

# **Genetic Stock Identification of Upper Cook Inlet Coho Salmon Harvests, 2013-2015**

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and  
Mark Willette**

**UCI Coho Genetic Report  
RC 4, Tab 10**



# **RATIONALE**

**1. Estimate the spatial and temporal distributions of coho salmon stocks in UCI**

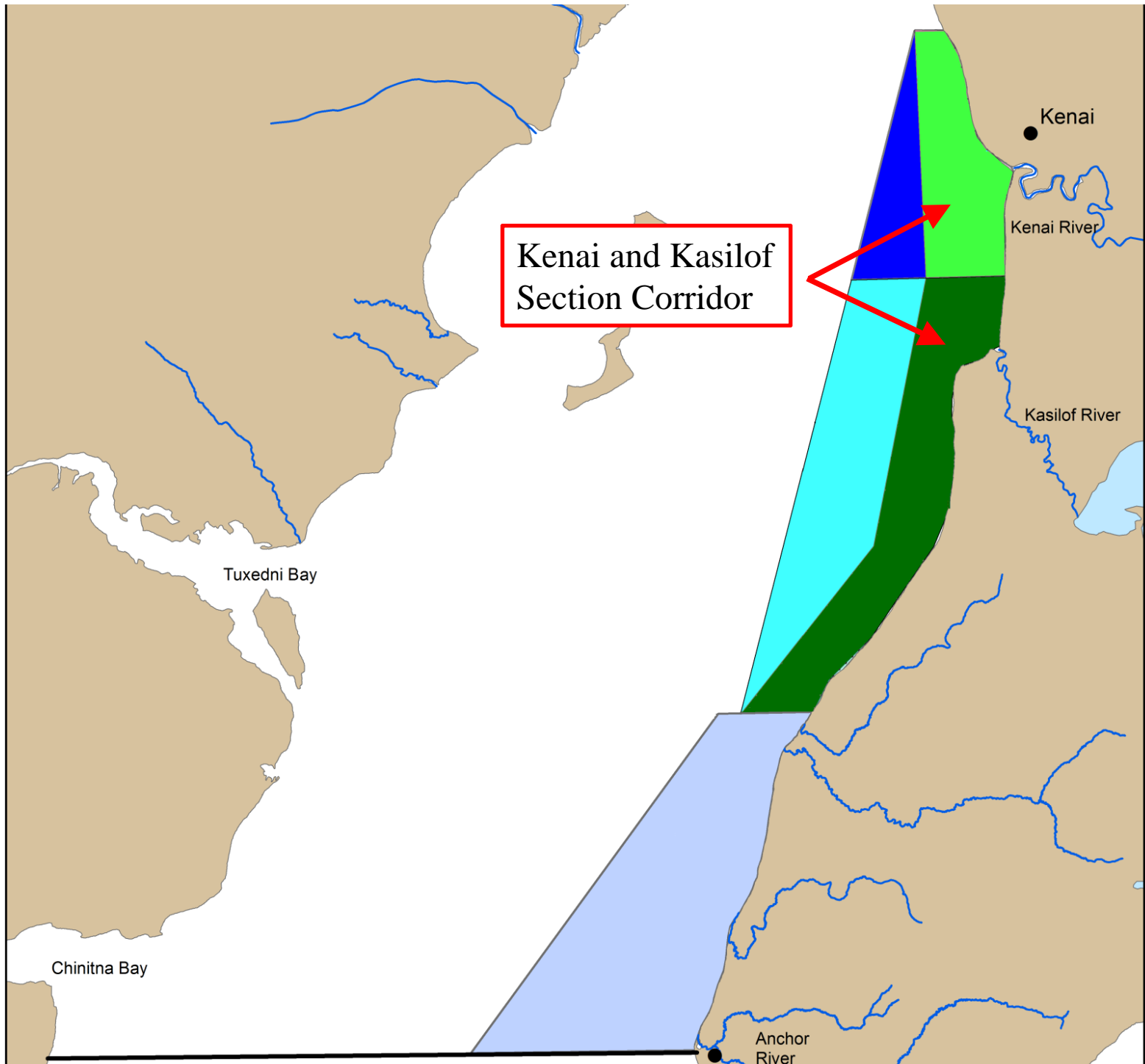
**commercial fishery harvests, and**

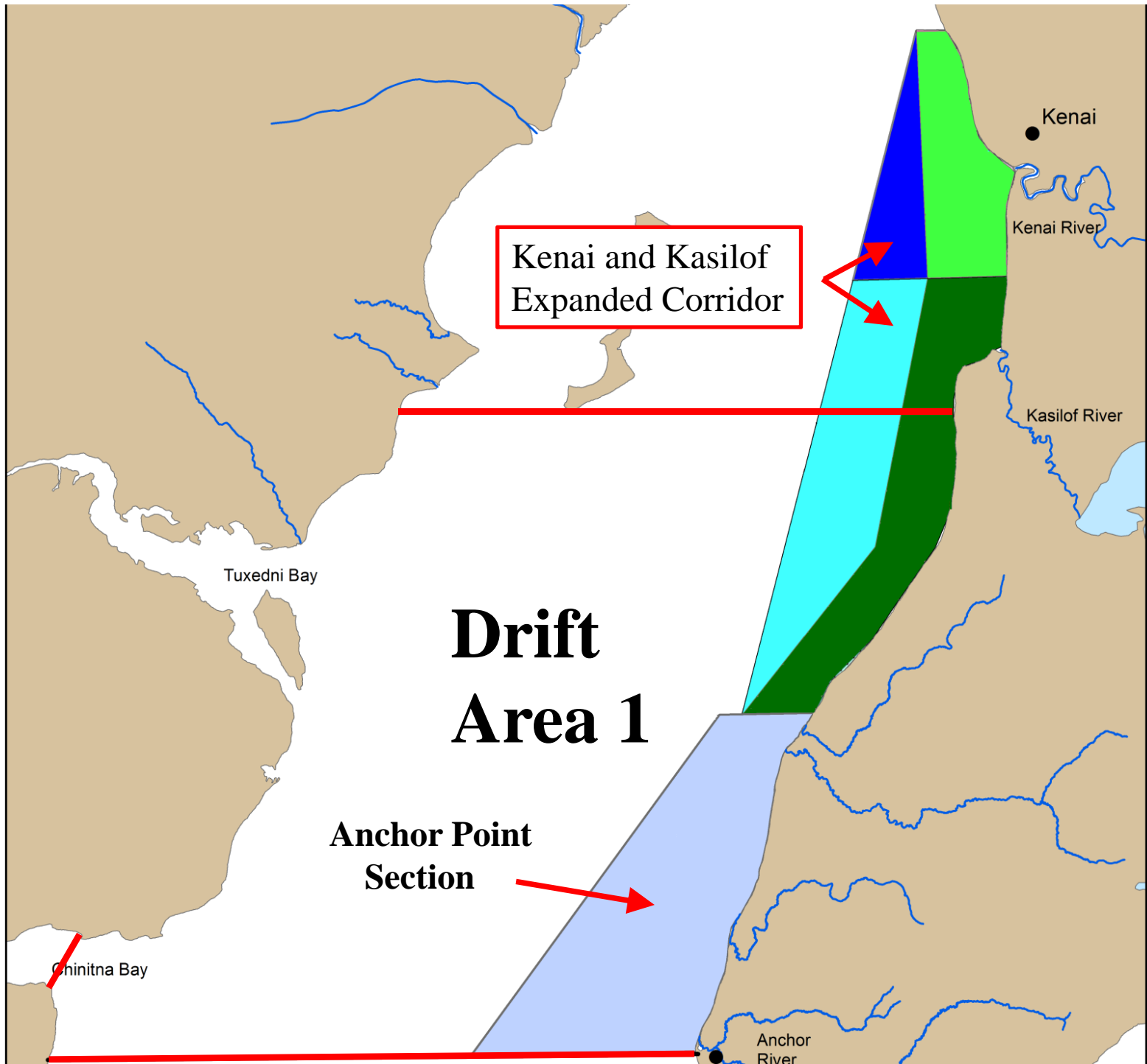
**offshore test fishery harvests**

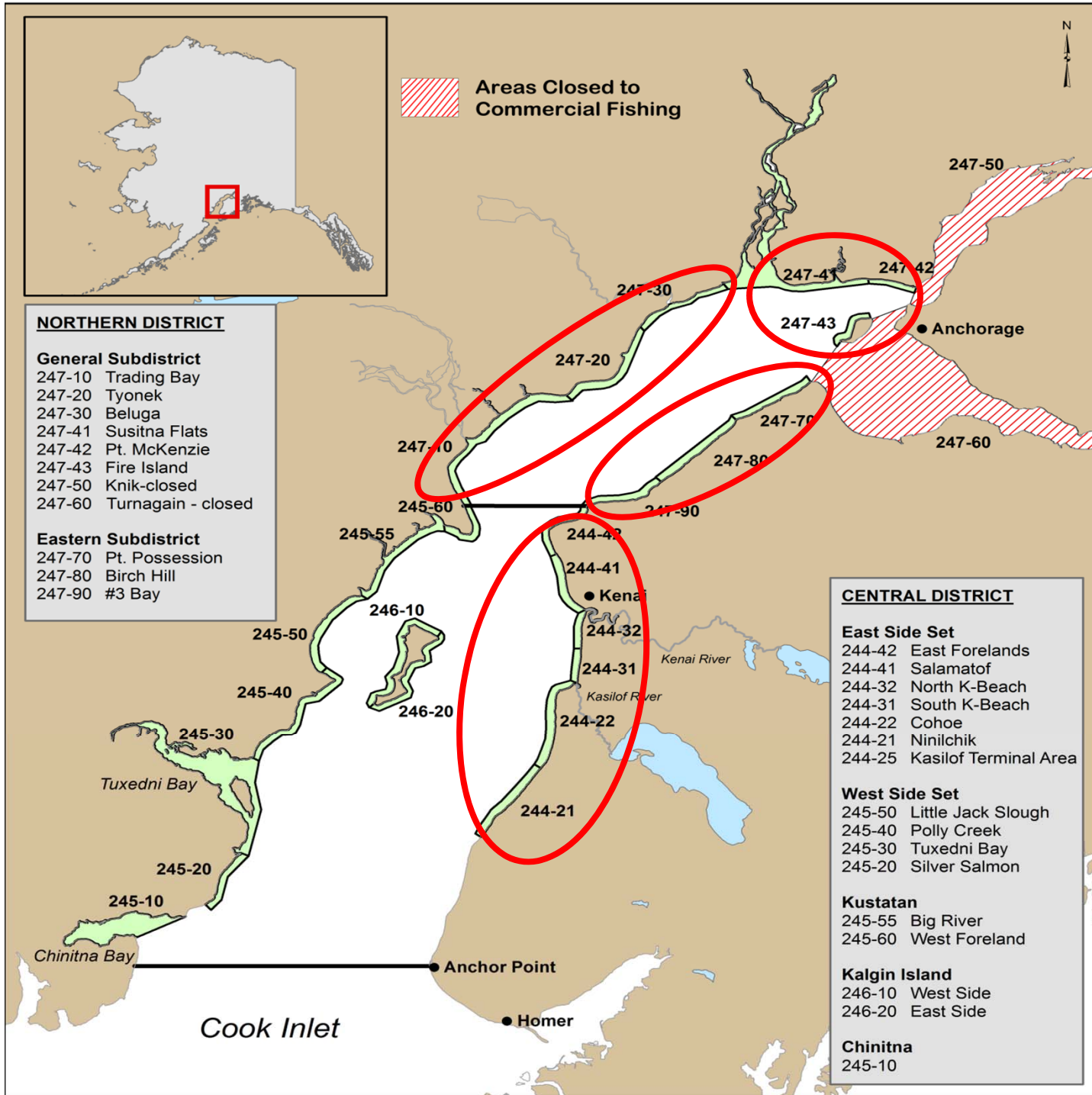
**to improve stock-specific harvest management strategies.**

**2. Estimate the total run of selected stocks.**

**3. Estimate harvest rates and productivity for selected stocks.**







# Set Gillnet Sampling

General Subdistrict (South)

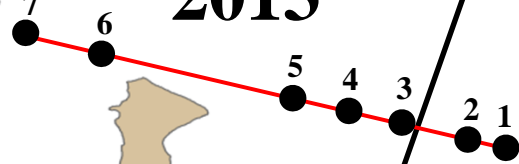
General Subdistrict (North)

Eastern Subdistrict

Upper Subdistrict (East Side Set Net)

# Offshore Test Fisheries

2013

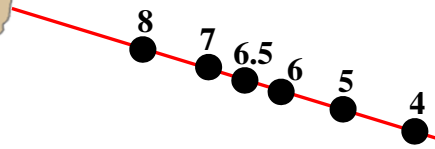


Kalgin Island

*Kenai River*

**Expanded Corridor**

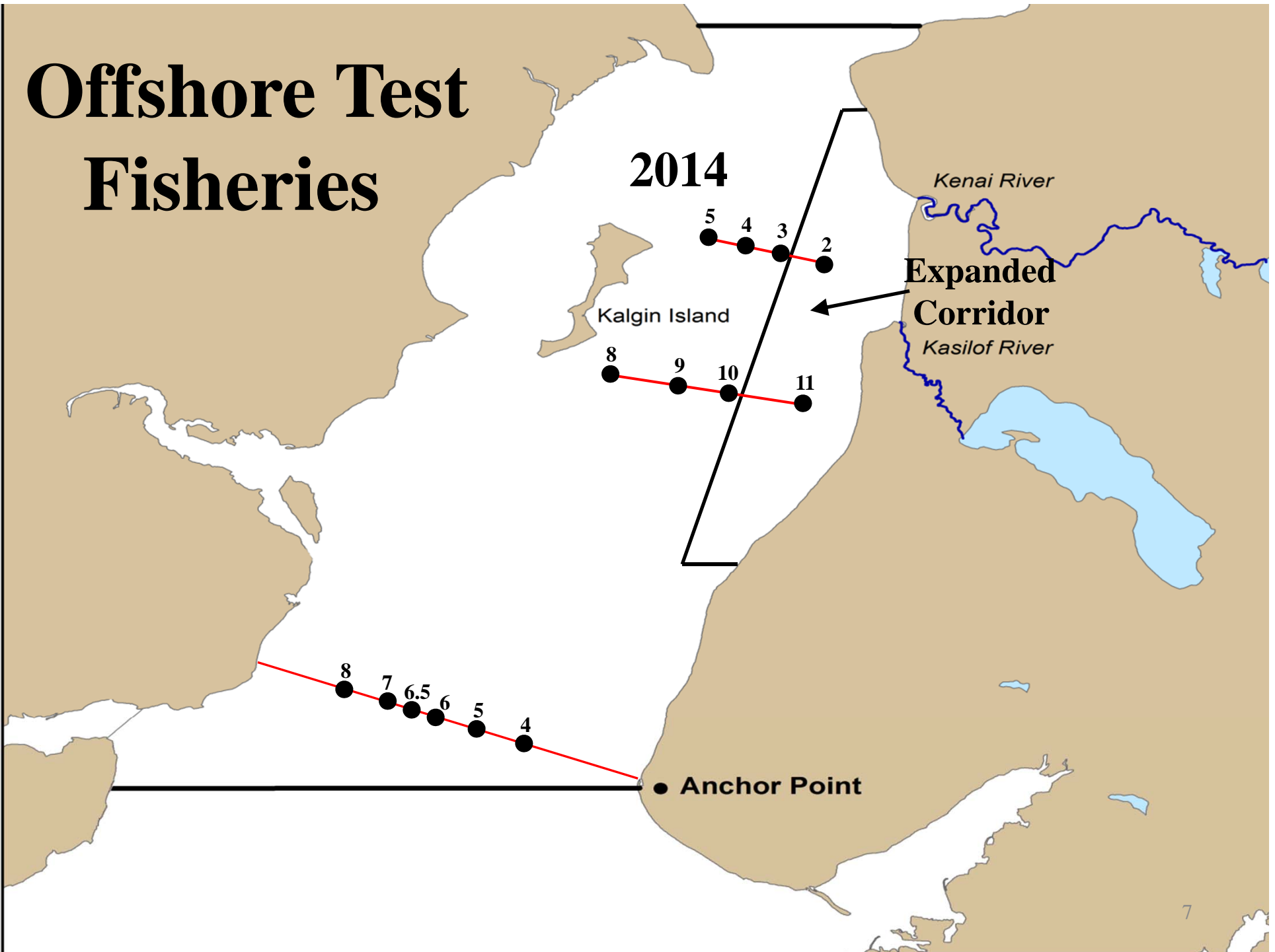
*Kasilof River*



● **Anchor Point**

# Offshore Test Fisheries

2014



# Offshore Test Fisheries

2015

Kalgin Island

*Kenai River*

**Expanded Corridor**

*Kasilof River*

● Anchor Point

8

7

6.5

6

5

4



# Catch Sampling at Anchorage Processor



# Genetic Tissue Sampling and Preservation

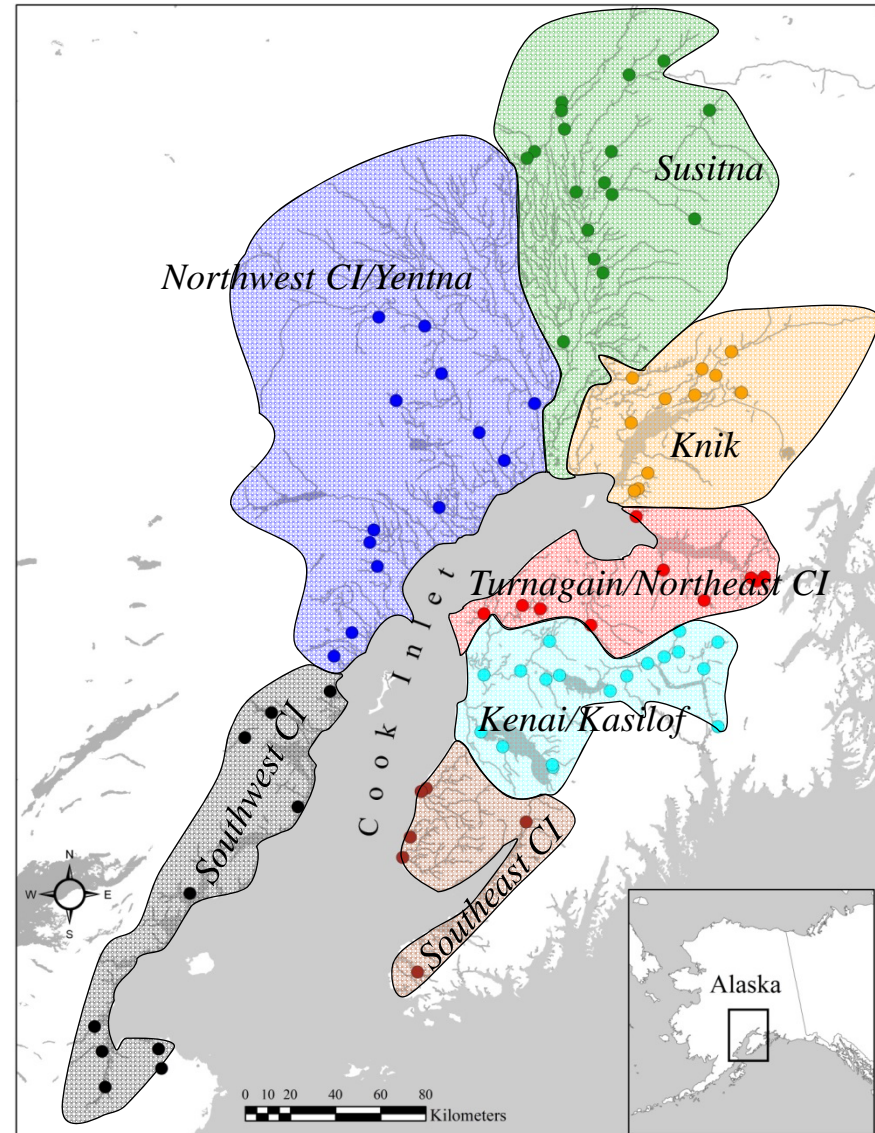


# Harvests Sampled and Genetic Tissues Analyzed

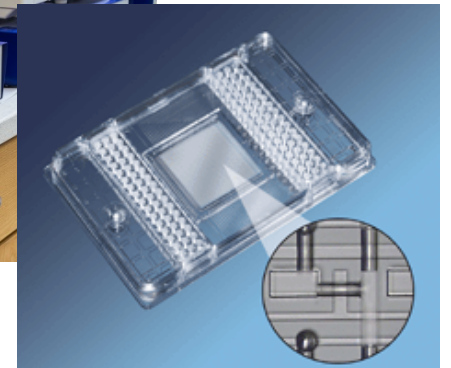
Year	Gear	District or Subdistrict	Harvest Represented	Harvest Not Represented	% Harvest Represented	Dates Represented	No. Tissues Analyzed
2013	Drift	Central	181,818	2,953	98%	6/27 - 8/26	1,991
	Set Gillnet	General (South)	19,584	9	100%	7/1 - 8/29	393
	Set Gillnet	General (North)	11,049	18	100%	7/8 - 8/22	369
	Set Gillnet	ND Eastern	11,156	597	95%	6/27 - 8/29	374
2014	Drift	Central	71,441	5,491	92%	6/26 - 8/25	1,949
	Set Gillnet	General (South)	13,313	107	99%	7/7 - 8/25	390
	Set Gillnet	General (North)	11,059	76	99%	7/14 - 8/21	393
	Set Gillnet	ND Eastern	9,453	1,192	87%	7/14 - 8/21	392
2015	Drift	Central	96,681	6,007	94%	6/29 - 8/24	1,465
	Drift Corridor	Central	27,405	627	98%	7/11 - 8/5	417
	Set Gillnet	Upper Subdistrict	17,517	305	98%	7/20 - 8/10	391
	Set Gillnet	General (South)	20,184	799	96%	6/29 - 8/27	393
	Set Gillnet	General (North)	10,548	0	100%	7/6 - 8/24	339
	Set Gillnet	ND Eastern	12,398	2,687	78%	7/6 - 8/27	392

# Genetic Baseline

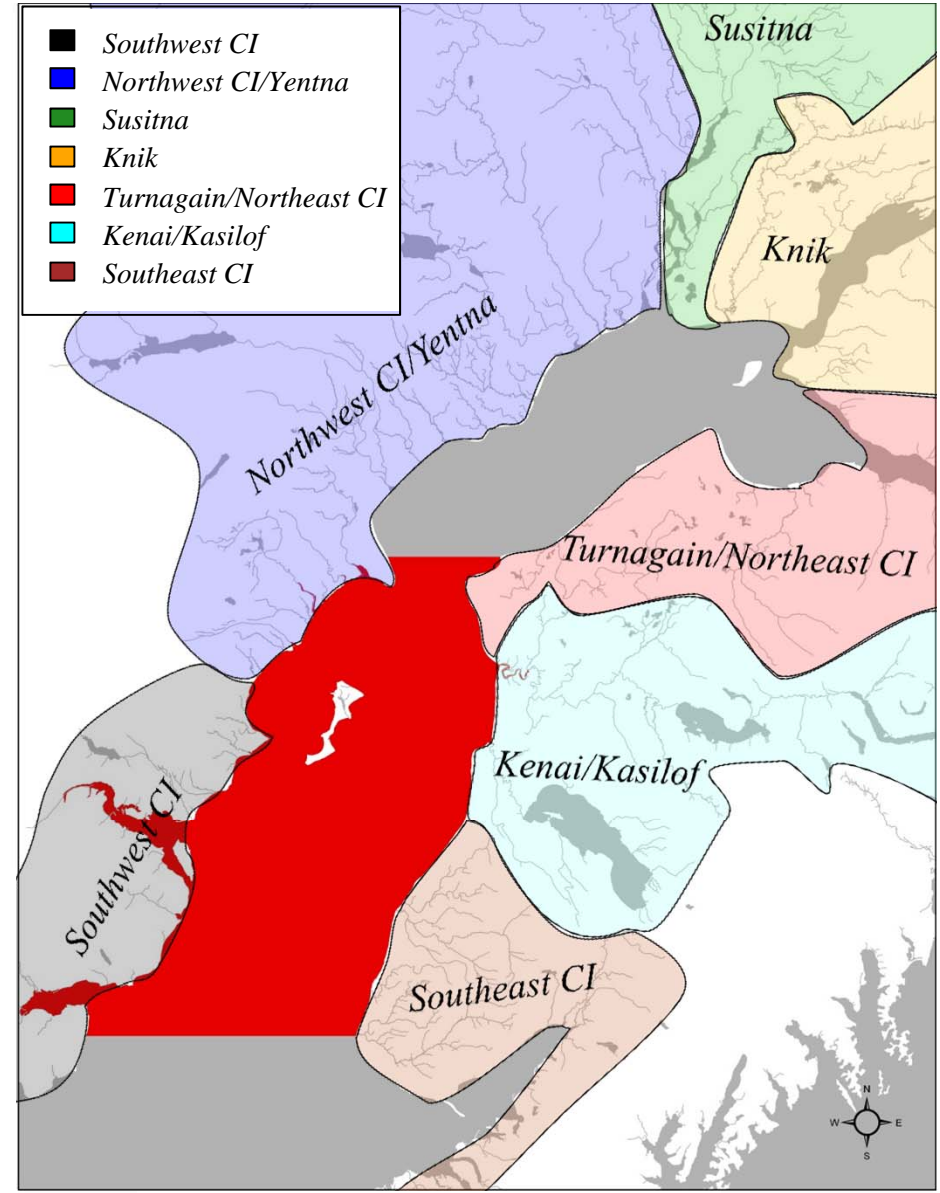
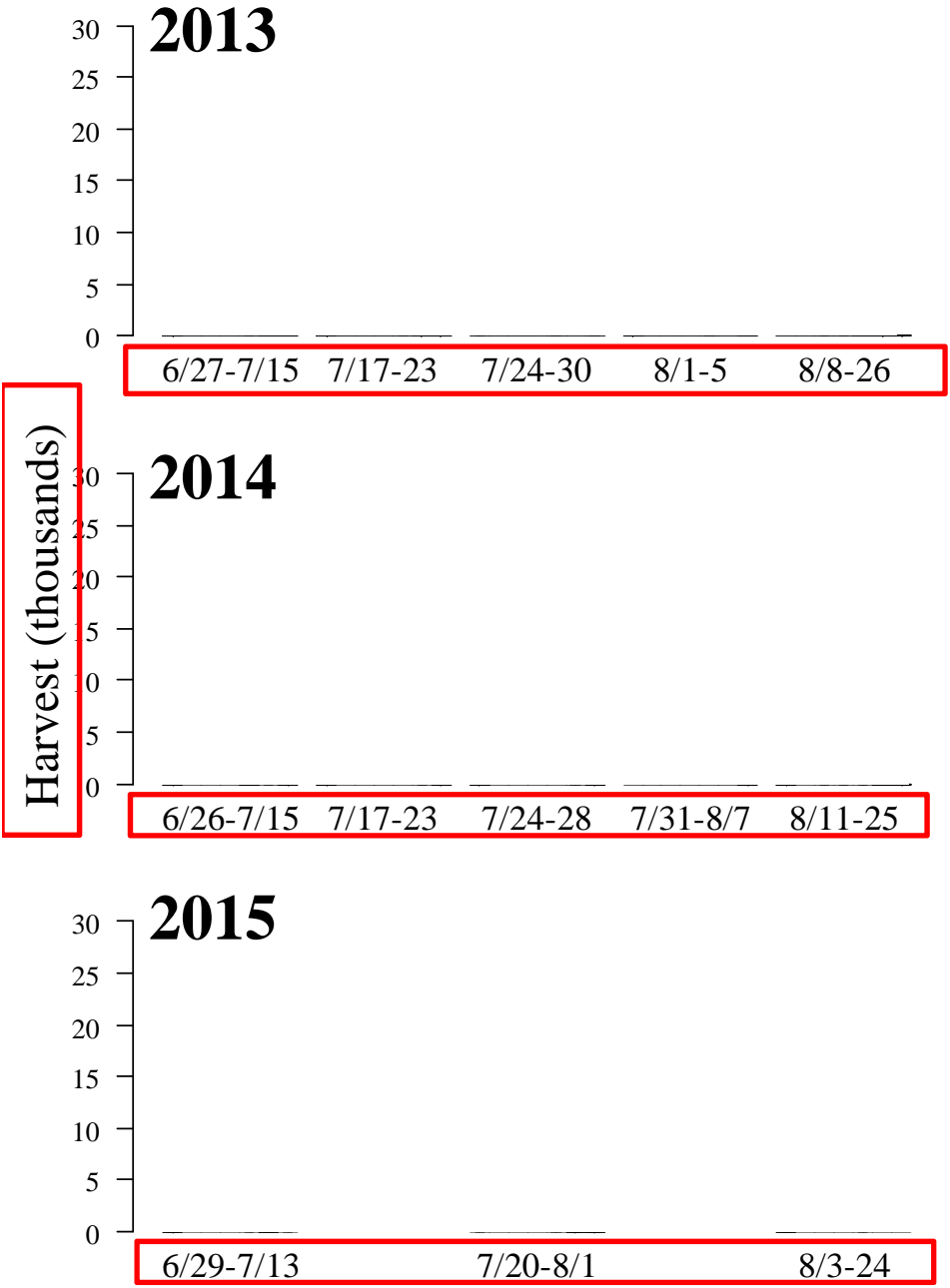
- 84 populations
- Reporting groups tested
  - Groups of populations that can be genetically distinguished
- 7 reporting groups identified
  - *Southwest CI*
  - *Northwest CI/Yentna*
  - *Susitna*
  - *Knik*
  - *Turnagain/Northeast CI*
  - *Kenai/Kasilof*
  - *Southeast CI*



# Harvest Sample Analysis

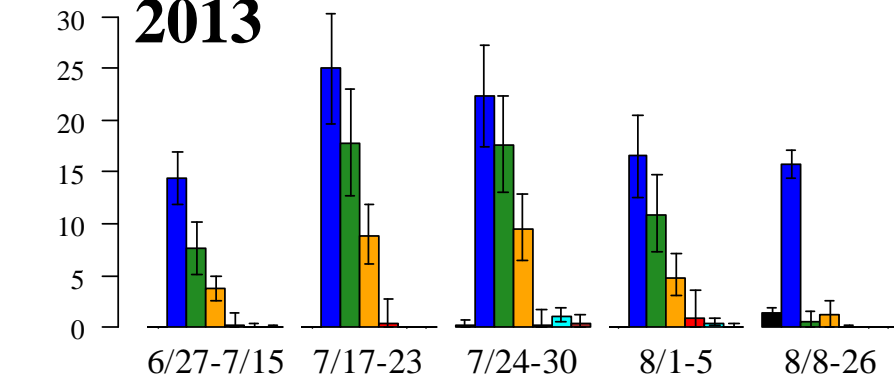


# Central District Drift Gillnet Results

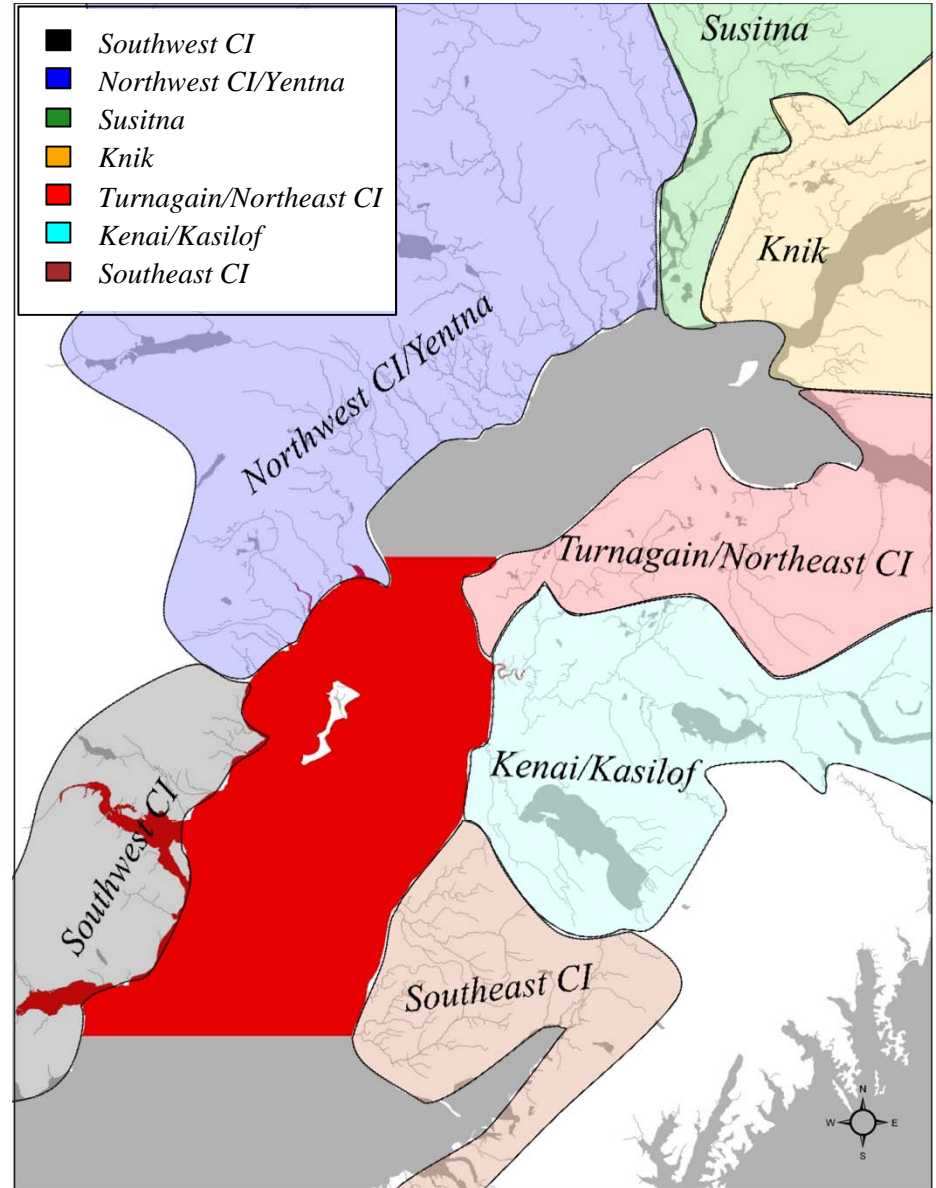


# Central District Drift Gillnet Results

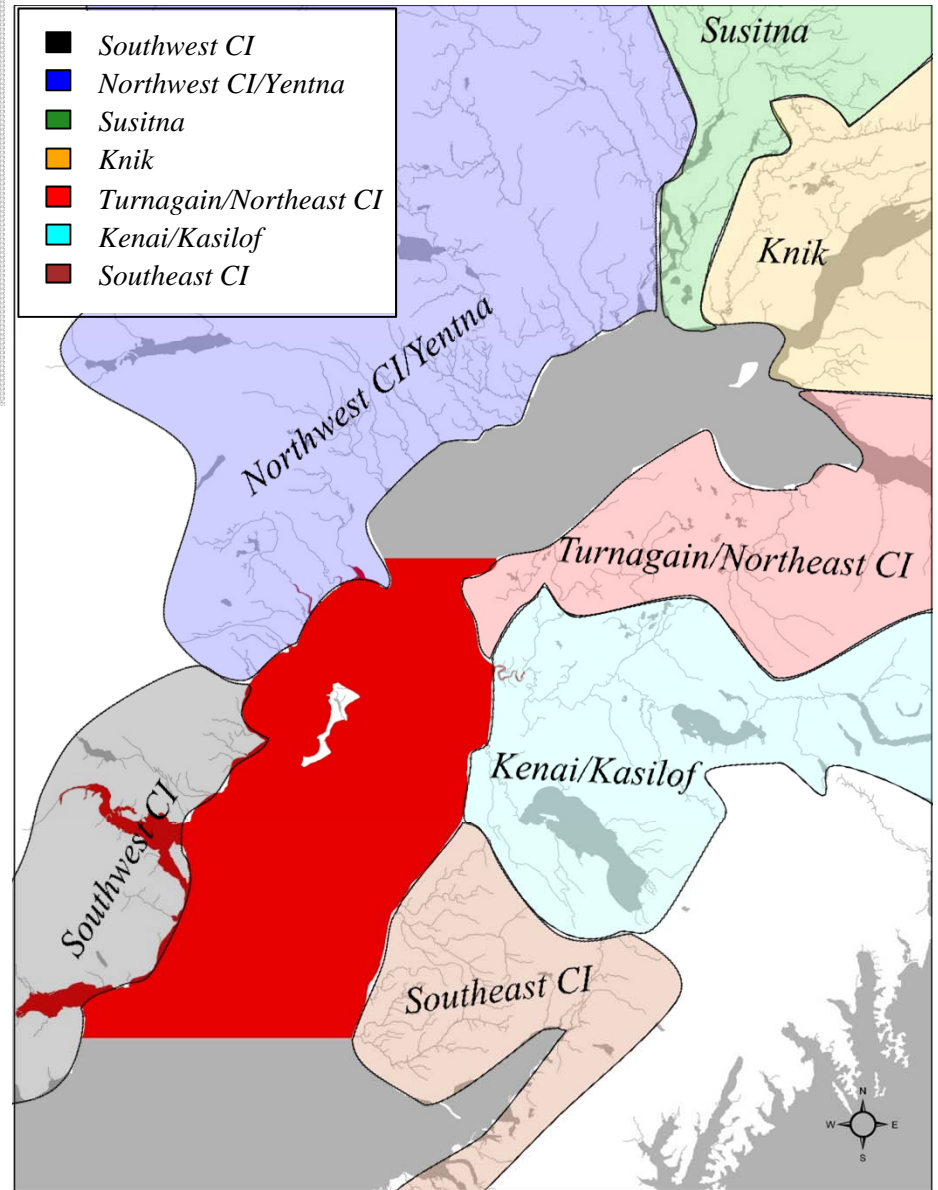
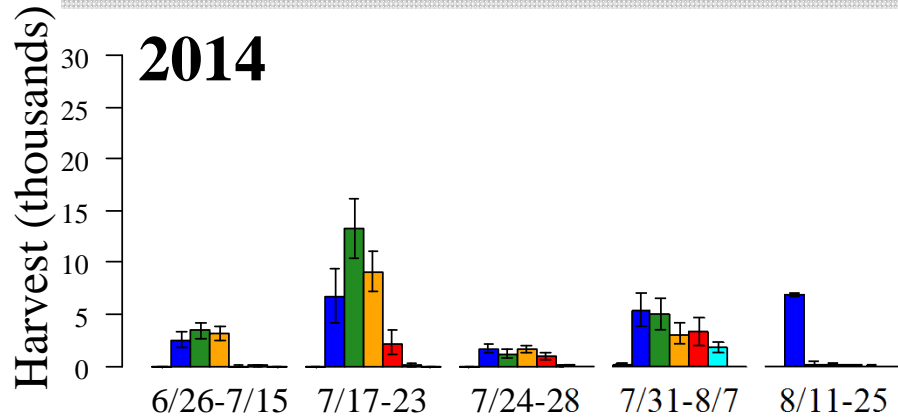
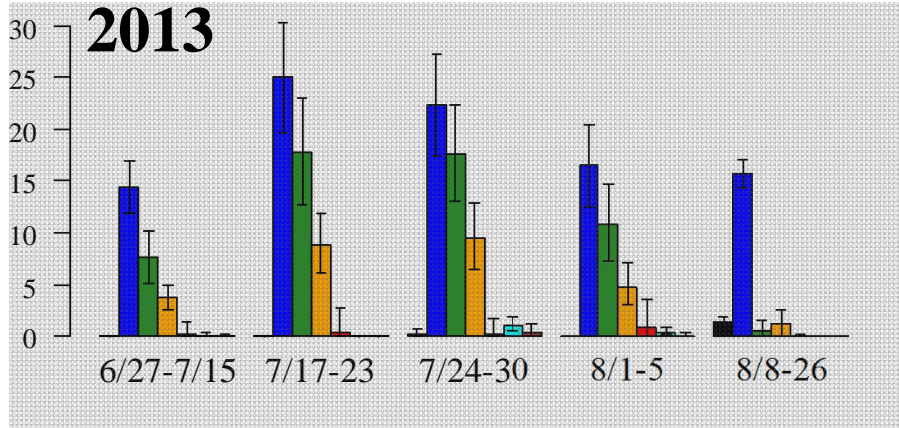
2013



Harvest (thousands)

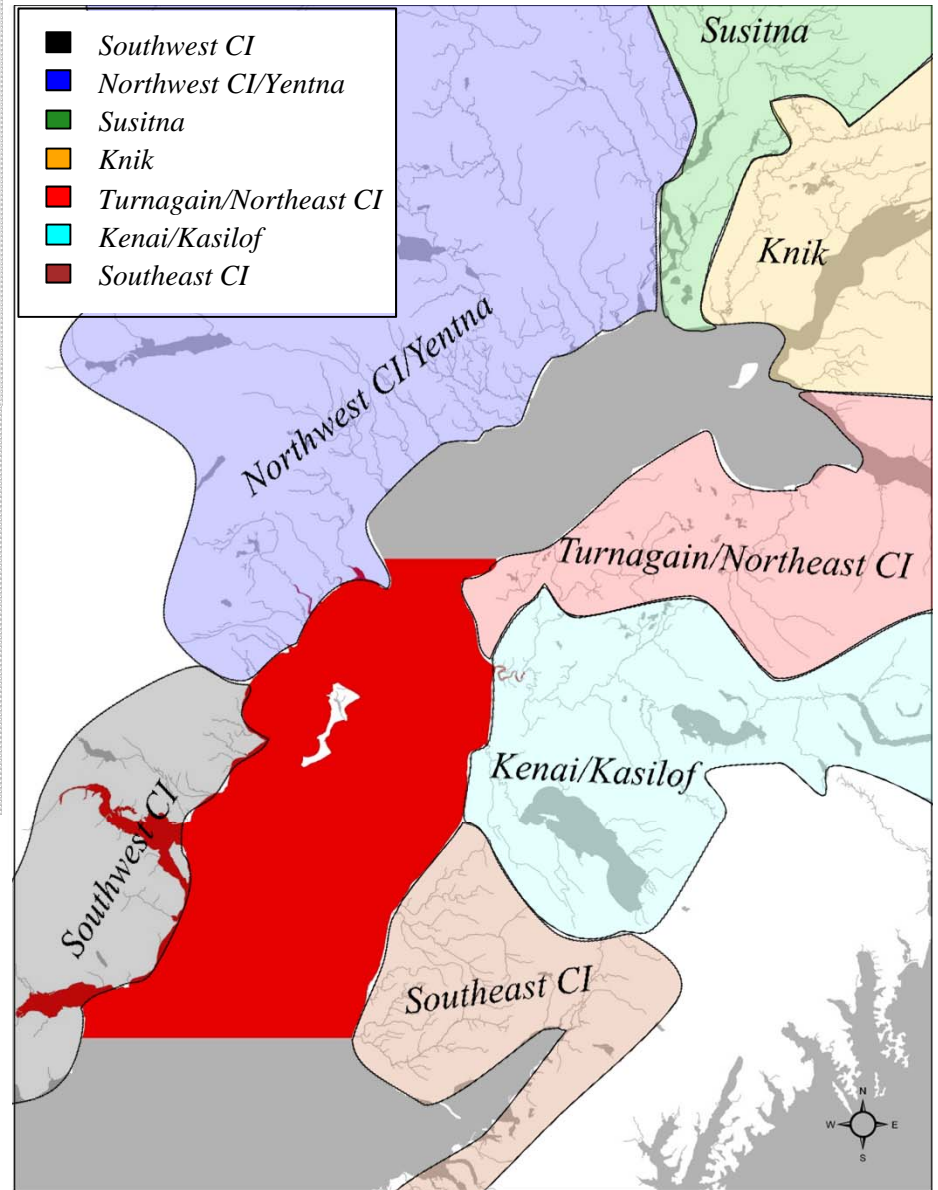
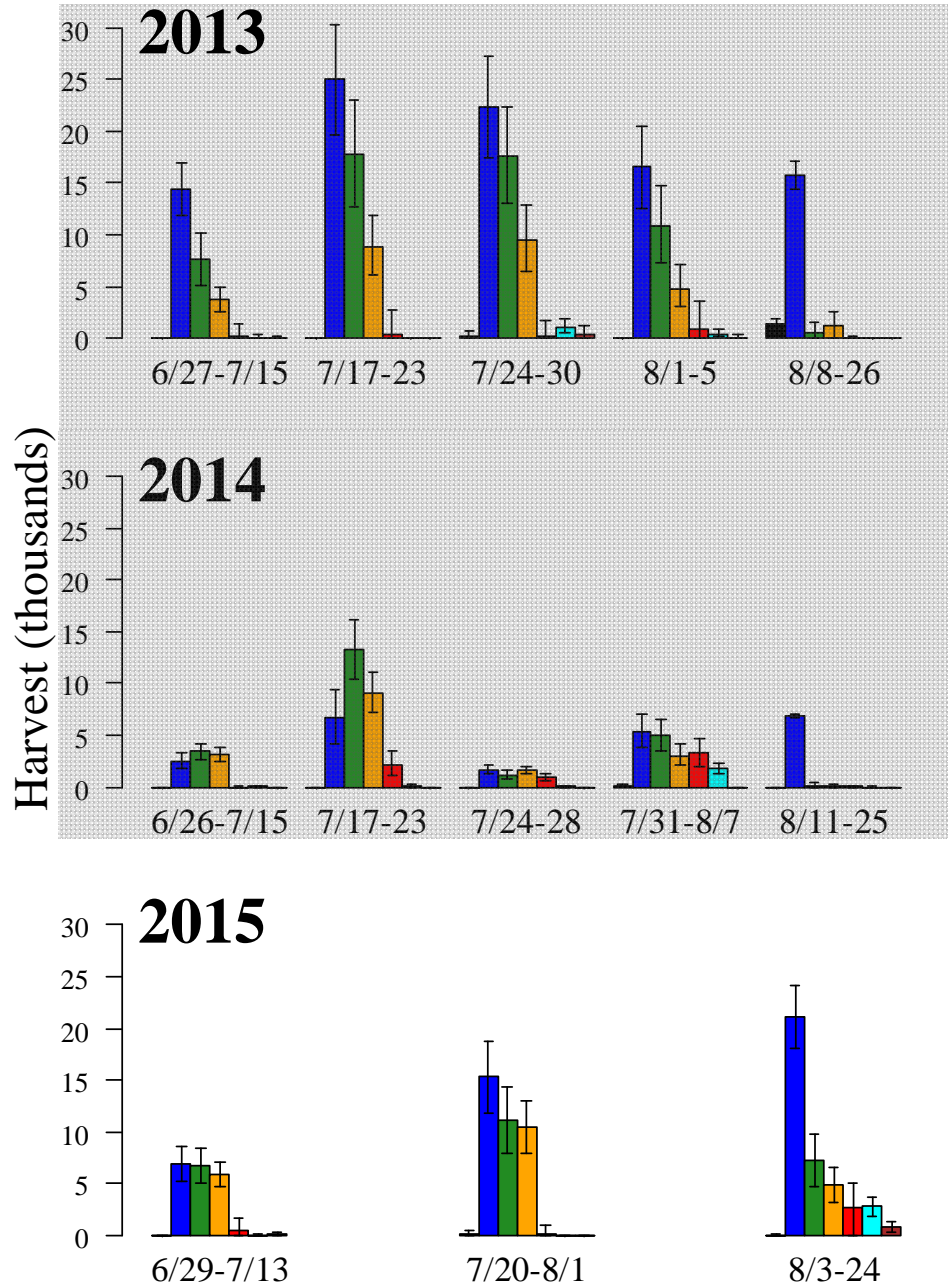


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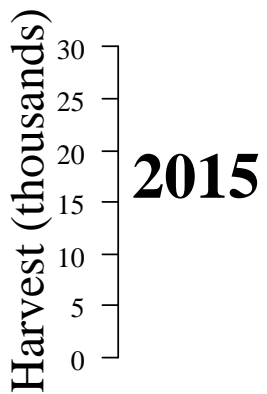
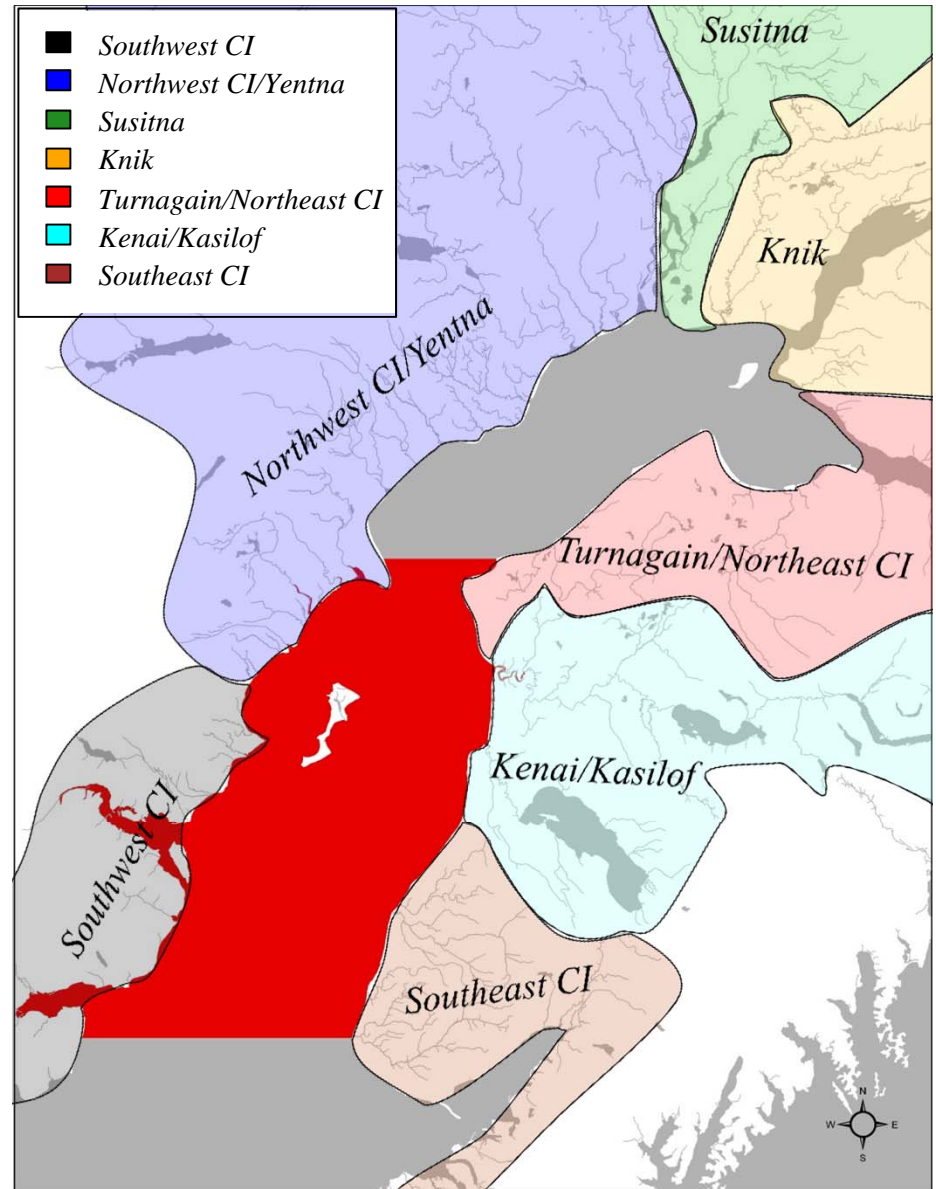




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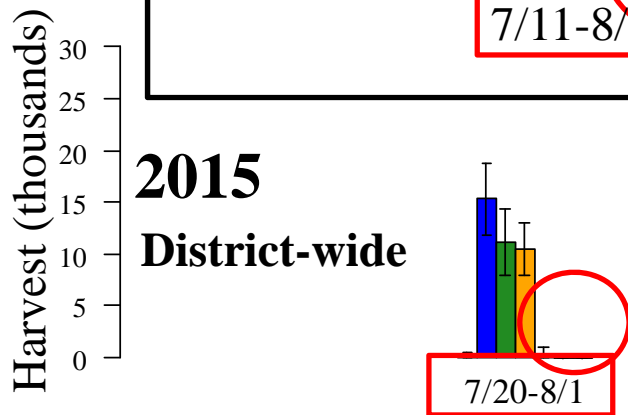
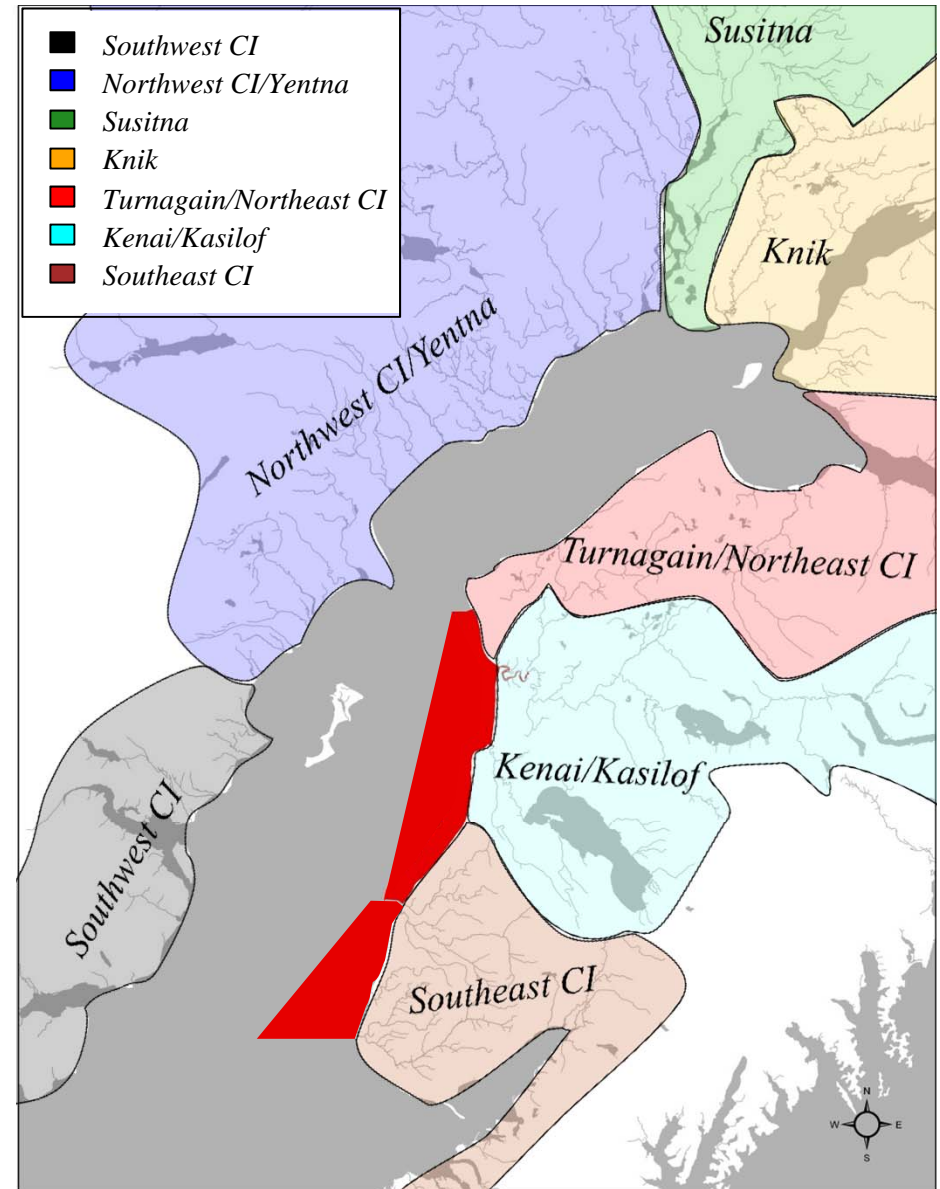
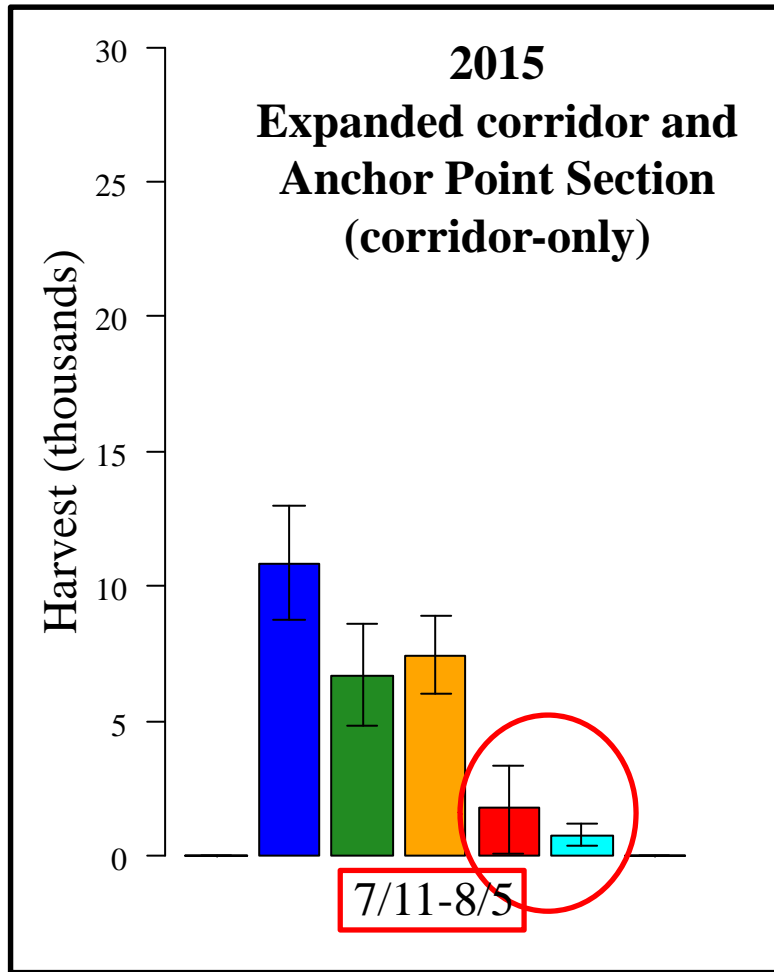


# Central District Drift Gillnet Results

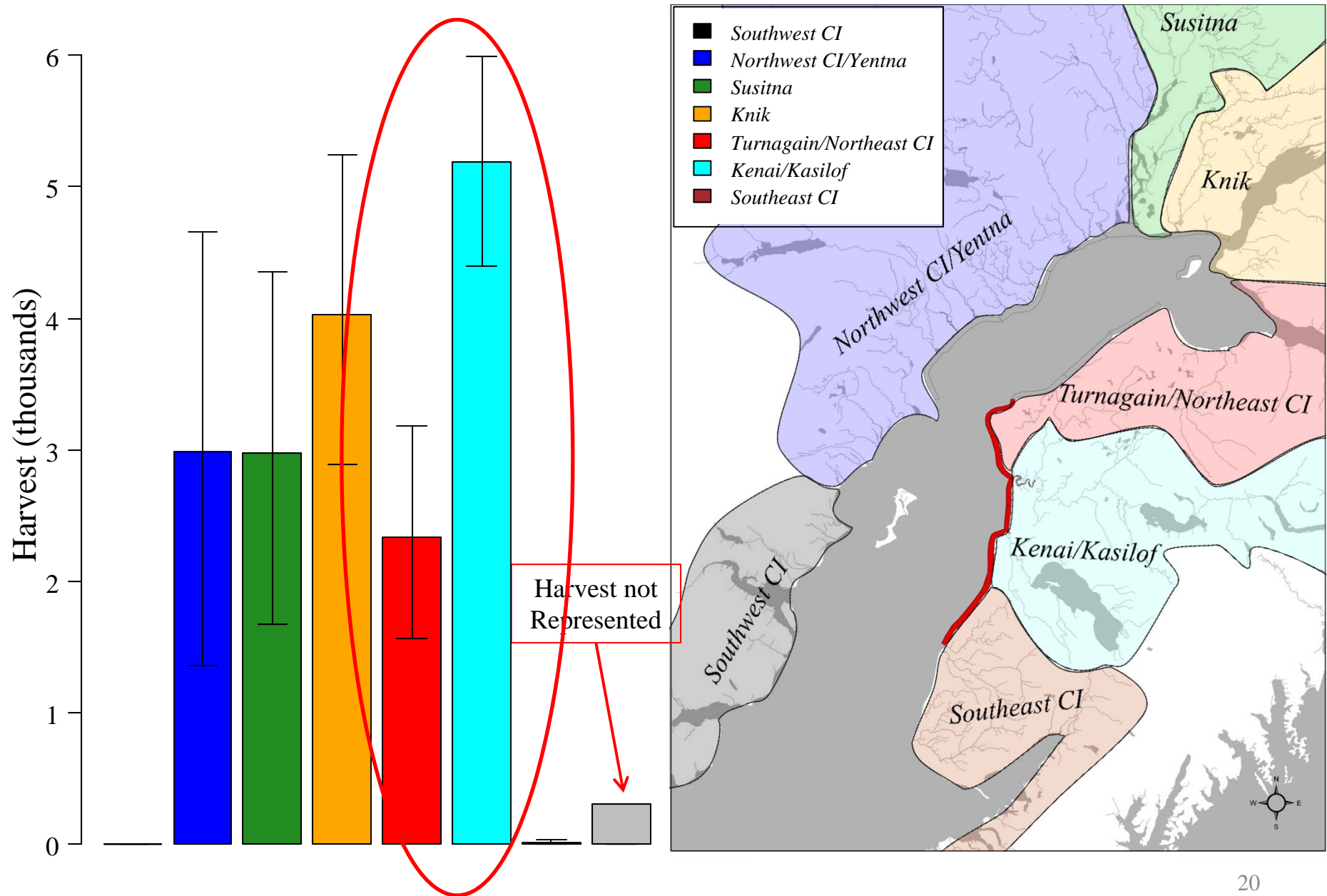


7/20-8/1

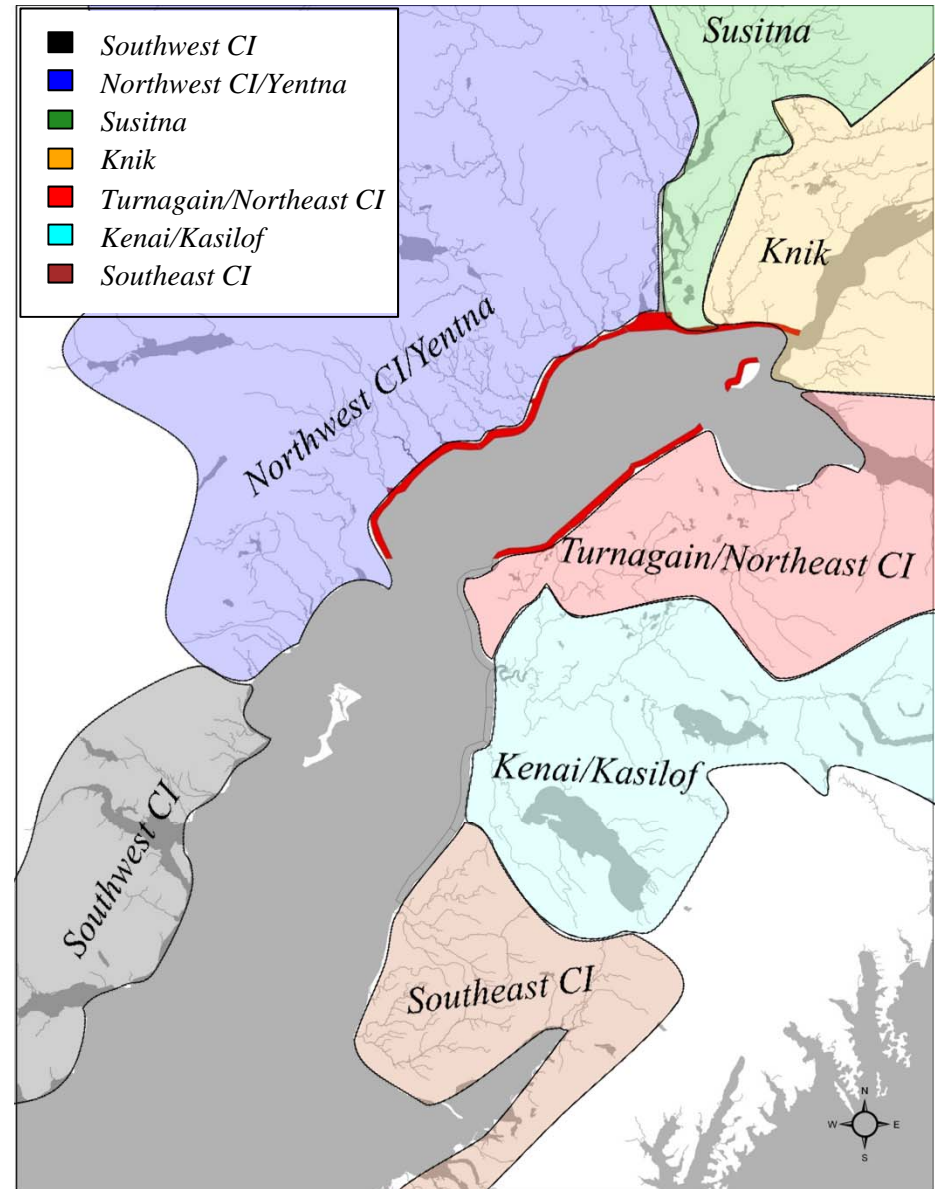
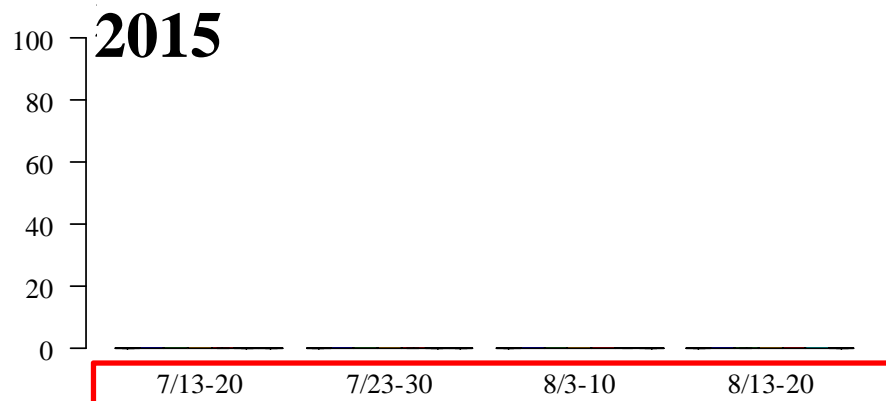
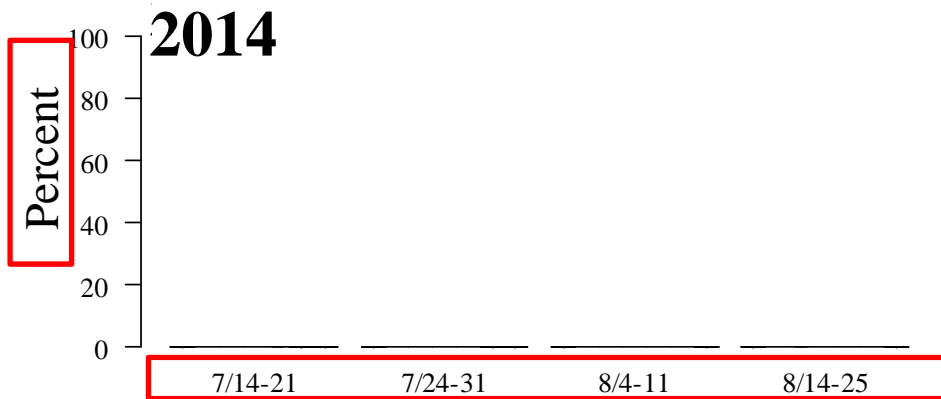
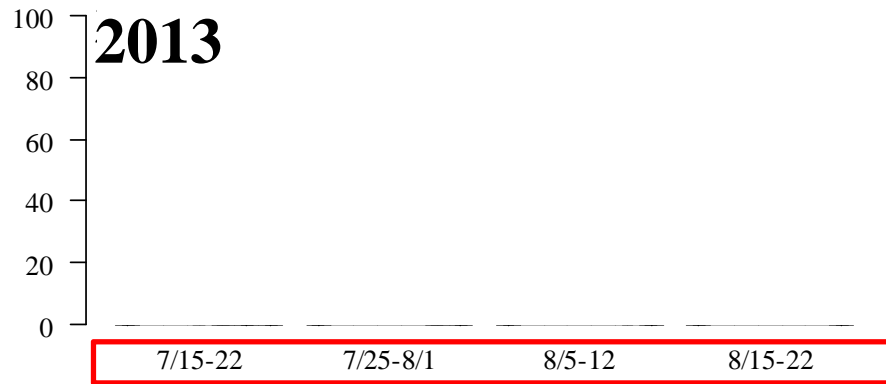
# Central District Drift Gillnet Results



# 2015 Upper Subdistrict Set Gillnet Results

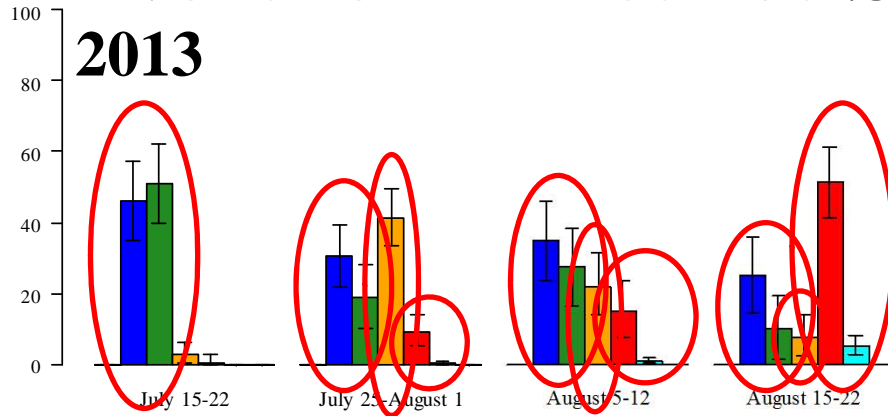


# Northern District Set Gillnet By Date

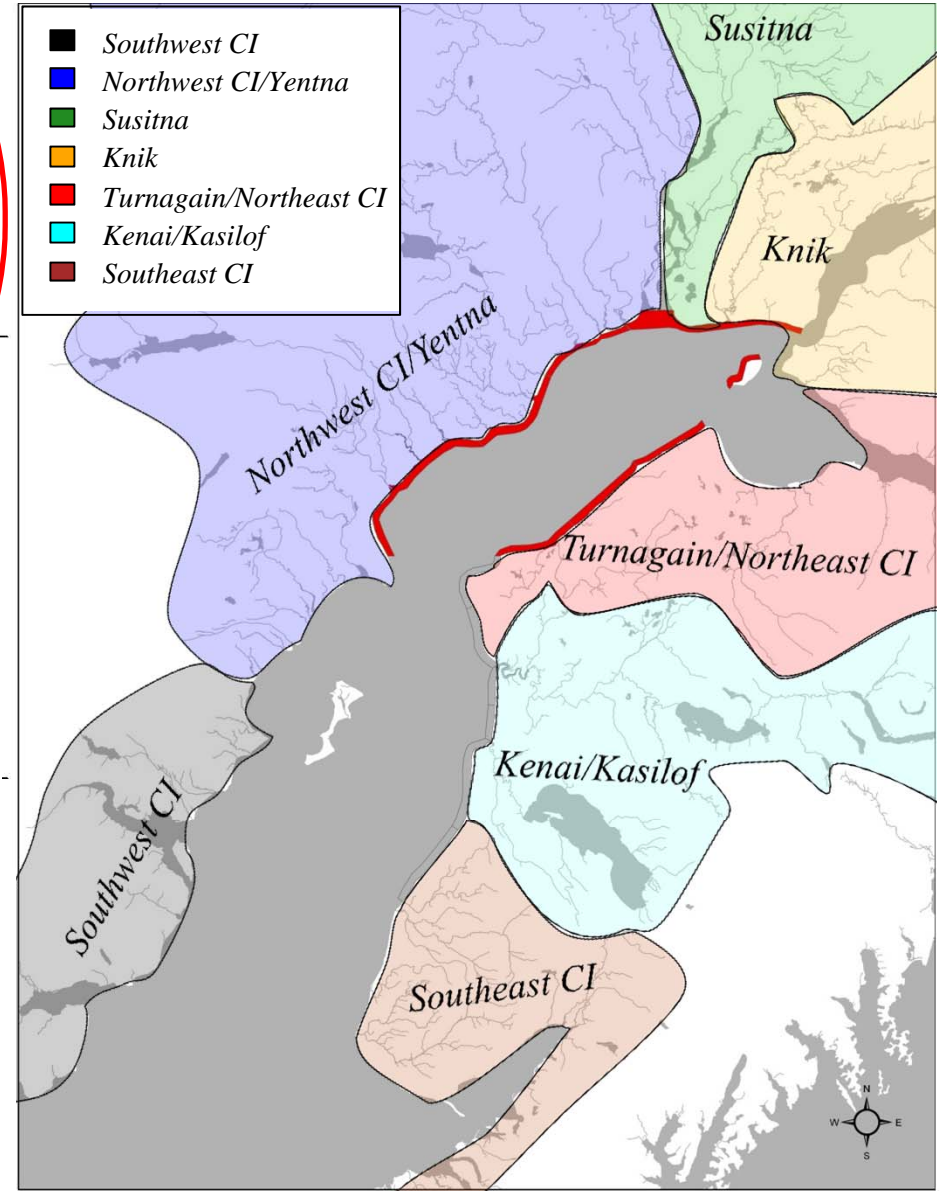


# Northern District Set Gillnet By Date

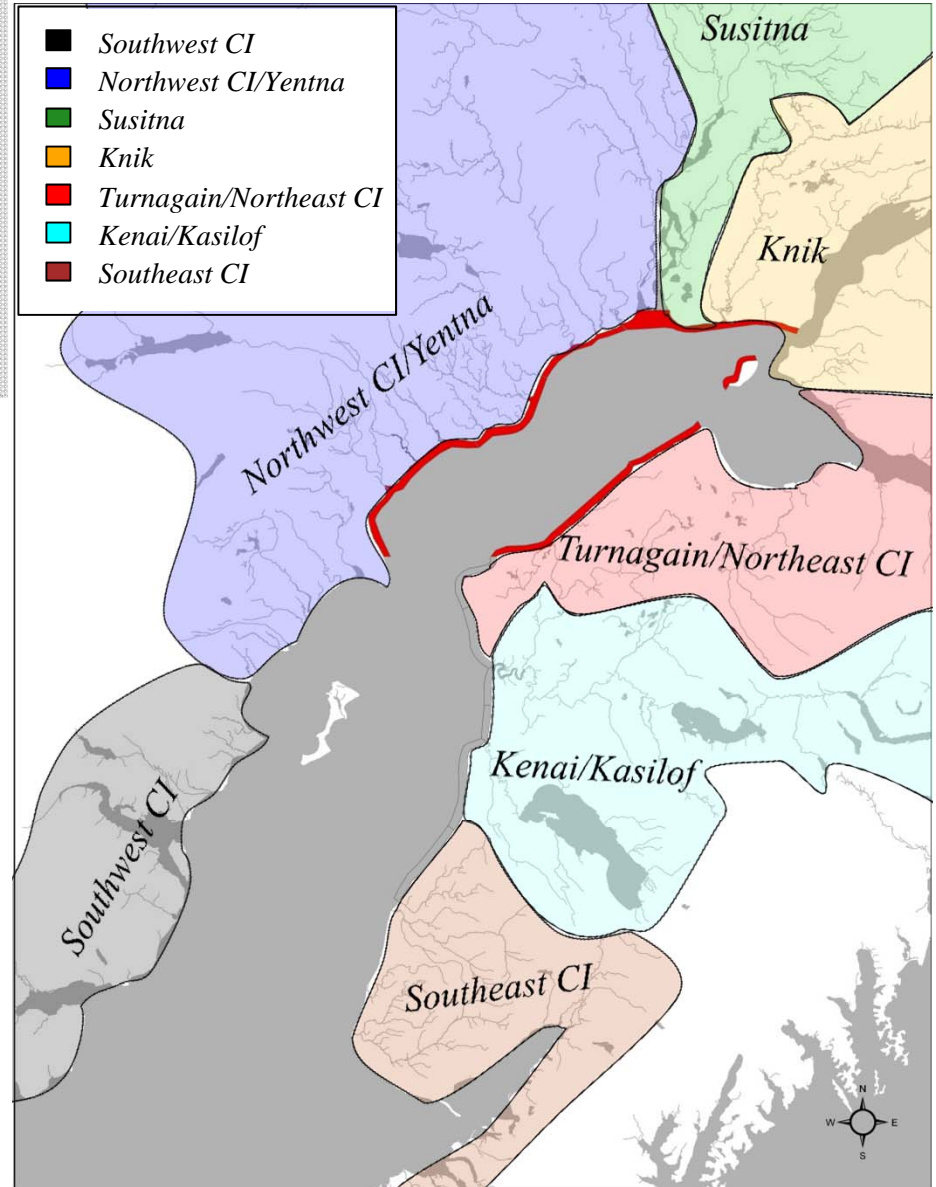
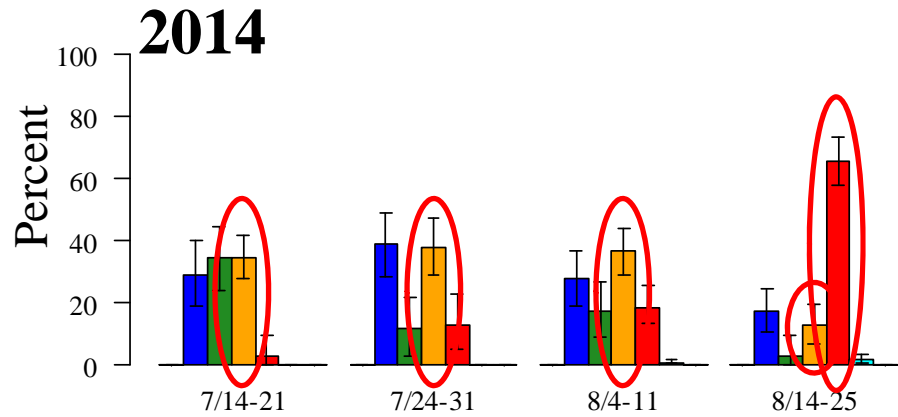
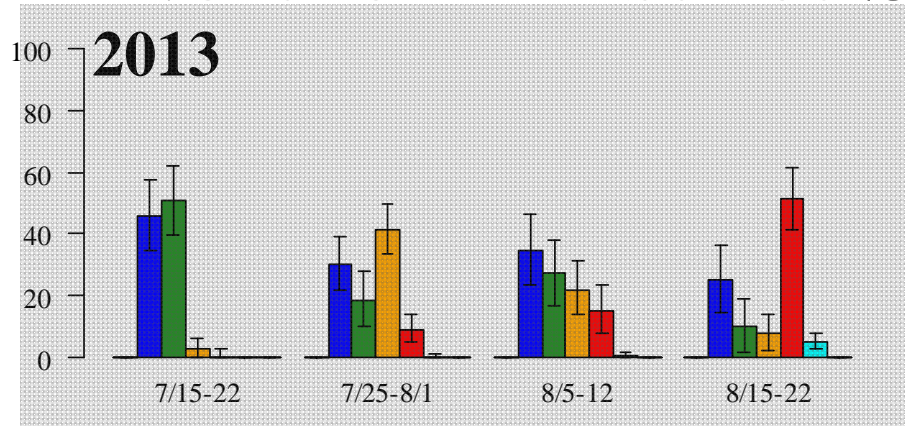
2013



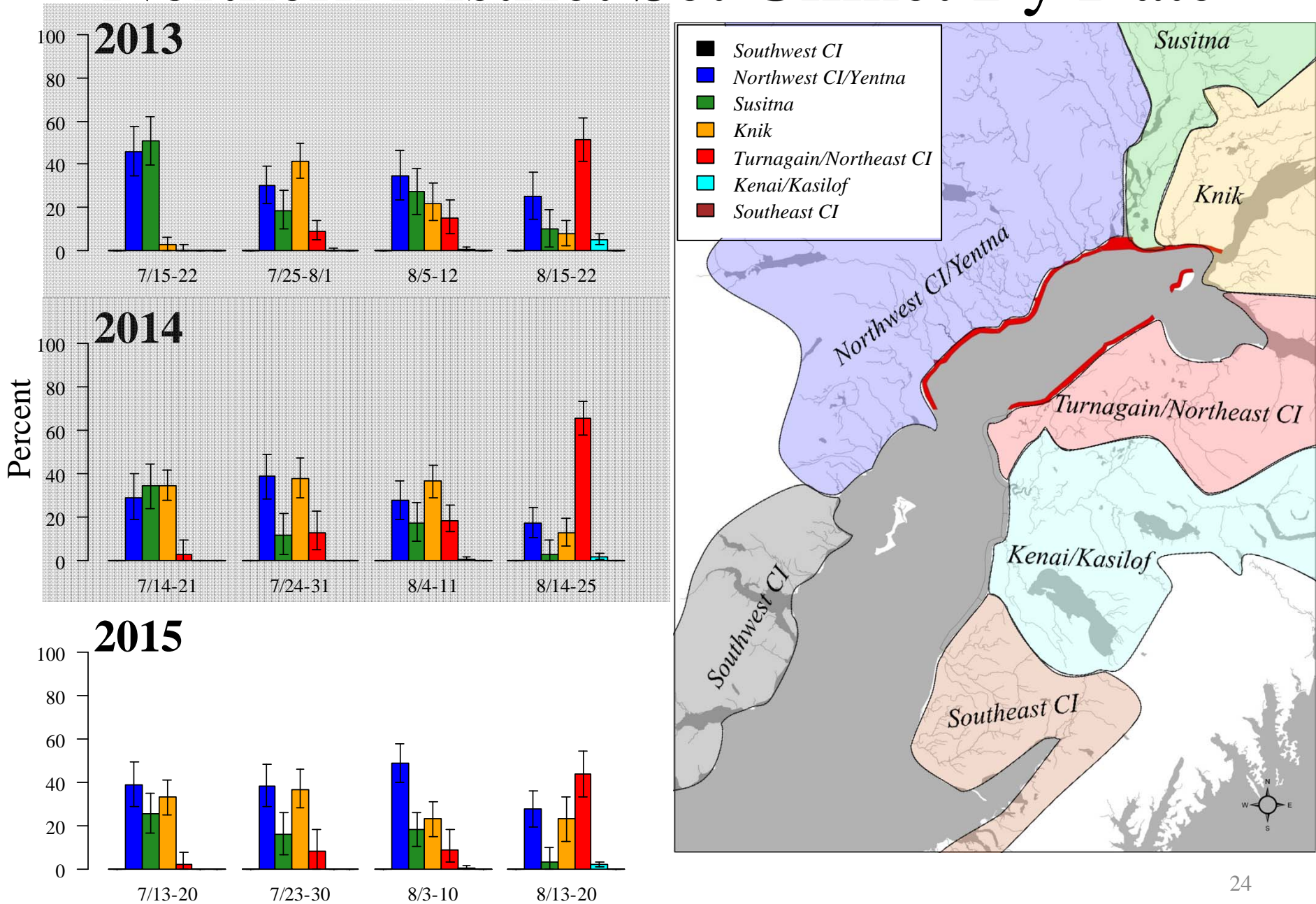
Percent



# Northern District Set Gillnet By Date



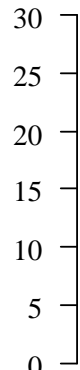
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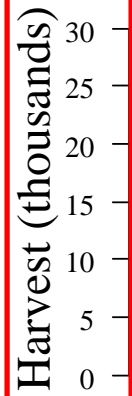
# Northern District Set Gillnet By Area

2013



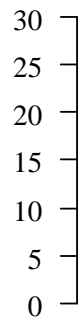
General Subdistrict (south)    General Subdistrict (North)    Eastern Subdistrict

2014

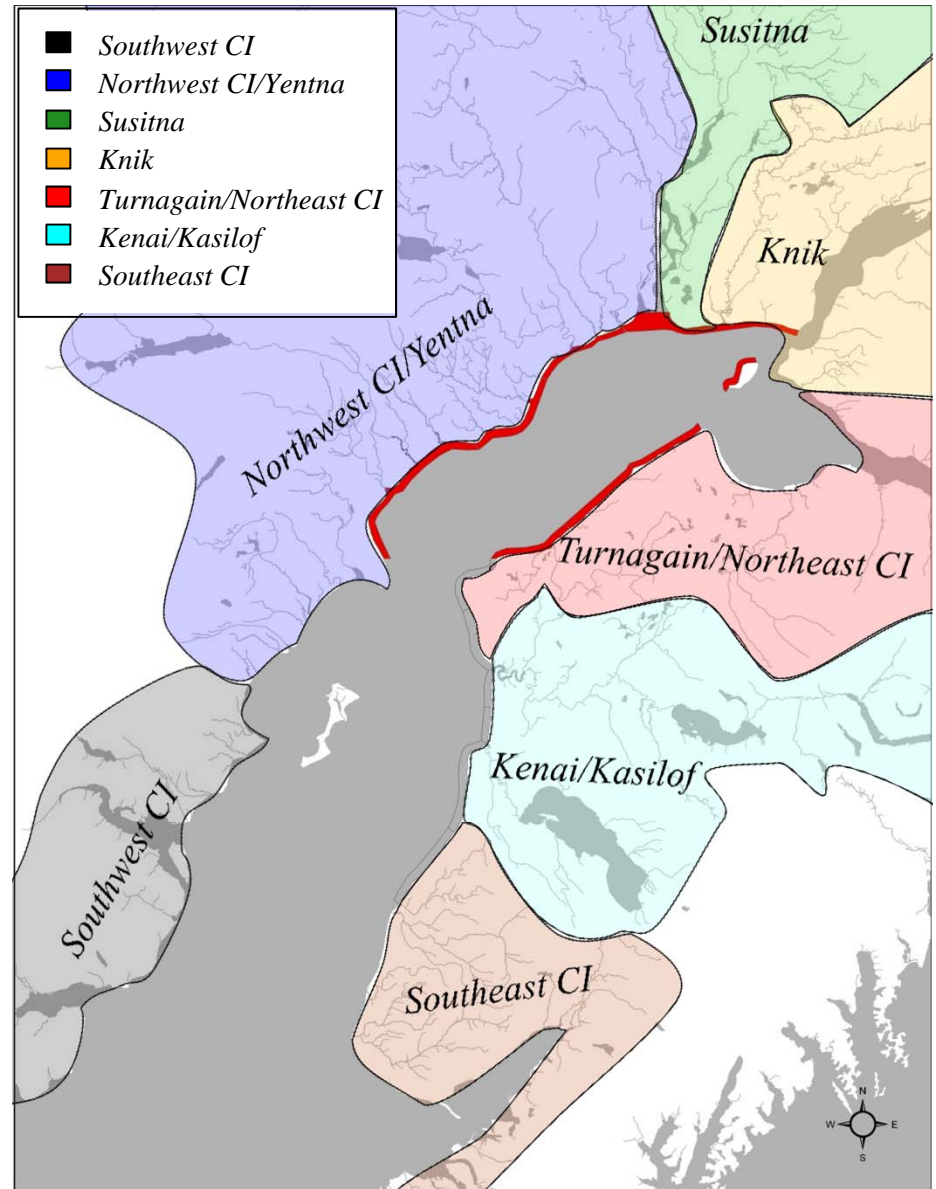


General Subdistrict (south)    General Subdistrict (North)    Eastern Subdistrict

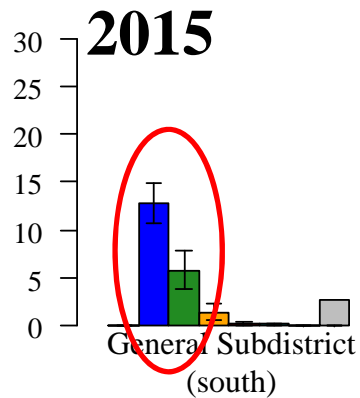
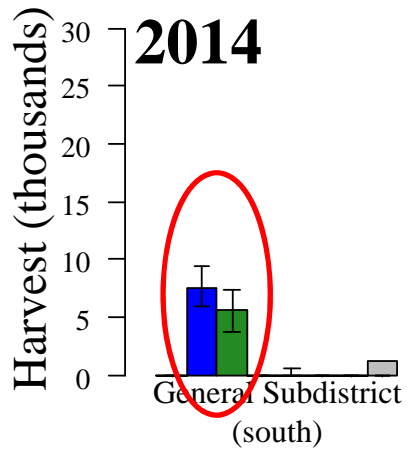
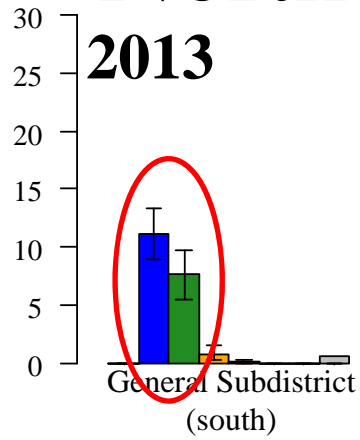
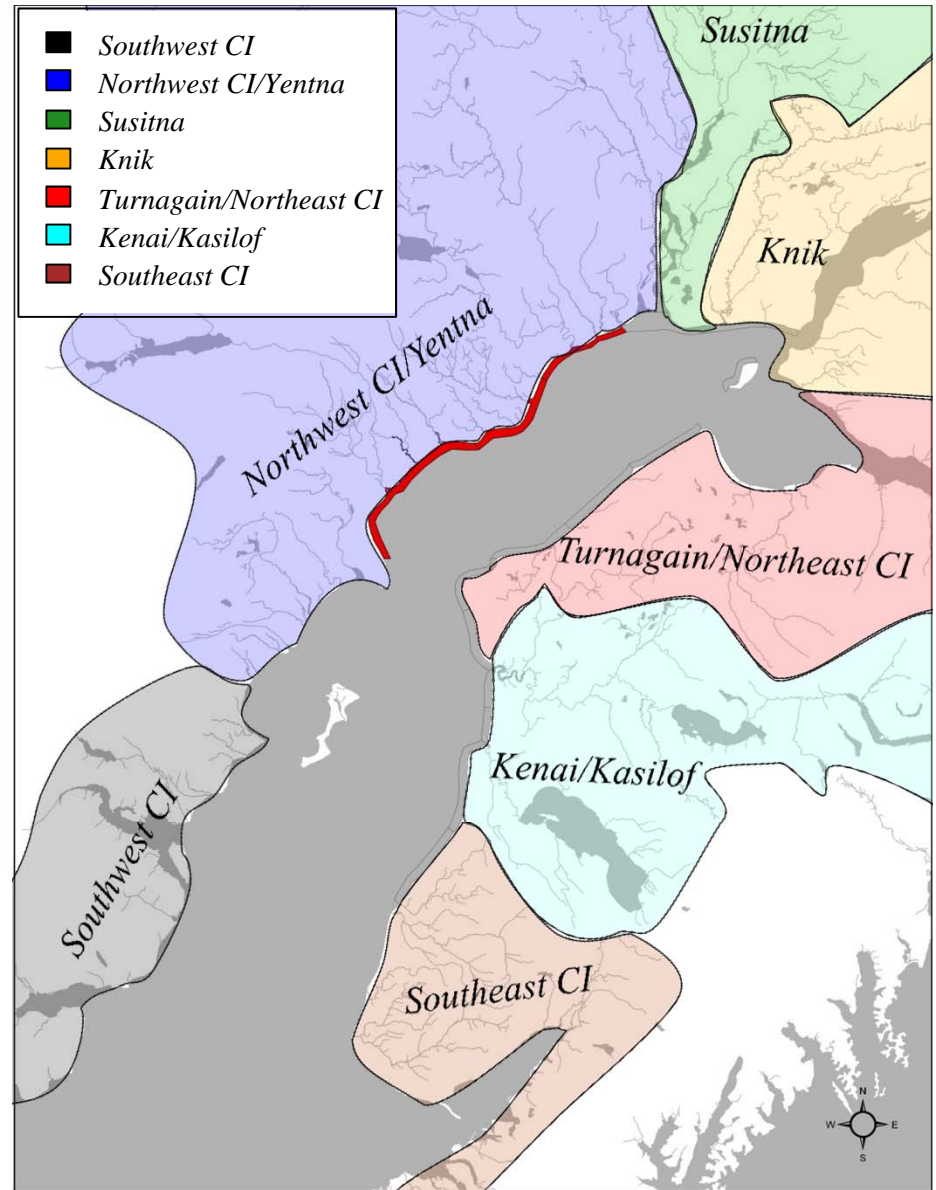
2015



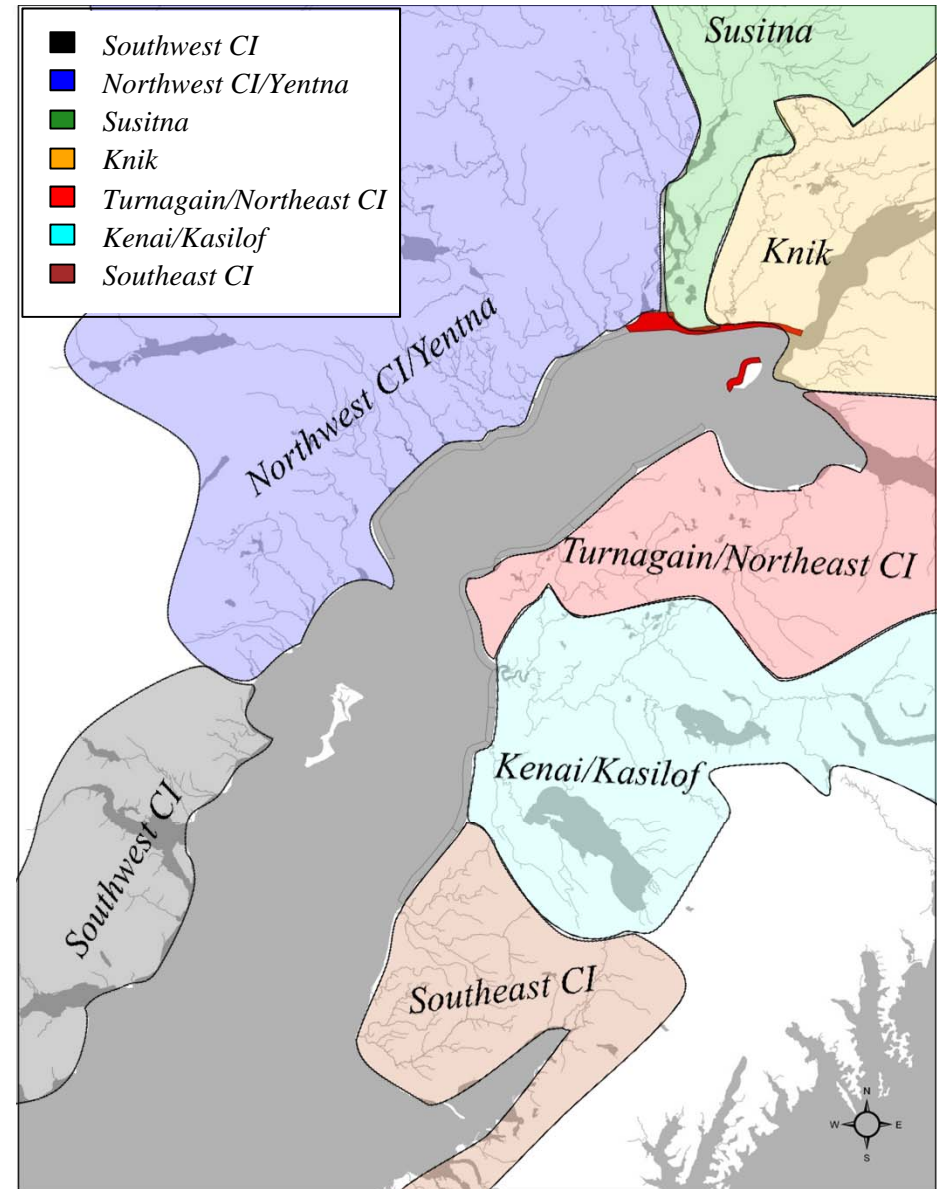
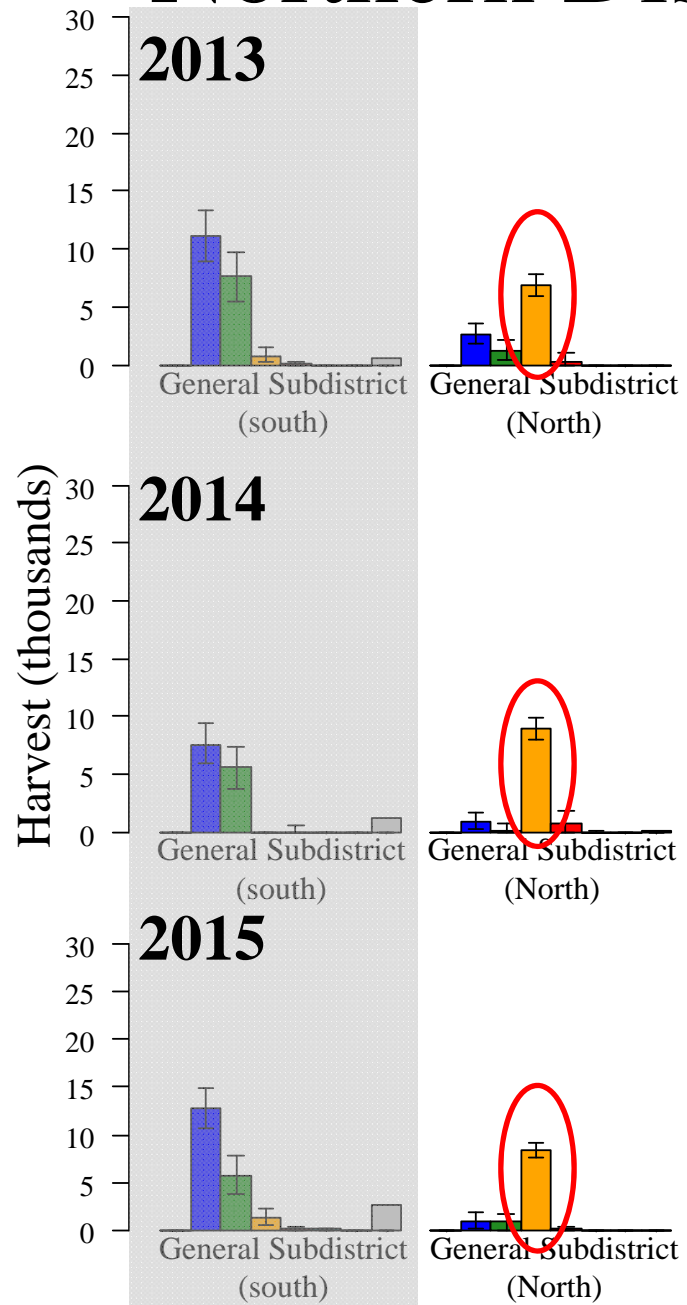
General Subdistrict (south)    General Subdistrict (North)    Eastern Subdistrict



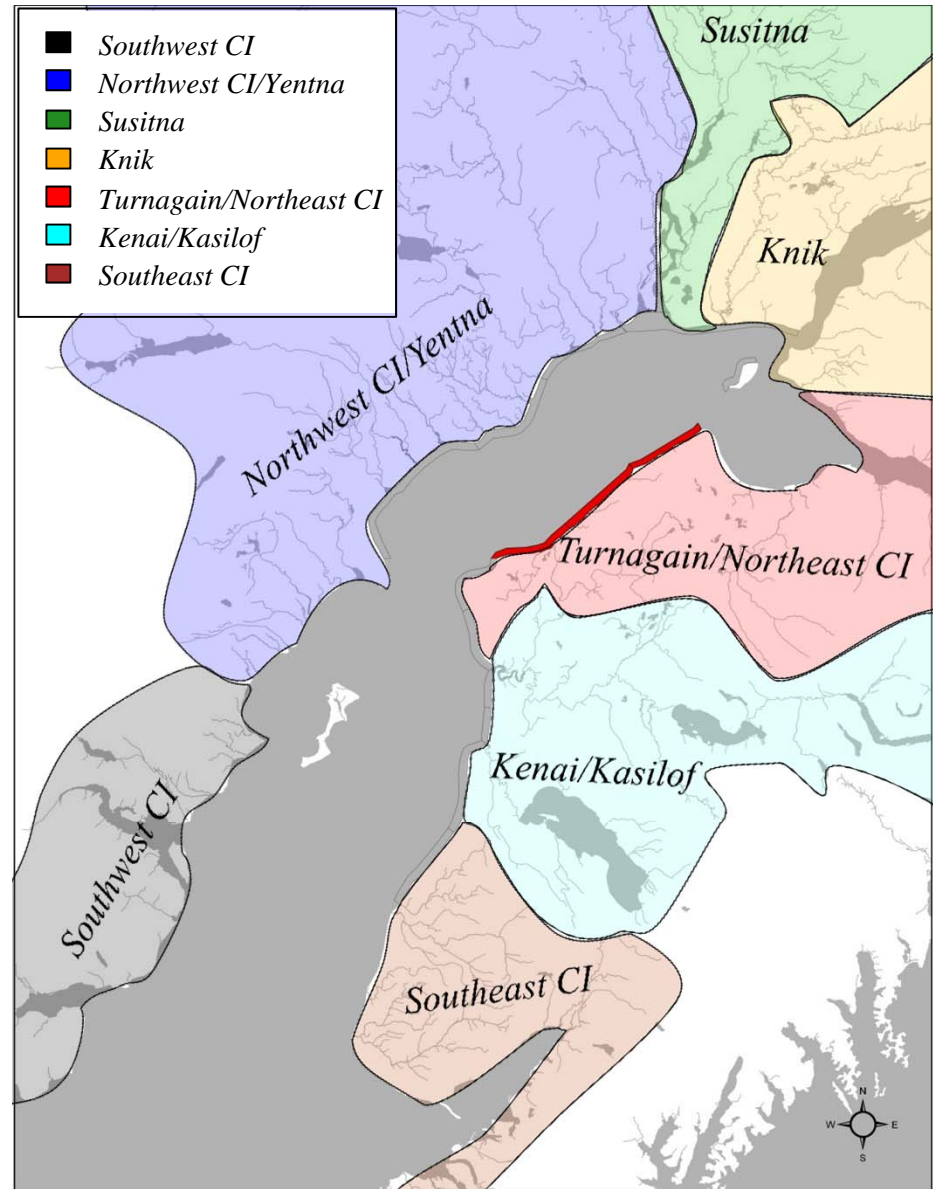
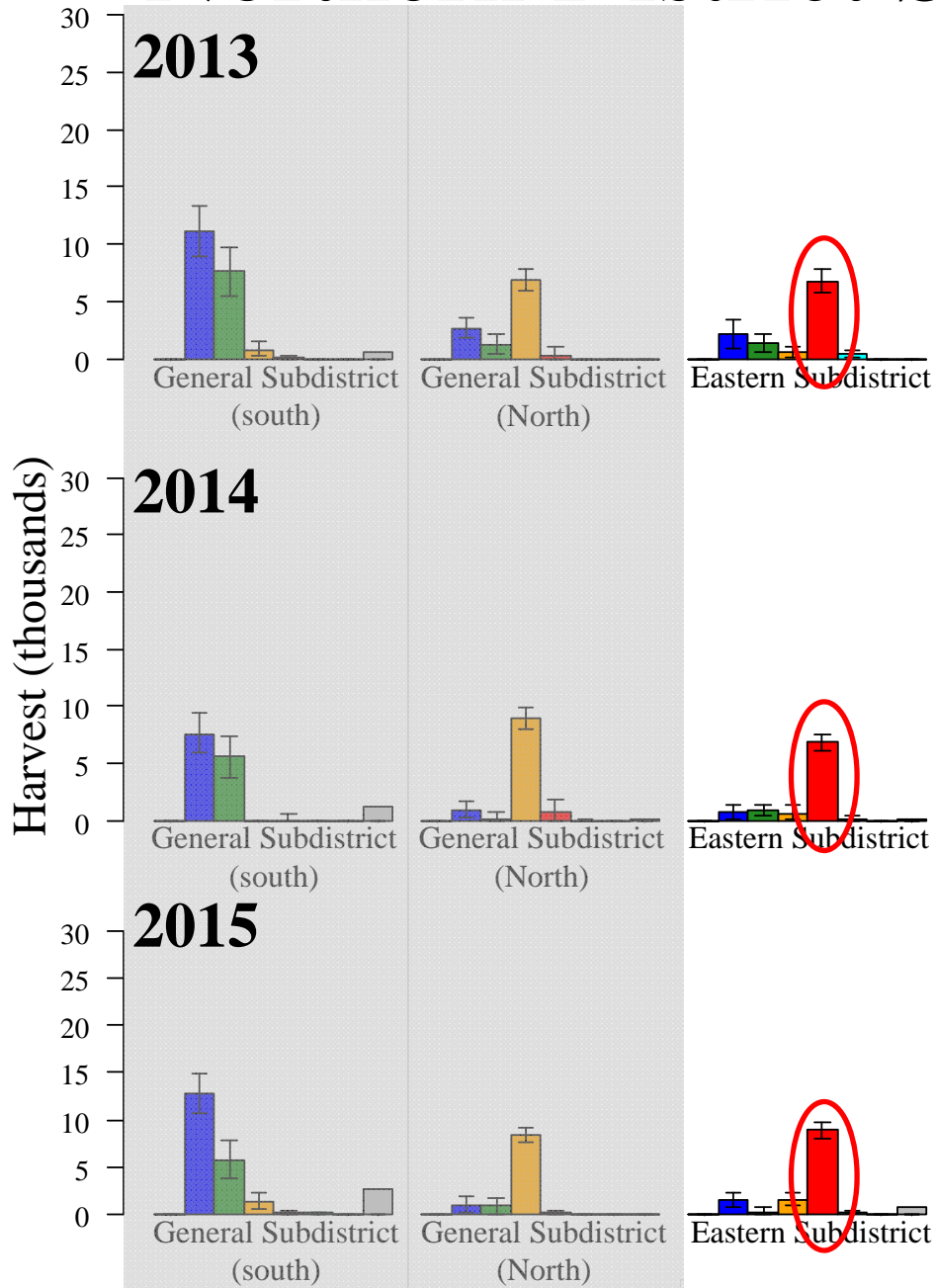
# Northern District Set Gillnet By Area



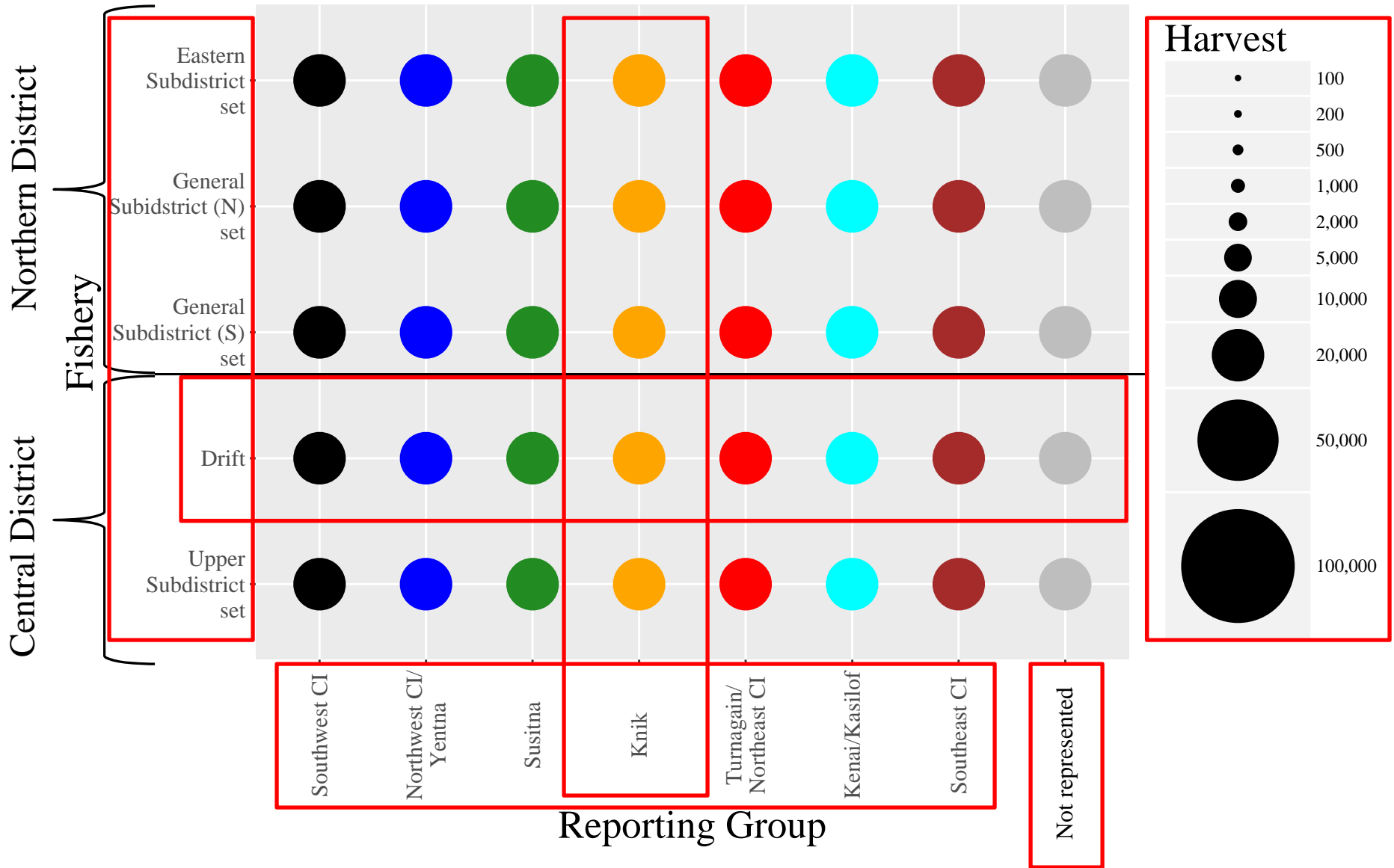
# Northern District Set Gillnet By Area



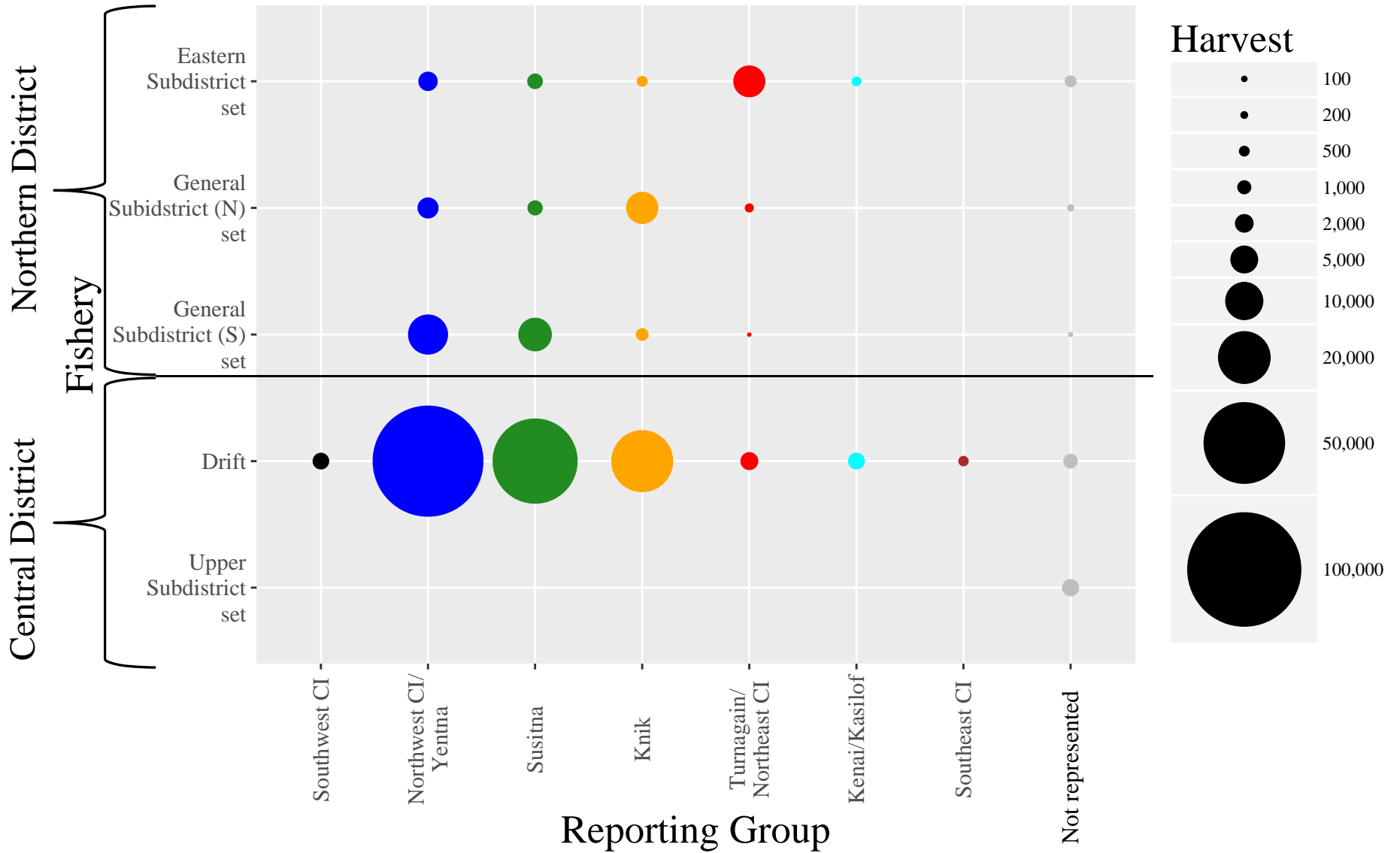
# Northern District Set Gillnet By Area



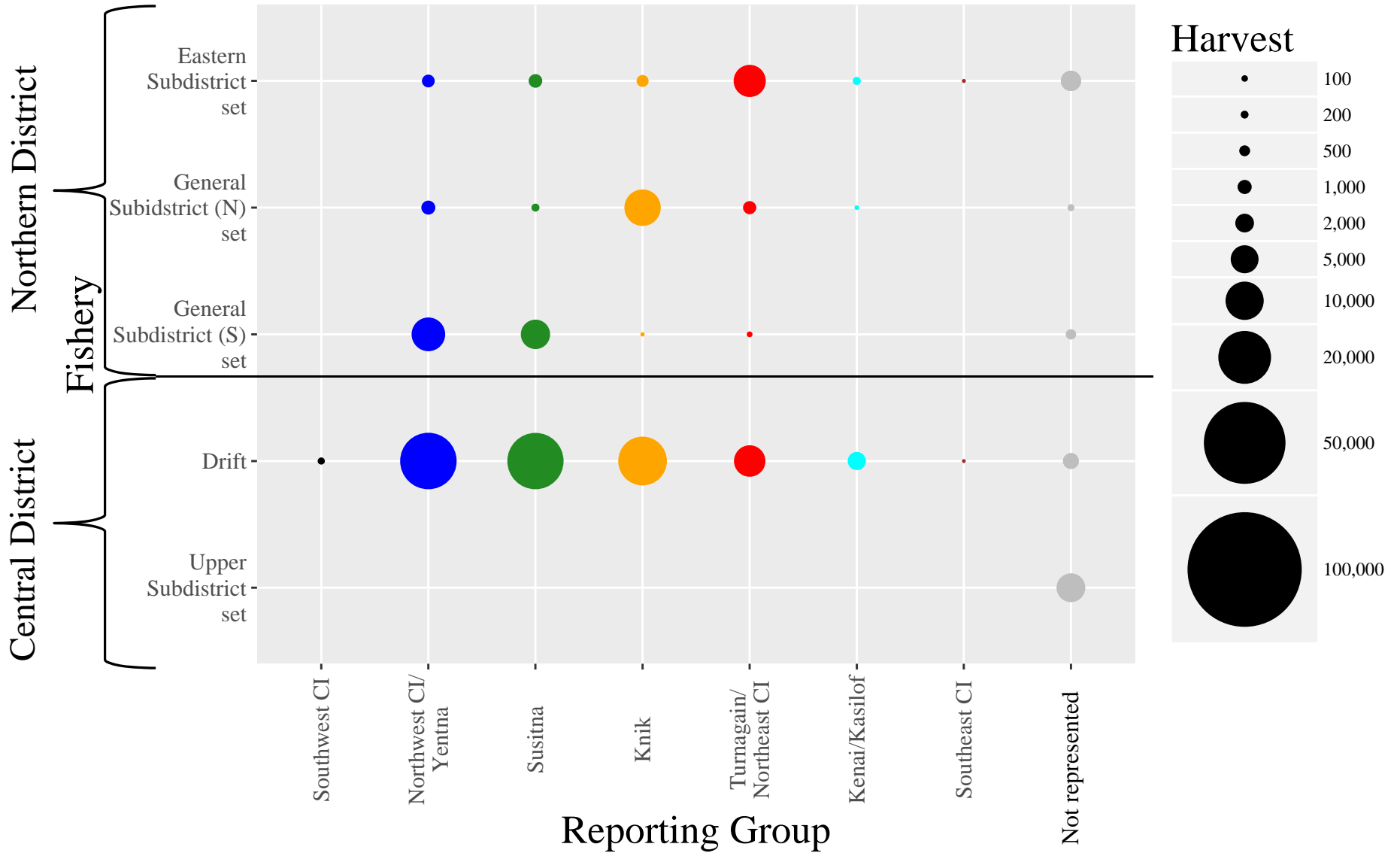
# Overall Commercial



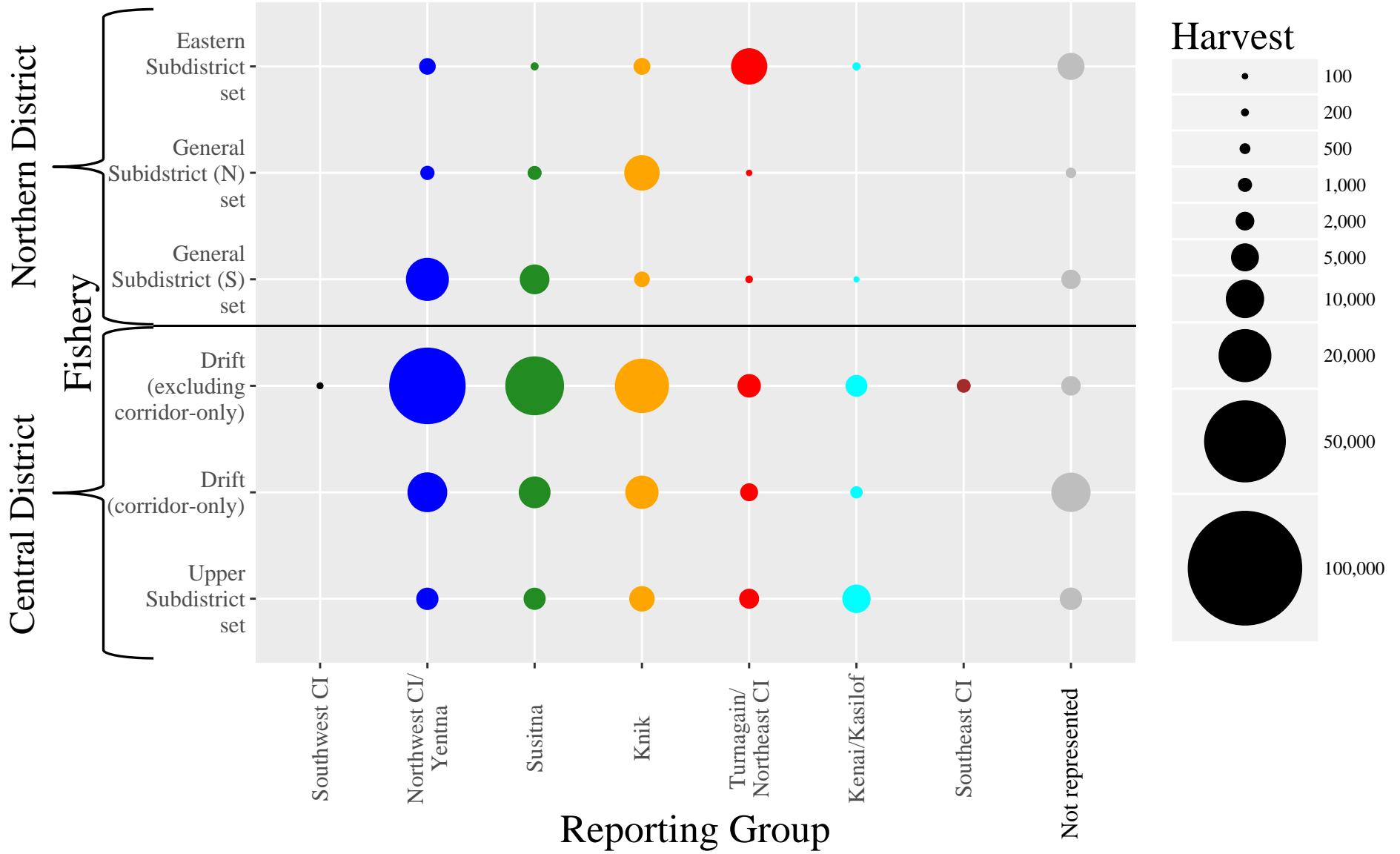
# 2013 Overall Commercial



# 2014 Overall Commercial

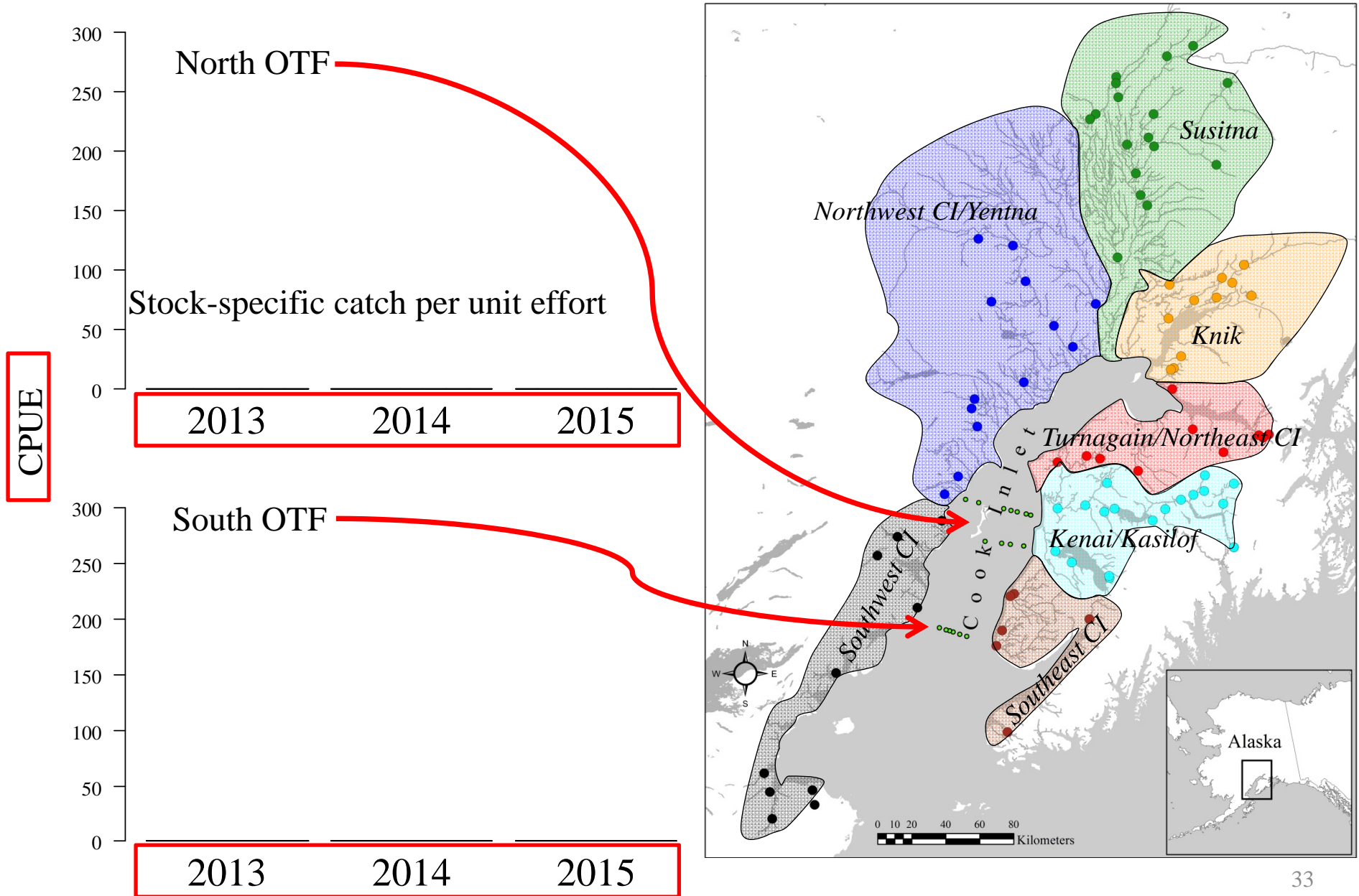


# 2015 Overall Commercial

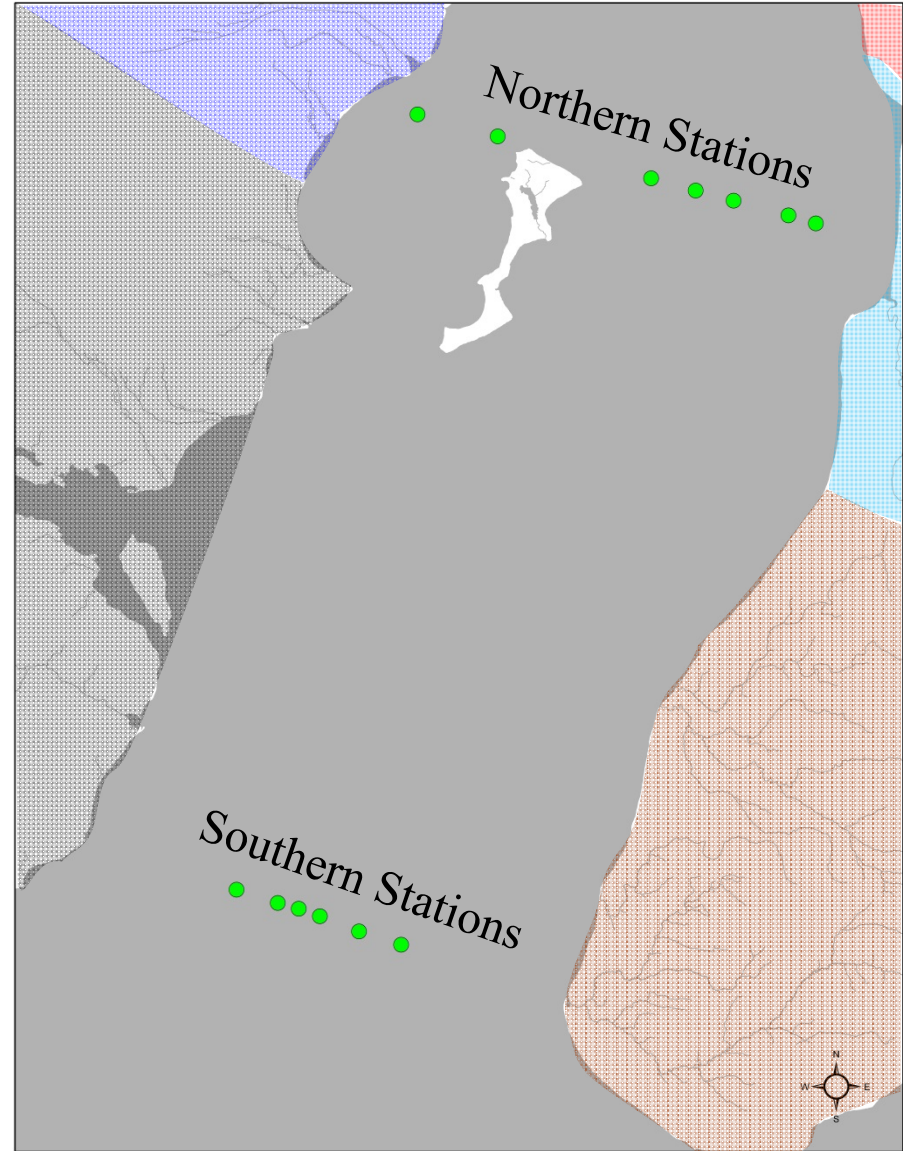
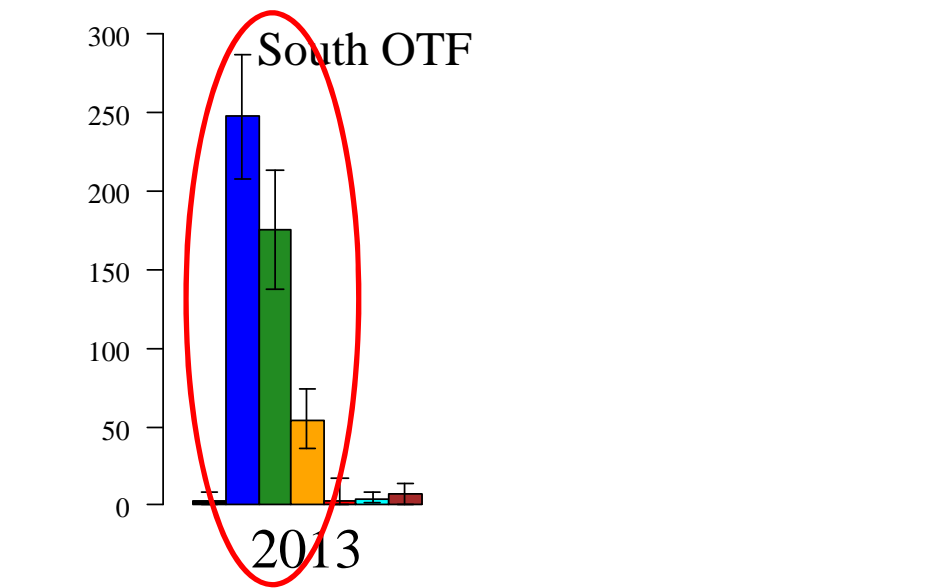
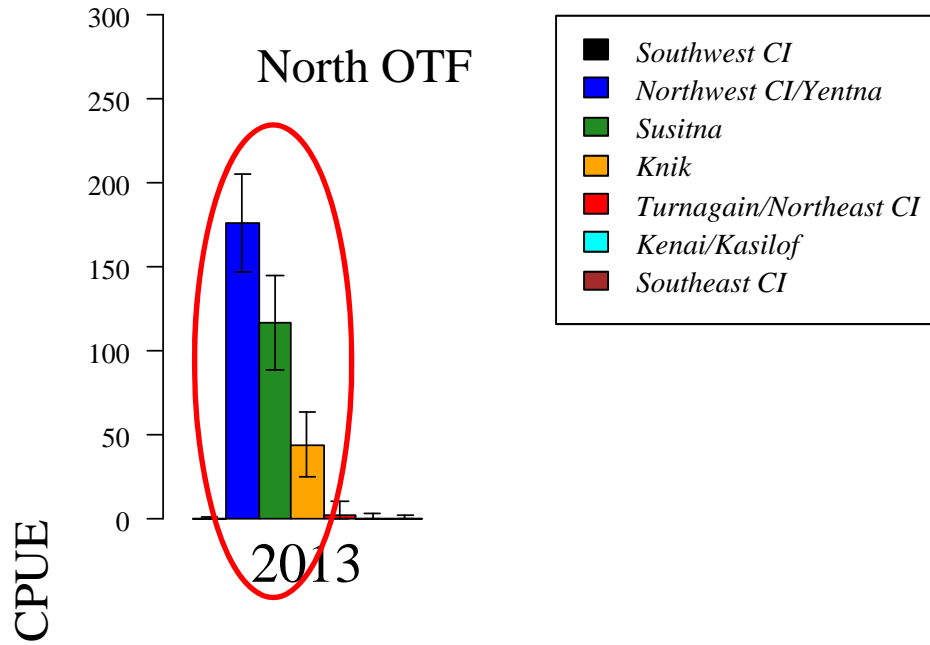




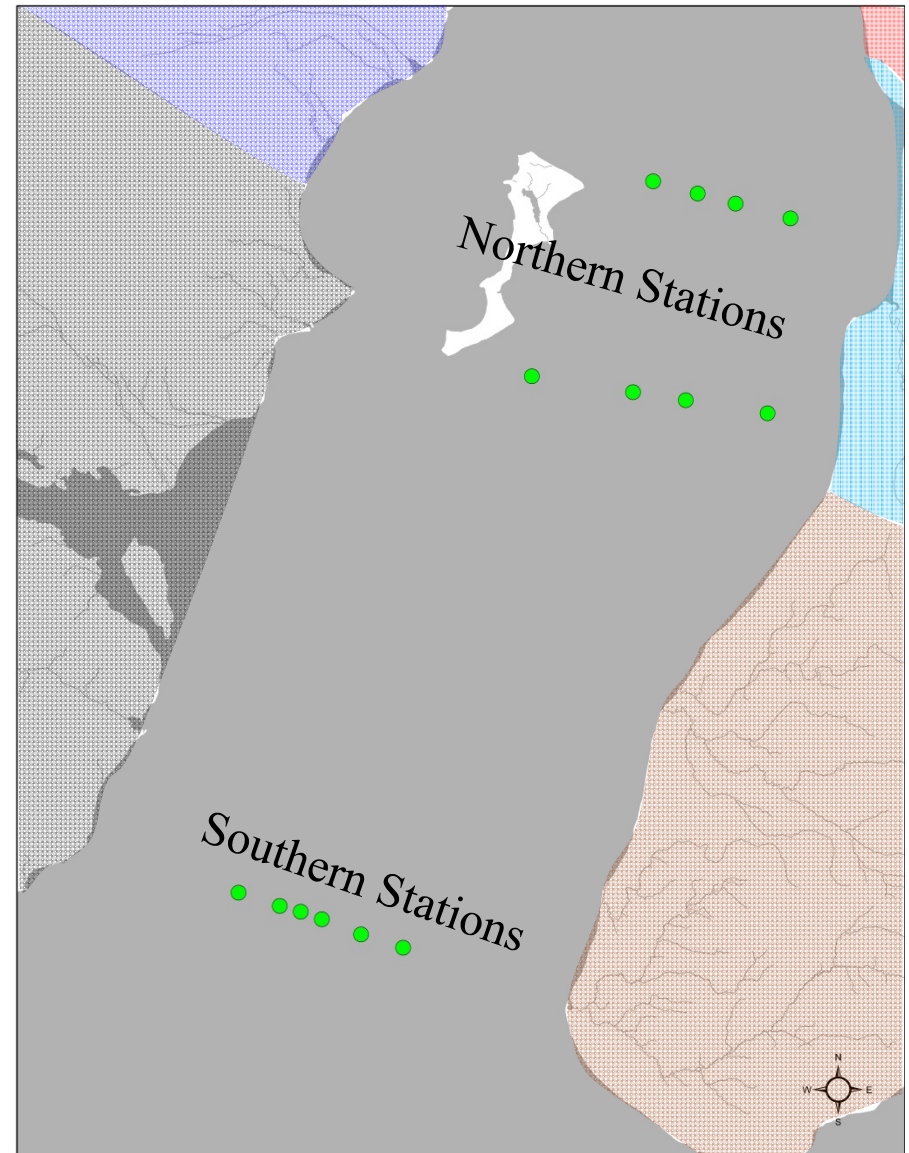
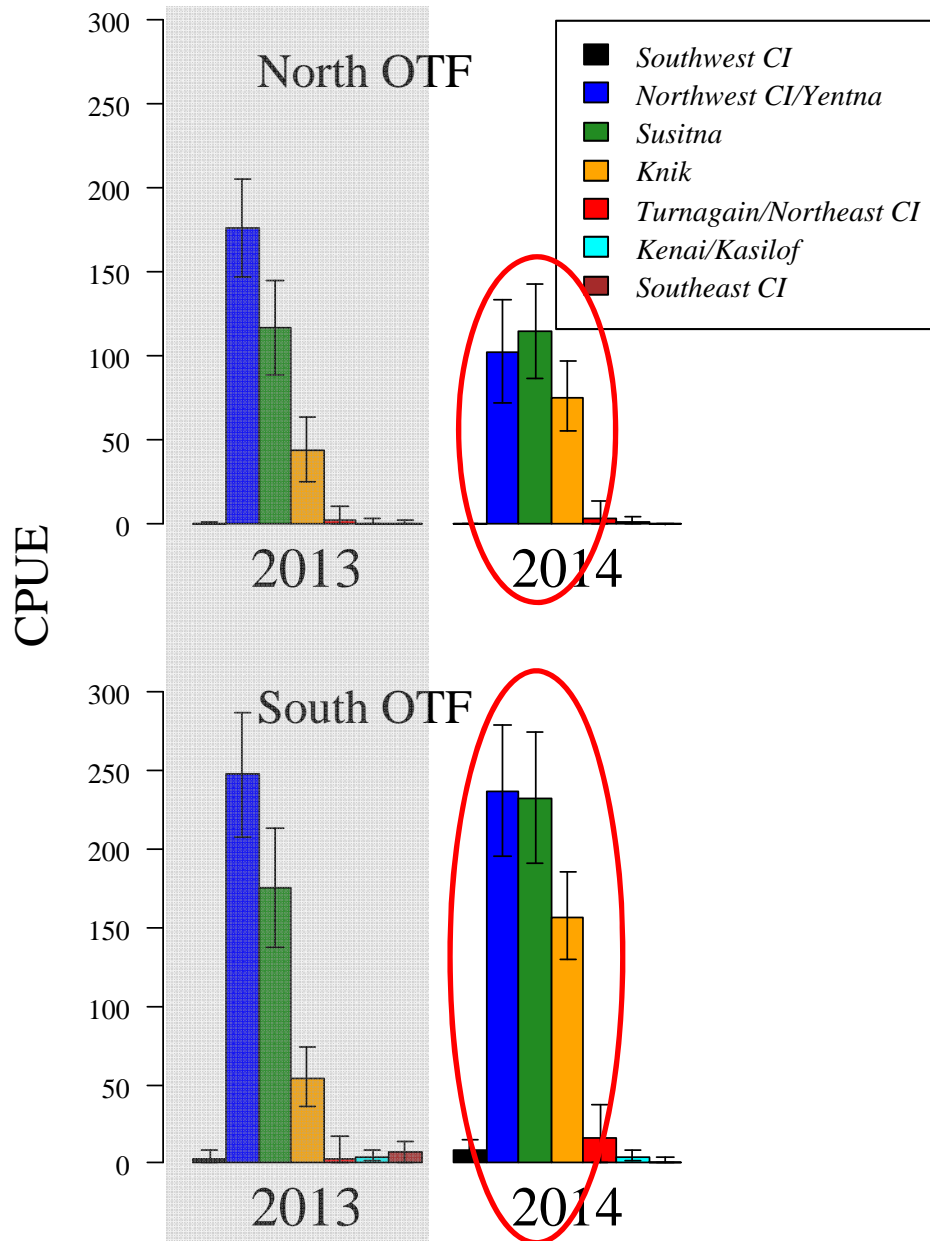
# Offshore Test Fish Results



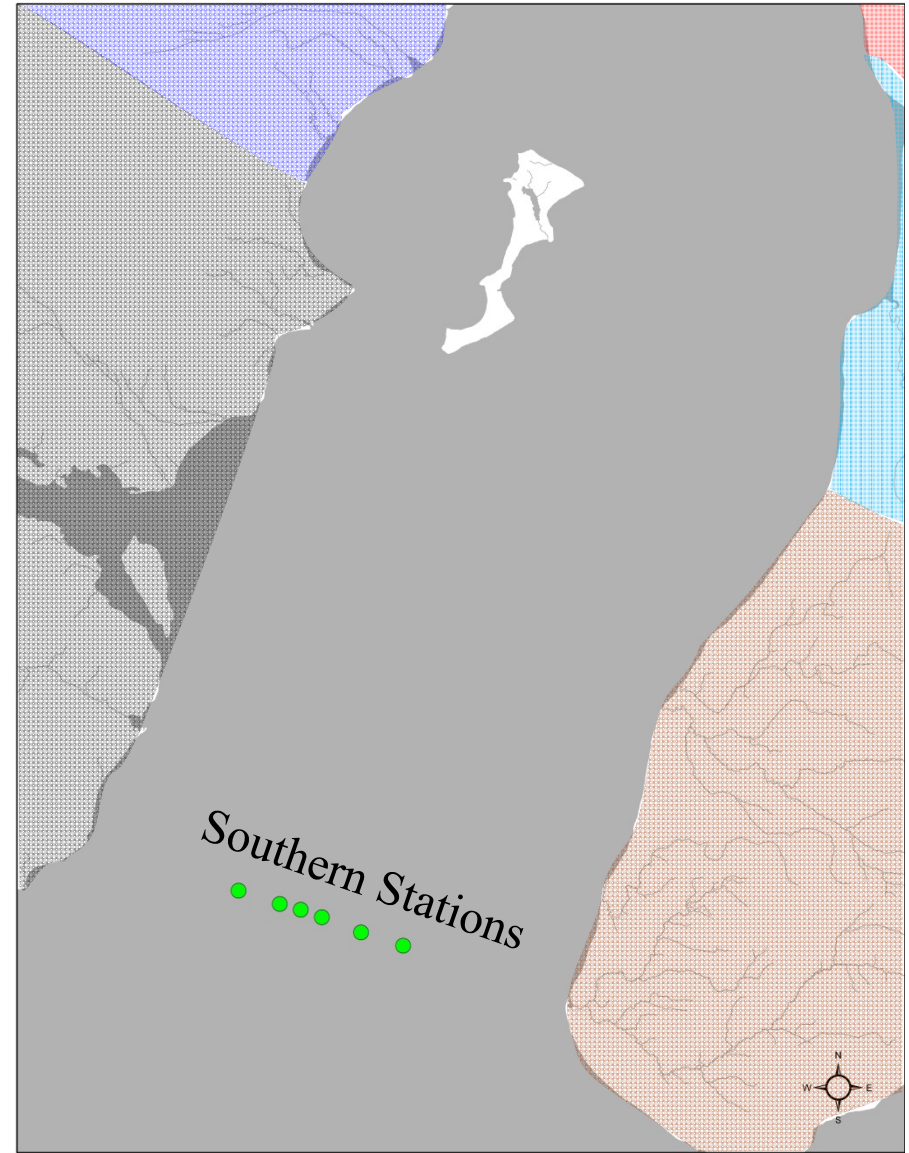
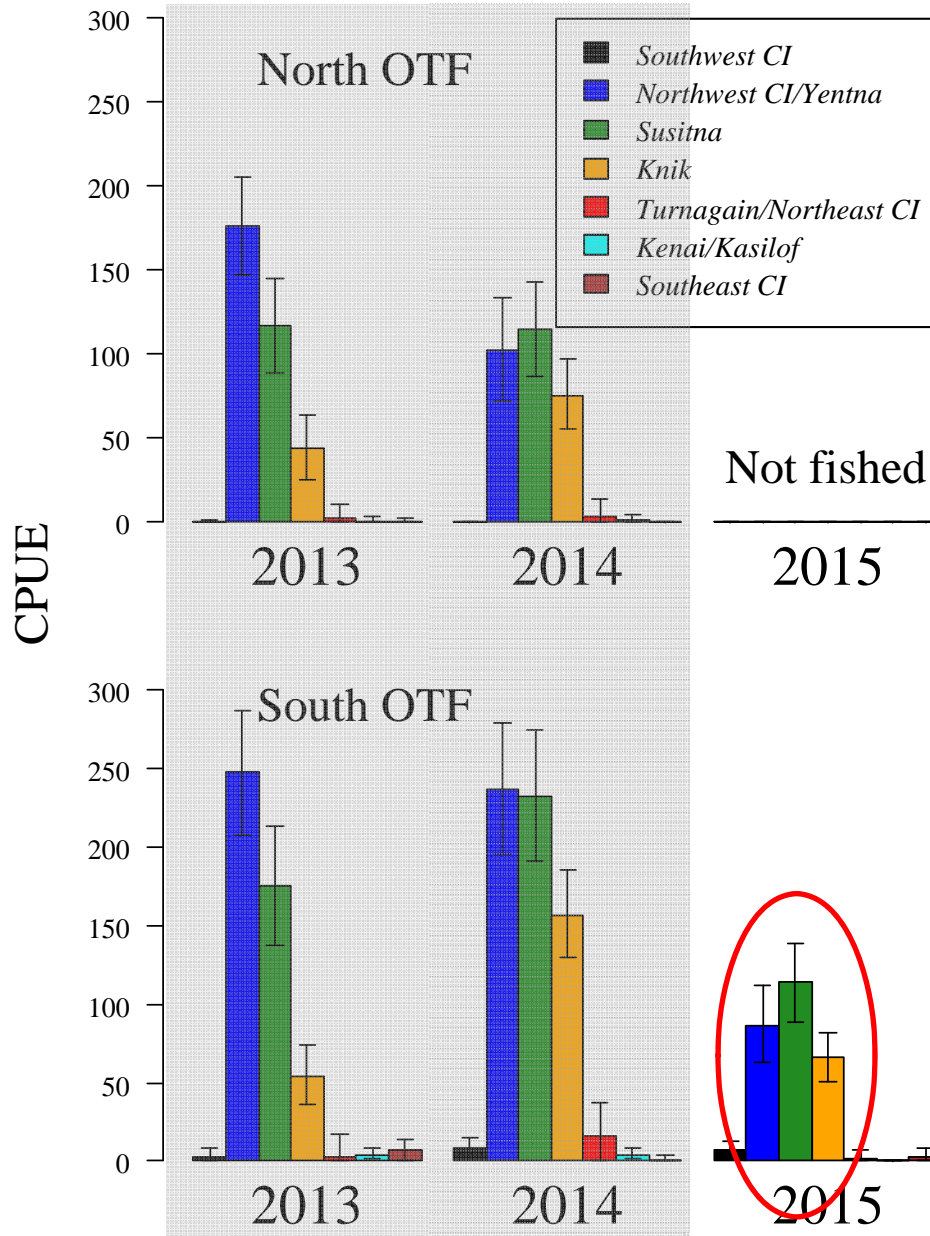
# Offshore Test Fish Results



# Offshore Test Fish Results



# Offshore Test Fish Results



# Interpreting Results

- First information of genetic stock composition of the harvest
- Inferences outside the study years
  - Stock abundance
  - Ocean conditions
  - Prosecution of fisheries

# Future Work

- Analyses
  - Matanuska Susitna Borough projects
    - 2016 commercial and southern OTF
    - Increase baseline
      - Test new reporting groups
- Reporting
  - This project: June 2017
  - Mat-Su Borough projects
    - 2016 commercial and southern OTF: Fall 2017
    - Baseline: June 2018

# Management Implications

1. Consistent spatial patterns of stock-specific coho salmon harvests in the Northern District will be useful for escapement goal management.

2.

Fishery	Mainstem Susitna Coho Harvest Rates		
	2013	2014	2015
Central District drift gillnet	28%	20%	16%
Northern District set gillnet	5%	6%	2%
Upper Subdistrict set gillnet	-	-	2%
Inriver sport	8%	12%	8%
Overall	41%	38%	28%

3.

Brood Year	Mainstem Susitna Coho Productivity	
	2010	2011
Spawner Abundance	55,000	122,000
Adult Return	115,000	194,000
Return per Spawner	2.1	1.6

# Acknowledgements

- Samplers:
  - Alicia O'Brien, Carrie Coombes, Cory Carver, Gabrielle Bragg, Heidi Westerman, Jared Tovoli, Jenna Hansen, Jerry Strait, Kayleen Hansen, Kelsey Shields, Molly Fenton, Natalie Kress, Rhonda McGrady, Rustin Hitchcock, Sadie Fox, Sebastian Strickland, Wendy Gist, and Winona Rich.
- Gene Conservation Lab Staff:
  - Heather Hoyt, Eric Lardizabal, Judy Berger, Zach Pechacek, Christy Elmaleh, Heather Liller, Zac Grauvogel, Paul Kuriscak, and Wei Cheng.



# Questions?

