



Kelp Management



Marine Resources Committee Meeting
November 5, 2014
Rebecca Flores Miller
California Department of Fish and Wildlife

Photo Credit: Daniel Gotshall



Purpose

- Update on revisions to kelp harvest regulations
- Provide two case studies:
 - kelp harvest plans for mechanical harvest of giant kelp
 - new kelp bed lease proposals
- Highlight management challenges
- Provide recommendations
- Receive Marine Resources Committee (MRC) guidance on management challenges



Three-phase Approach

Phase One: *Kelp*

- Implemented April 1, 2014
- Revised harvest plan requirements
- Requires Commission-approved harvest plan

Phase Two: *Kelp and edible seaweed*

- License fees
- Royalty rates

Phase Three: *Kelp and edible seaweed*

- Management policies
- Harvest methods



Kelp Harvest Plans

- Phase One requires Commission approval of kelp harvest plans
- Case study comparing two proposed kelp harvest plans received from:
 - The Abalone Farm, Inc.
 - Natural Sciences, LLC



Photo Credit: M. Winscher



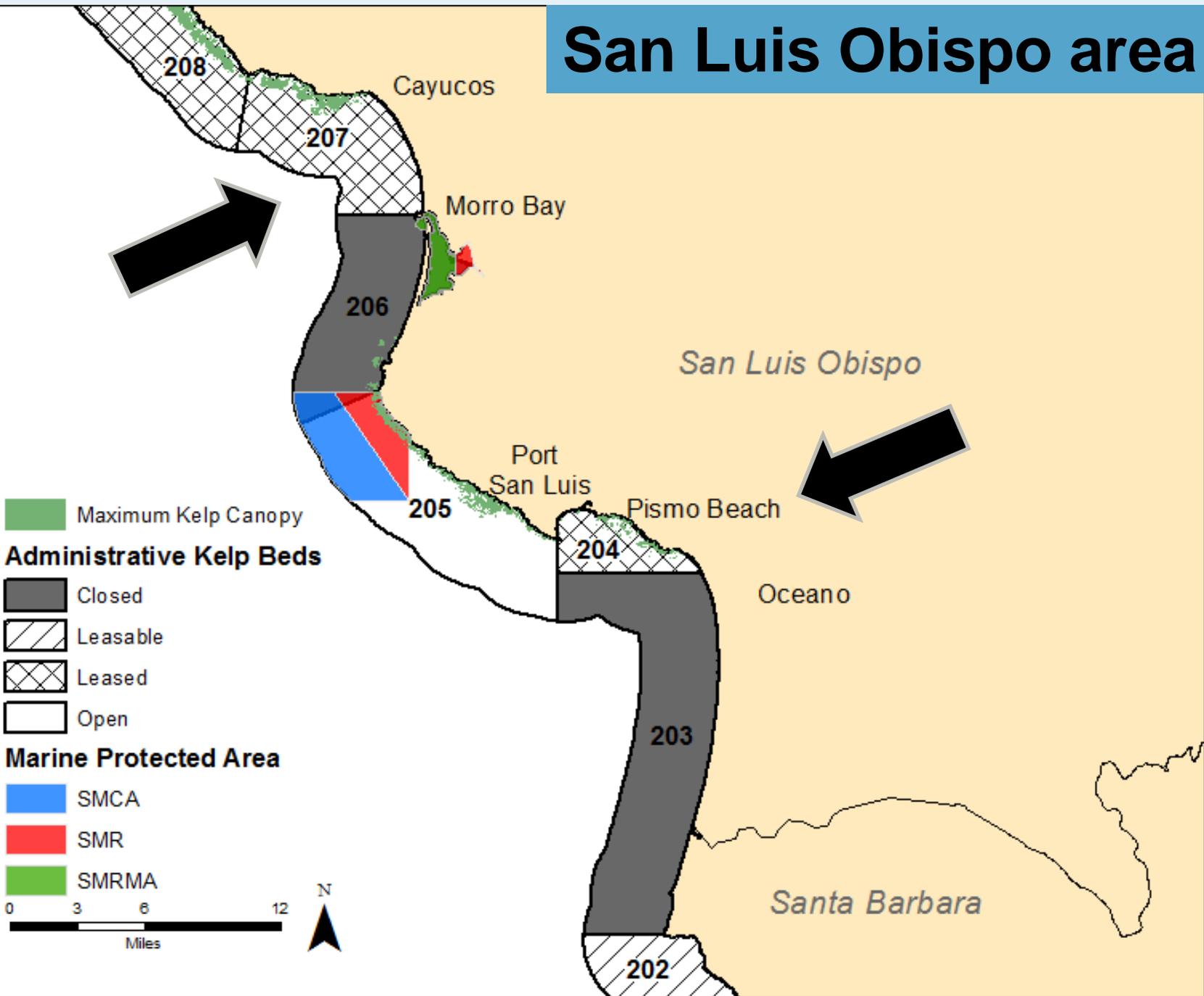
Harvest Overview

The Abalone Farm, Inc.

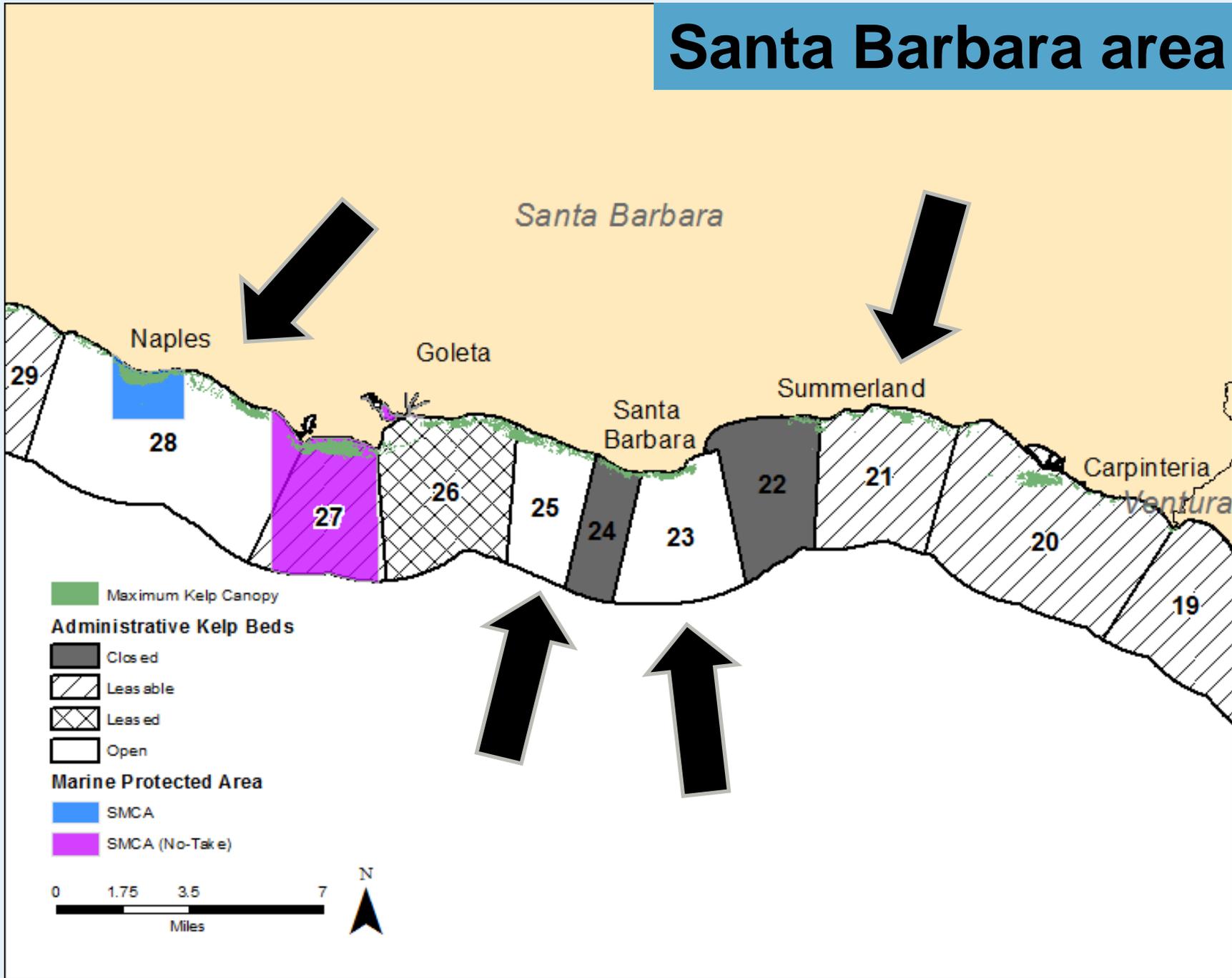
Proposed Use: food for cultured abalone

Bed	Status	Last Year Harvested
204	Leased	2014
207	Leased	2014
20	Leasable	2014
21	Leasable	2014
23	Open	2013
25	Open	2014
28	Open	2013

San Luis Obispo area



Santa Barbara area





Kelp Harvest Plans

The Abalone Farm, Inc.

Bed	Status	Proposed Annual Harvest (wt)	Average Annual Harvest (wt)	Above Average Harvest Levels (wt)	
			1987-2013	increase	(wt)
204	Leased	610	488	25%	122
207	Leased	1,450	1,071	35%	379
20	Leaseable	159	147	8%	12
21	Leaseable	108	144	0	0
23	Open	20	38	0	0
25	Open	286	256	12%	30
28	Open	163	542	0	0

wet tons (wt)



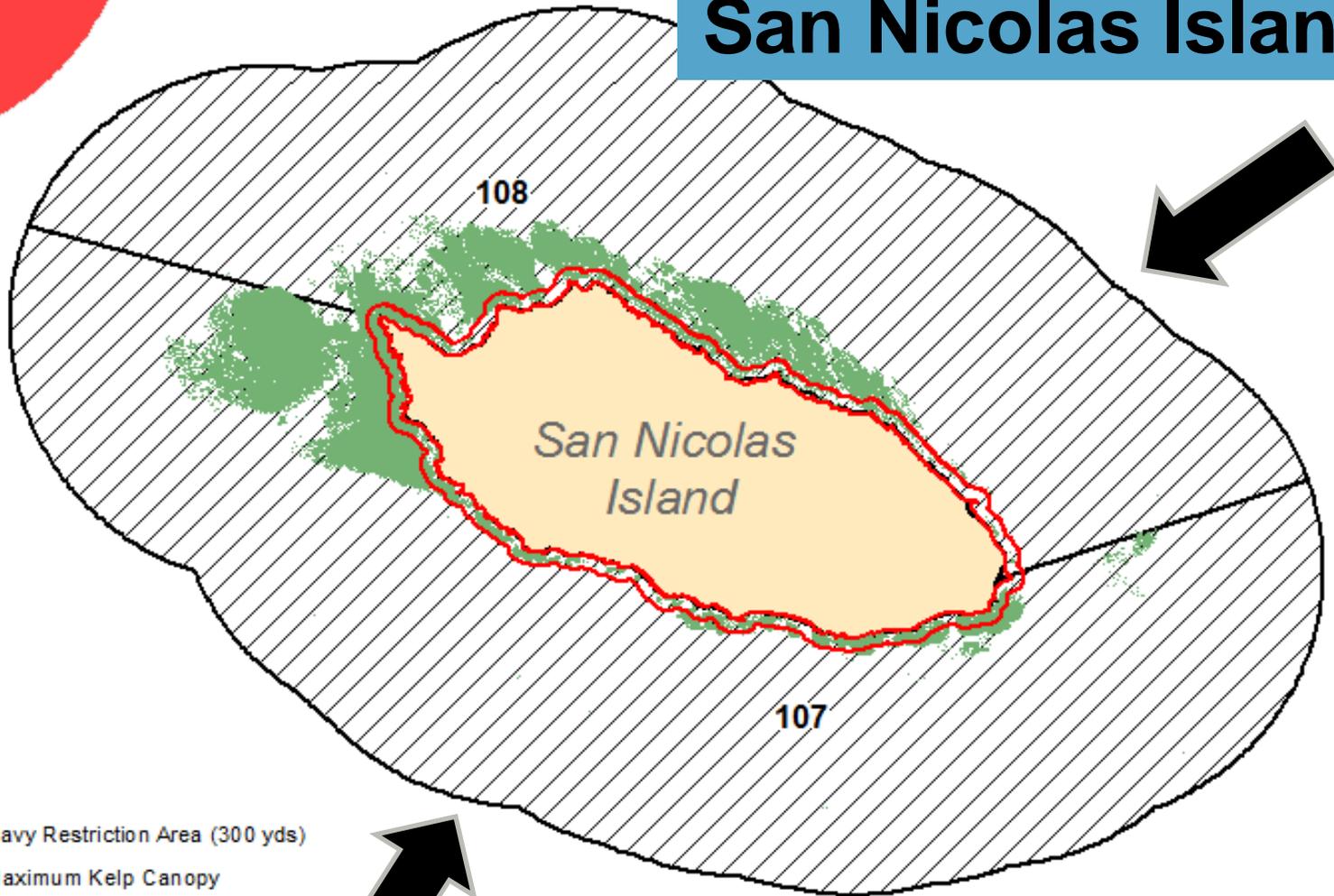
Harvest Overview

Natural Sciences, LLC

Proposed Uses: Dry kelp for alginate extraction and residue from extraction utilized as an absorbent

Bed	Status	Last Year Harvested
107	Leasable	2005
108	Leasable	2005
102	Leasable	2005
103	Leasable	2005
101	Open	2005
1	Open	1994
2	Open	2012
7	Open	2004
8	Open	2005

San Nicolas Island



 Navy Restriction Area (300 yds)

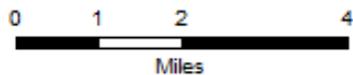
 Maximum Kelp Canopy

Administrative Kelp Beds

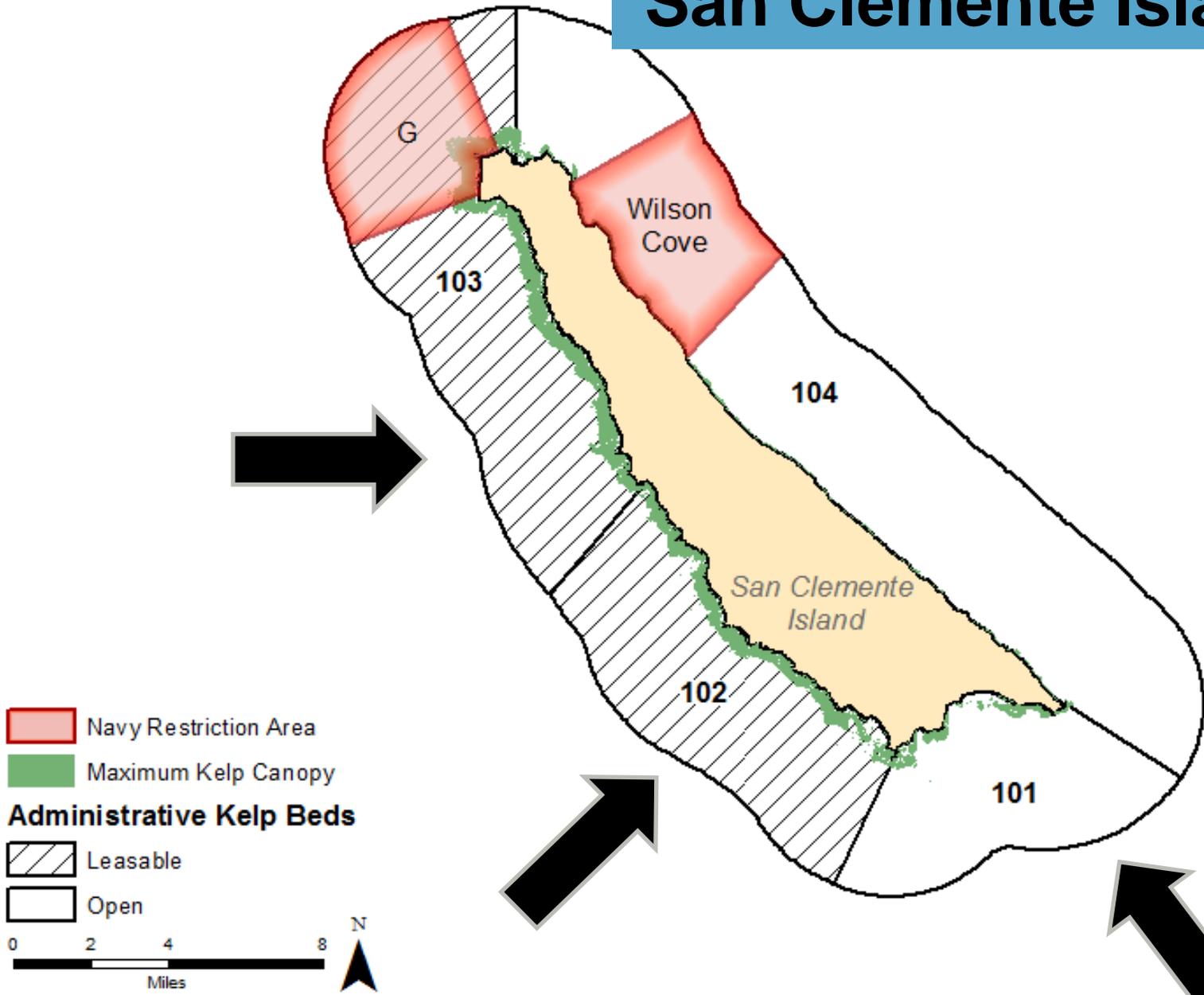
 Leasable

Marine Protected Area

 SMR



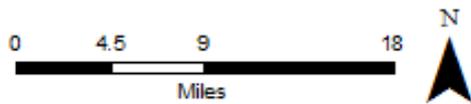
San Clemente Island



-  Navy Restriction Area
 -  Maximum Kelp Canopy
 - Administrative Kelp Beds**
 -  Leasable
 -  Open
- 0 2 4 8
Miles
- N

San Diego area

- Maximum Kelp Canopy
- Administrative Kelp Beds**
 - Leasable
 - Leased
 - Open
- Marine Protected Area**
 - SMCA
 - SMCA (No-Take)
 - SMR





Kelp Harvest Plans Natural Sciences, LLC

San Nicolas and San Clemente Islands

Bed	Status	Proposed Annual Harvest (wt)		Average Annual Harvest (wt)	Above Average Harvest Levels (wt)	
		Year 1	Years 2-5	1987-2013	Years 2-5	
					increase	(wt)
107	Leasable	1,000	1,300	1,848	0	0
108	Leasable	4,000	8,500	5,137	65%	3,363
102	Leasable	3,000	5,500	7,259	0	0
103	Leasable	3,000	6,700	10,229	0	0
101	Open	1,000	2,000	361	6x	1,639

wet tons (wt)



Kelp Harvest Plans

Natural Sciences, LLC, contd.

Mainland

Bed	Status	Proposed Annual Harvest (wt)		Average Annual Harvest (wt)	Above Average Harvest Levels (wt)	
		Year 1	Years 2-5	1987-2013	Years 2-5	
					increase	(wt)
1	Open	1,000	2,000	879	127%	1,121
2	Open	1,000	2,000	510	4x	1,490
7	Open	1,000	2,000	824	142%	1,176
8	Open	1,000	2,000	692	3x	1,308

wet tons (wt)



Summary for Case Studies

1. **The Abalone Farm, Inc.** – cultured abalone
 - Challenges
 - Restricted areas
 - Recommendation – likely recommend approval
2. **Natural Sciences, LLC** – alginate extraction
 - Challenges
 - No recent harvest data
 - Level of historic harvest
 - Restricted areas
 - Comparison with similar canopies
 - May allow for proxy of potential harvest
 - Recommendation – no recommendation at this time



Summary and Next Steps

Summary

- Update on revisions to kelp harvest regulations
- Provided case studies of kelp harvest plans and new kelp bed lease proposals
- Management challenges
- Recommendations

Next Steps

- Discussion and guidance from the MRC



Thank You

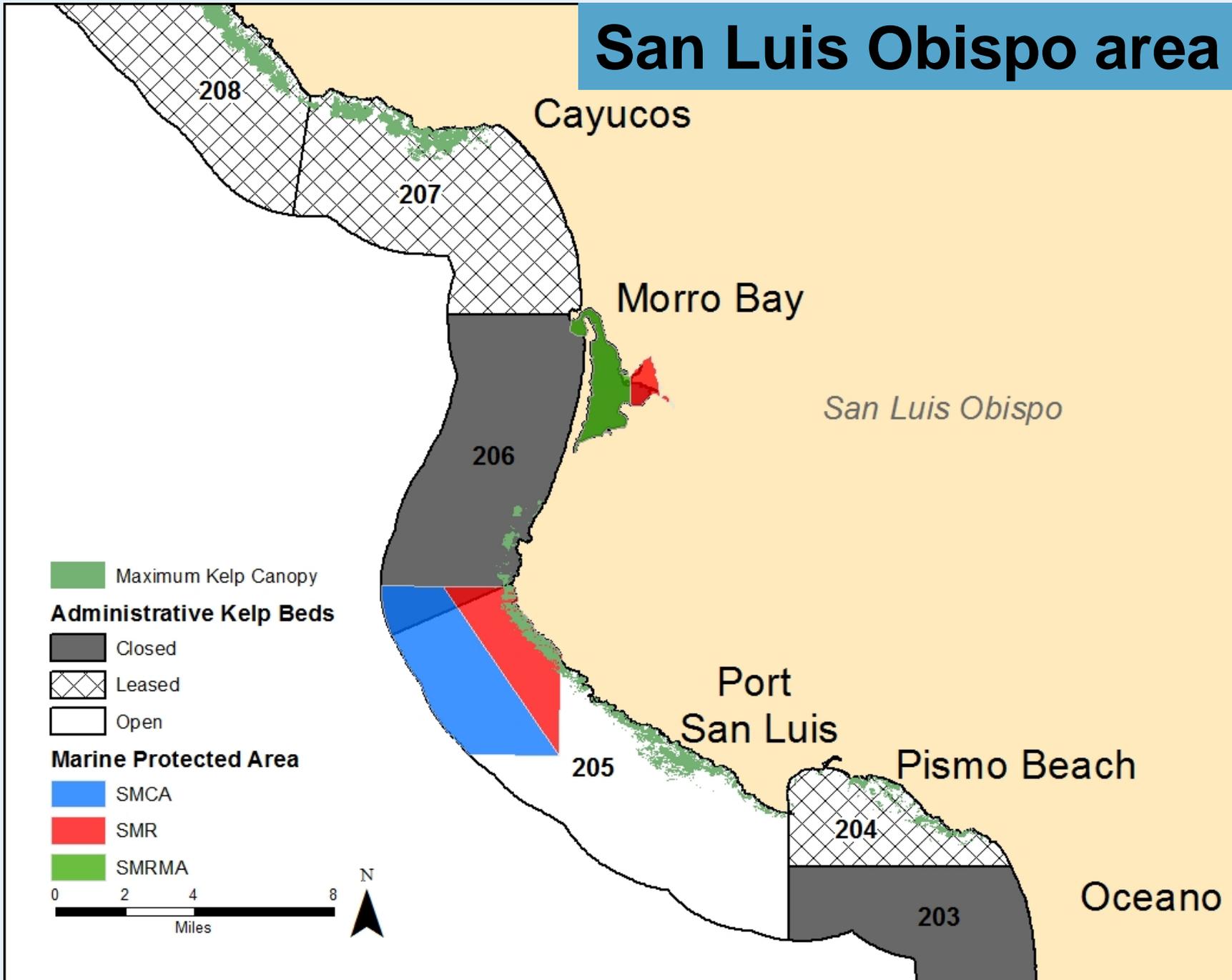


Questions?

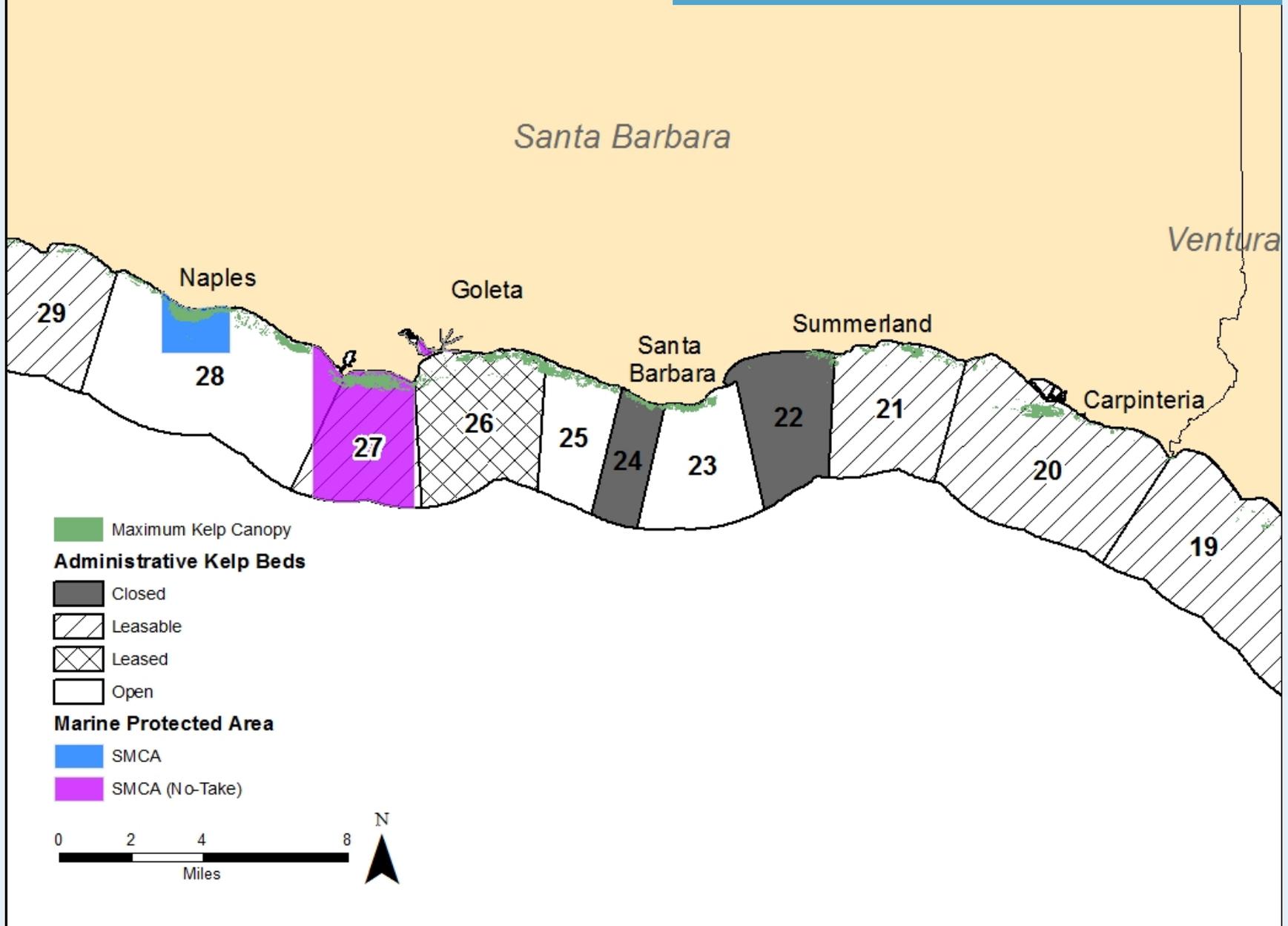
**Rebecca Flores Miller
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Marine Region
831-649-2835**

Photo Credit: M. Winscher

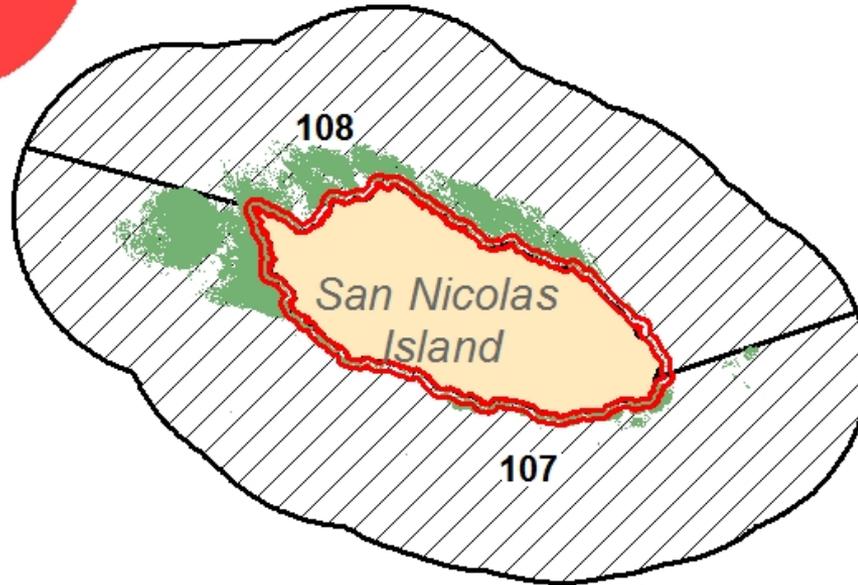
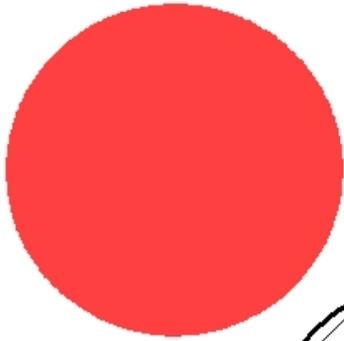
San Luis Obispo area



Santa Barbara area



San Nicolas Island



 Navy Restriction Area (300 yds)

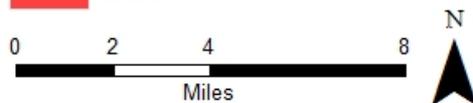
 Maximum Kelp Canopy

Administrative Kelp Beds

 Leasable

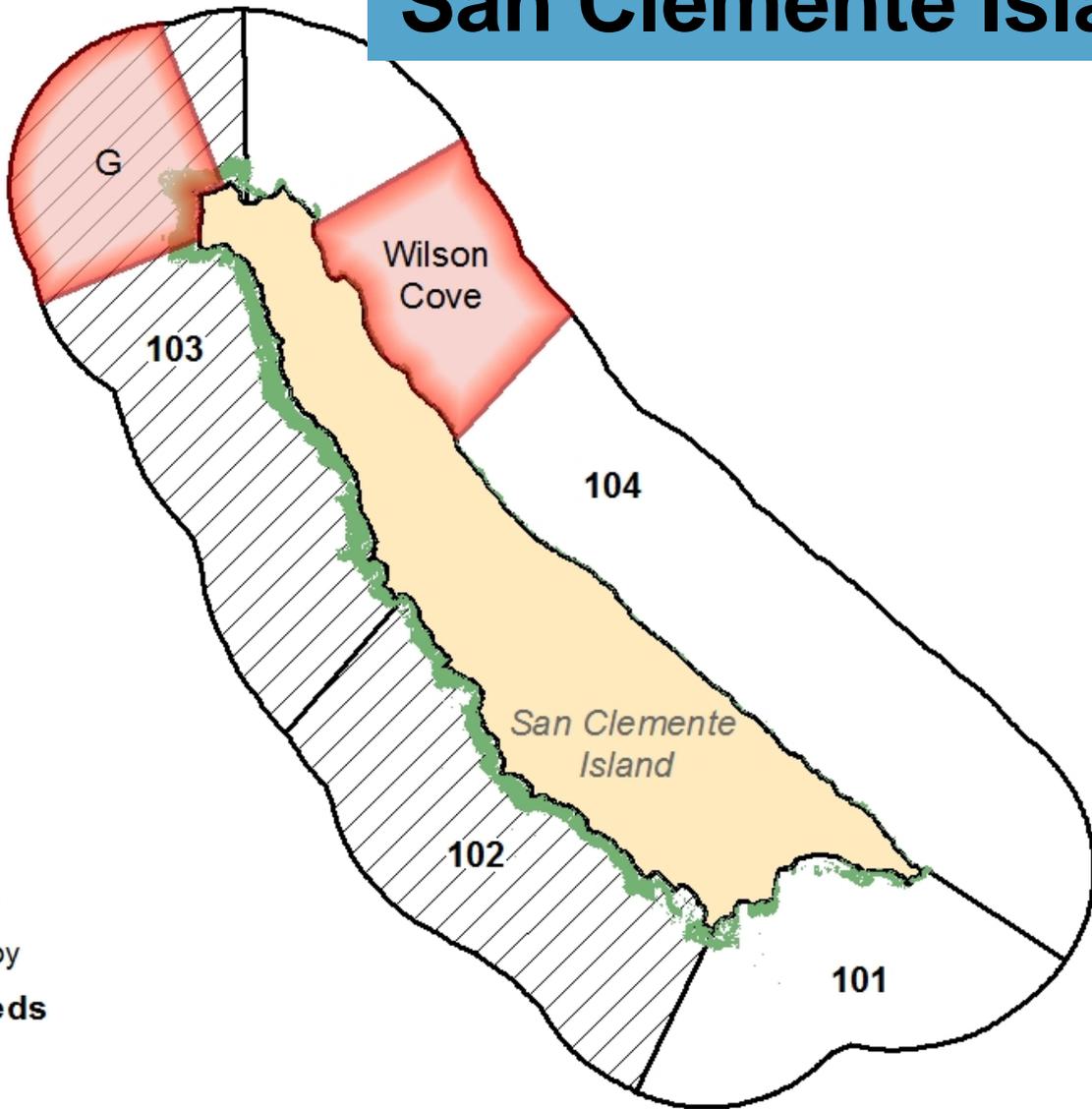
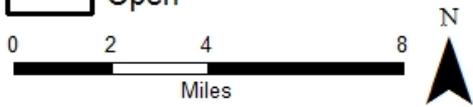
Marine Protected Area

 SMR

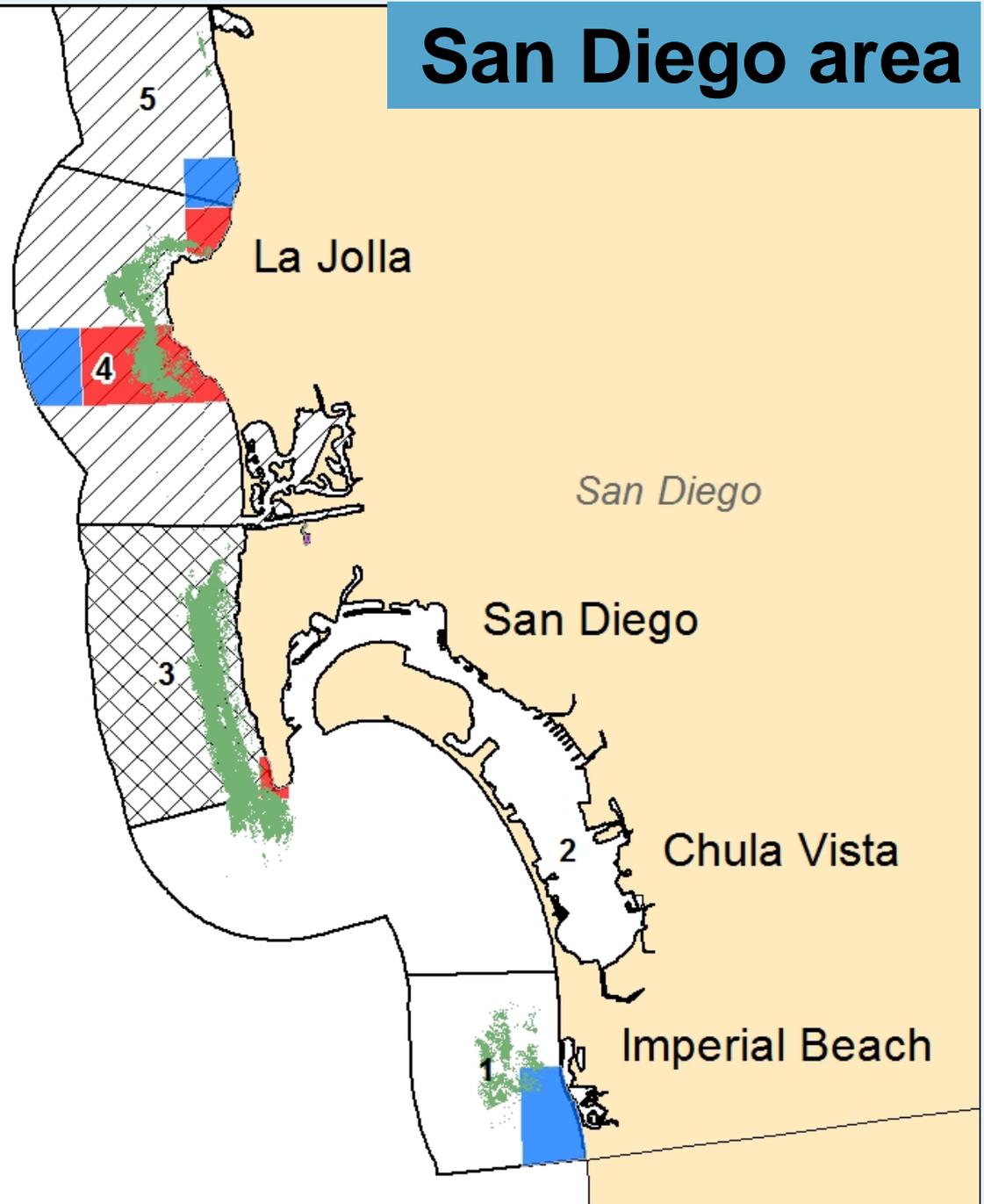
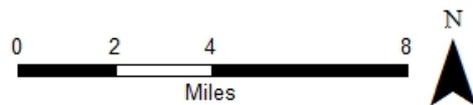
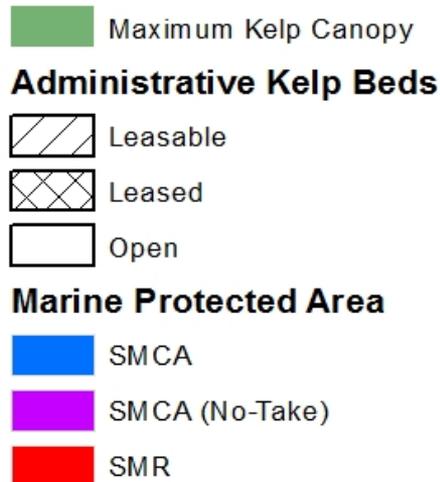


San Clemente Island

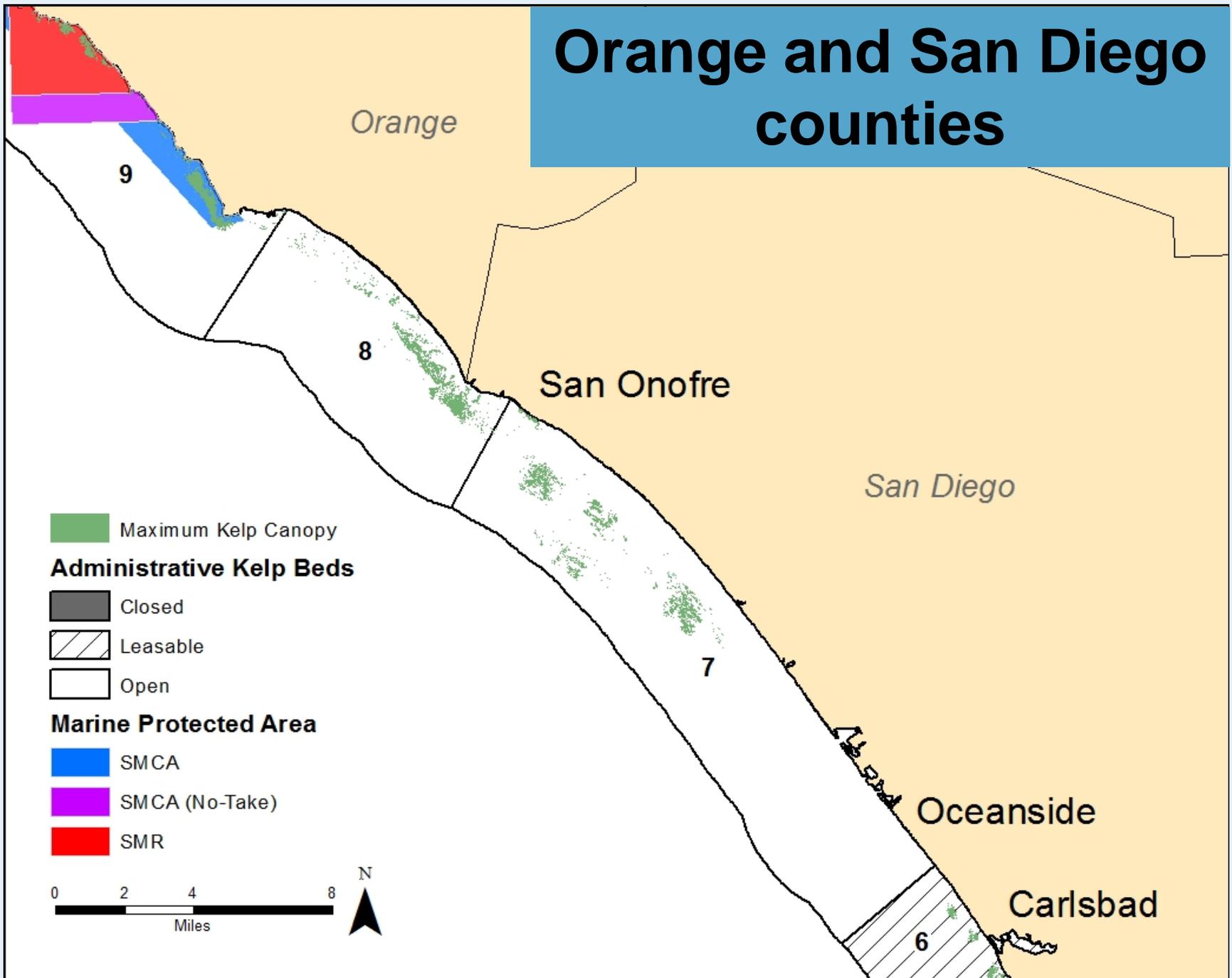
-  Navy Restriction Area
-  Maximum Kelp Canopy
- Administrative Kelp Beds**
-  Leasable
-  Open



San Diego area



Orange and San Diego counties





Options reviewing historical harvest

- A. Compare nearby canopies with a range of + or – 0.01 kilometers (km) squared
 - Greater potential proxy harvest replace actual harvest
 - May not work for all beds
- B. Place canopies in bins of canopy size
 - Channel Islands bins divided up by 0.500 km²
 - Southern CA bins divided up by 0.250 km² for mainland
 - 1. Greater proxy harvest replaces actual harvest (for year) when canopy equal or less than proxy canopy in the bin or
 - 2. Bin canopy averaged, average replaces actual harvest