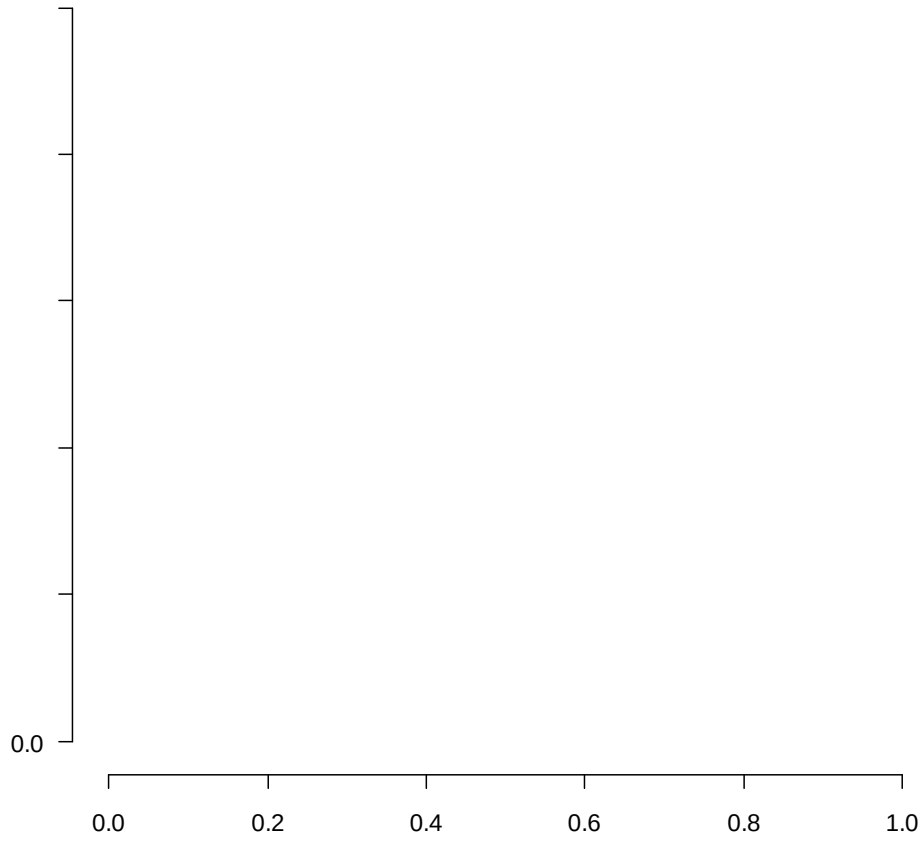


Figure 1.6:



10

Figure 1.7:

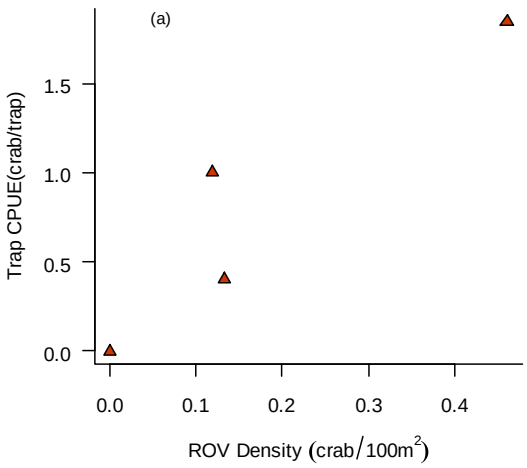

(a)
Trap CPUE(crab/trap)
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
ROV Density (crab/100m^2)

Figure 1.8:

Literature cited

Canadian Science Advisory Secretariat. Research Document

legitimacy .

power *urgency*

Hippoglossus stenolepis

a

Control of harvest

Recreational trapping within the Dungeness crab management processes

dependent *dominant*

a. Catch cards

Closing the gaps harvest control

b. Increasing regulatory legitimacy

a. Differential size limits

b. Temporal exclusion

Tables

Table 2.1:

Literature cited

Canadian Science Advisory Secretariat. Research Document

Table A1.2:

Table A1.4:

APPENDIX 2: ROV OPERATIONS

ROV configuration

Transects

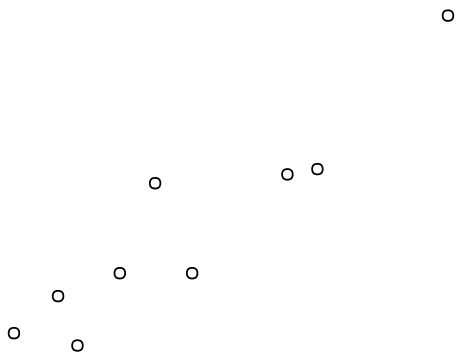


Figure A2.2:

Figure A2.3: