

South Coast Region's Resource Assessment Program and Current Status and Direction of the CA Least Tern Monitoring Effort

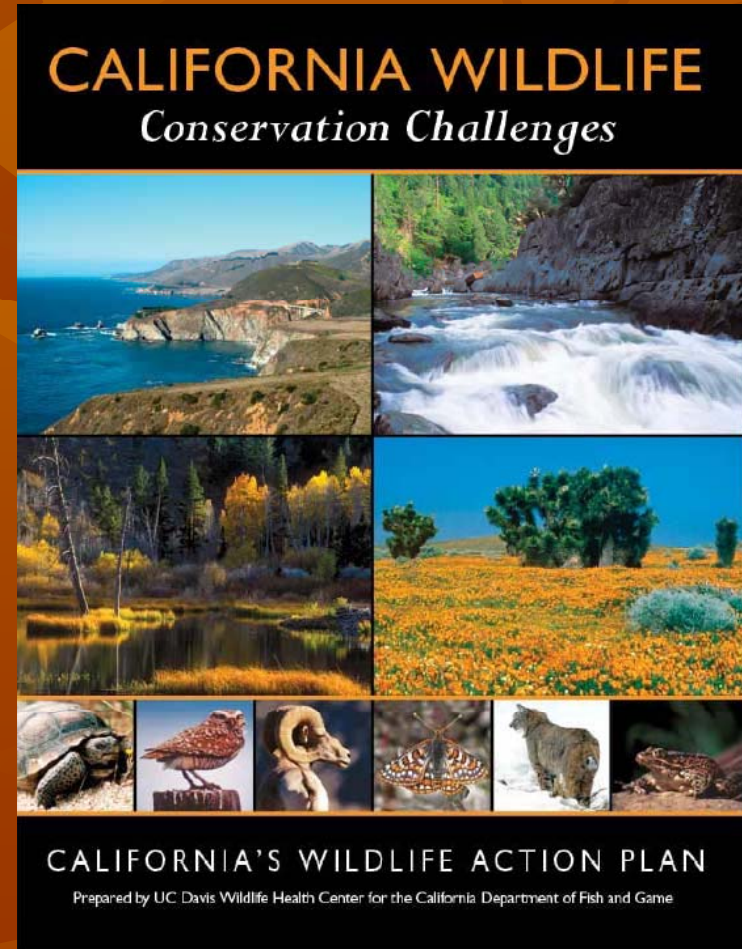
Karen Miner, Senior Environmental Scientist
California Department of Fish and Wildlife

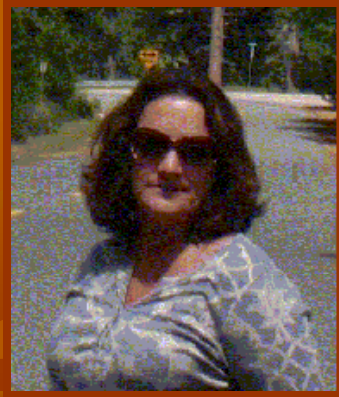


March 27, 2013

Resource Assessment Program

- **Goal:** develop and implement a scientifically rigorous resource assessment program for the Region
- **Funding:** multi-year USFWS State Wildlife Grants for implementation of the State Wildlife Action Plan and General Fund.
- **FOCUS:** non-game faunal “Species of Greatest Conservation Need”





Karen Miner

Resource Assessment Coordinator and Program Supervisor

- **NCCP Effectiveness Monitoring Coordinator**
- **State Wildlife Action Plan 2015 Revision- South Coast Ecoregion Lead**
- **Federal Traditional Sec 6 and SWG Grant Coordinator**
- **South Coast Region-specific Integrated Conservation Strategies Project Lead**
- **South Coast Ecoregion Long-Term, Landscape-Scale Biodiversity Monitoring Strategy Project Lead**



Non-game Bird and Small Mammal Specialist



Nancy Frost

- Supports and represents the Region on all matters relating to birds and small mammals
- Administers federal grant projects and contracts for management, monitoring, and research
- Issues researcher MOU's for species located only in our region; PPM, IF, LFCR, etc. (~50/yr)
- Coordinates and conducts species surveys on DFW lands
- Statewide Coordinator for CLT, LFCR, BSS, PPM, CISS, IF.
- Burrowing Owl Use of Artificial Burrows in Southern California Study

GIS and Database Manager



Ken Devore

- Analyzes geographic information and develops maps, posters and displays for regional personnel
- Develops and manages custom databases and electronic field form applications for data collection
- Working on modernization of data management for the region
- Coordinates and assists in training region staff in the use of developed applications and associated equipment and procedures

Habitat Restoration Specialist and Botanist



John Ekhoﬀ

- Department Pesticide Regulation
Licensed Qualified Applicator
- Trains Department staff, volunteers,
and others to be pesticide
applicators
- Collates and reports on all pesticide
use under his license
- Conducts habitat assessments and
prescribes treatments
- Serves as Department
representative on plant conservation
plans

Brandon Stidum
- Wildlife Biologist



- Conducts research in support of DFW staff projects
- Southwestern Pond Turtle SCR Occurrence Update
- Borrowing Owl SCR Occurrence Update
- Resource Inventory of Cañada de San Vicente Property for use in development of Land Management Plan

Karen Chadwick
- GIS Technician



Research Assistants



Stephen D'Annibale



Vacant

- Provides field assistance and technical support to DFW staff for species/habitat monitoring and data management
- Conducts electronic data entry of current and archival species and habitat data
- Creation of Geo-referenced Database for 30-yr of Light-footed Clapper Rail Surveys
- Creation of Geo-referenced Database for over 50-years of Fish Surveys
- Assists other agencies and entities in field surveys for focal species
- Conduct literature and database searches

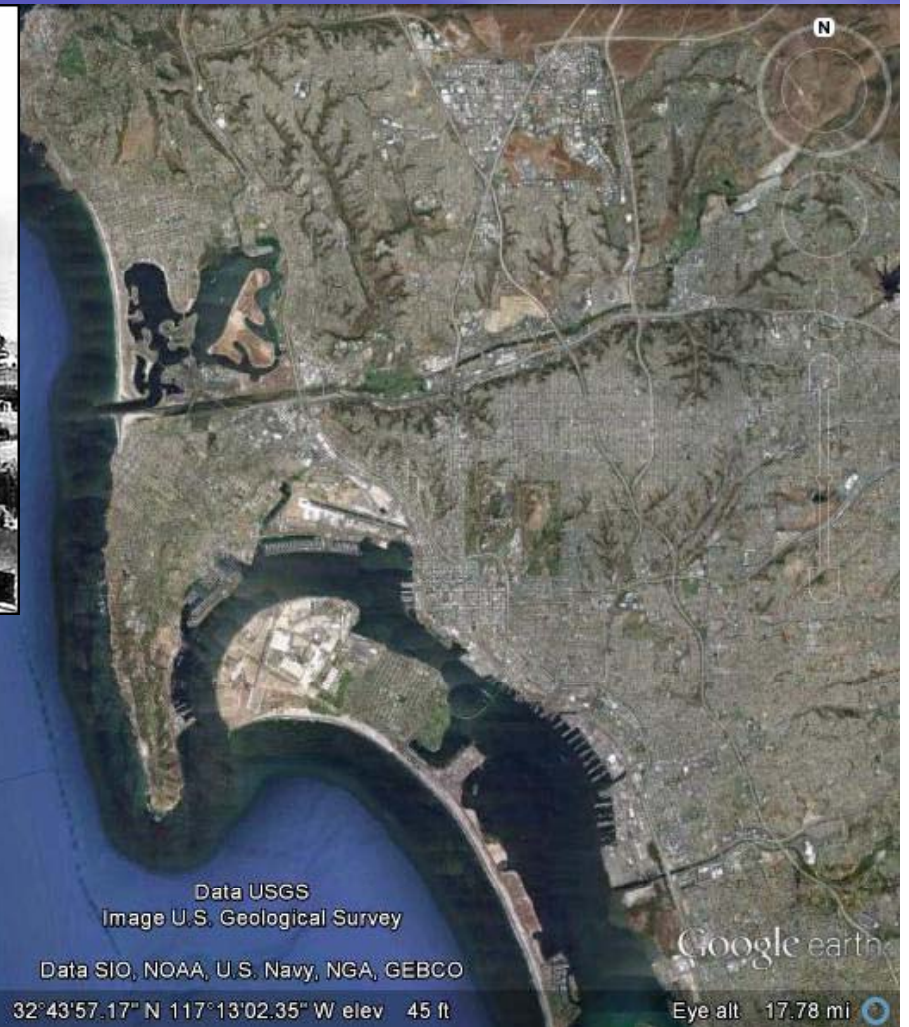
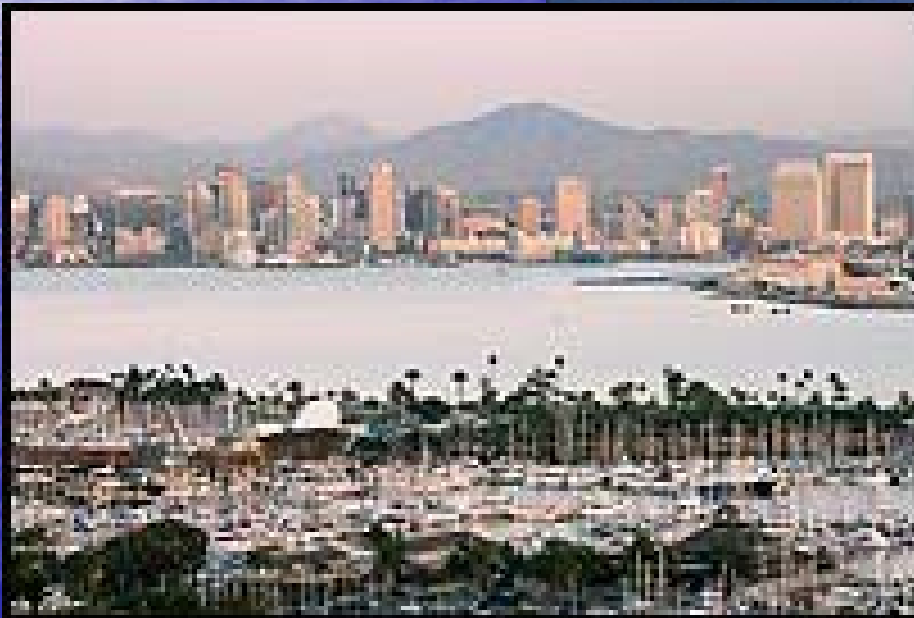


Questions?

California Least Tern Monitoring Program: Forty Years and Now . . .



Habitat Destruction



Habitat Disturbance

SurfINSIDE.com



www.surfrider.org



City of San Diego

Predators



Coyote

Common Raven



American Crow



Pt. Mugu NAWS



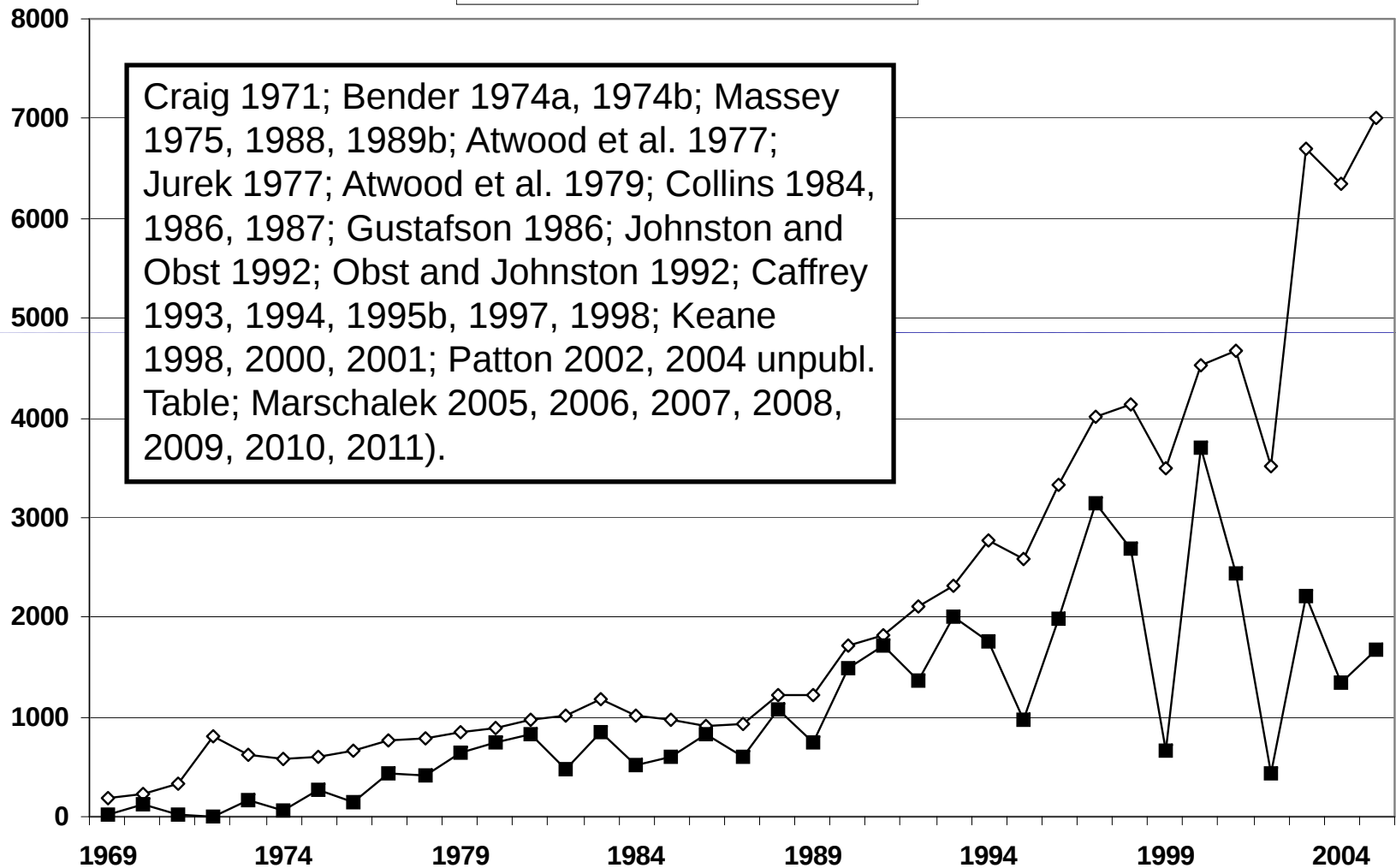
Russell Wilson



California Least Tern Breeding Population and Fledglings (1969-2005)

—◇— Min. Pairs —■— Min. Fledglings

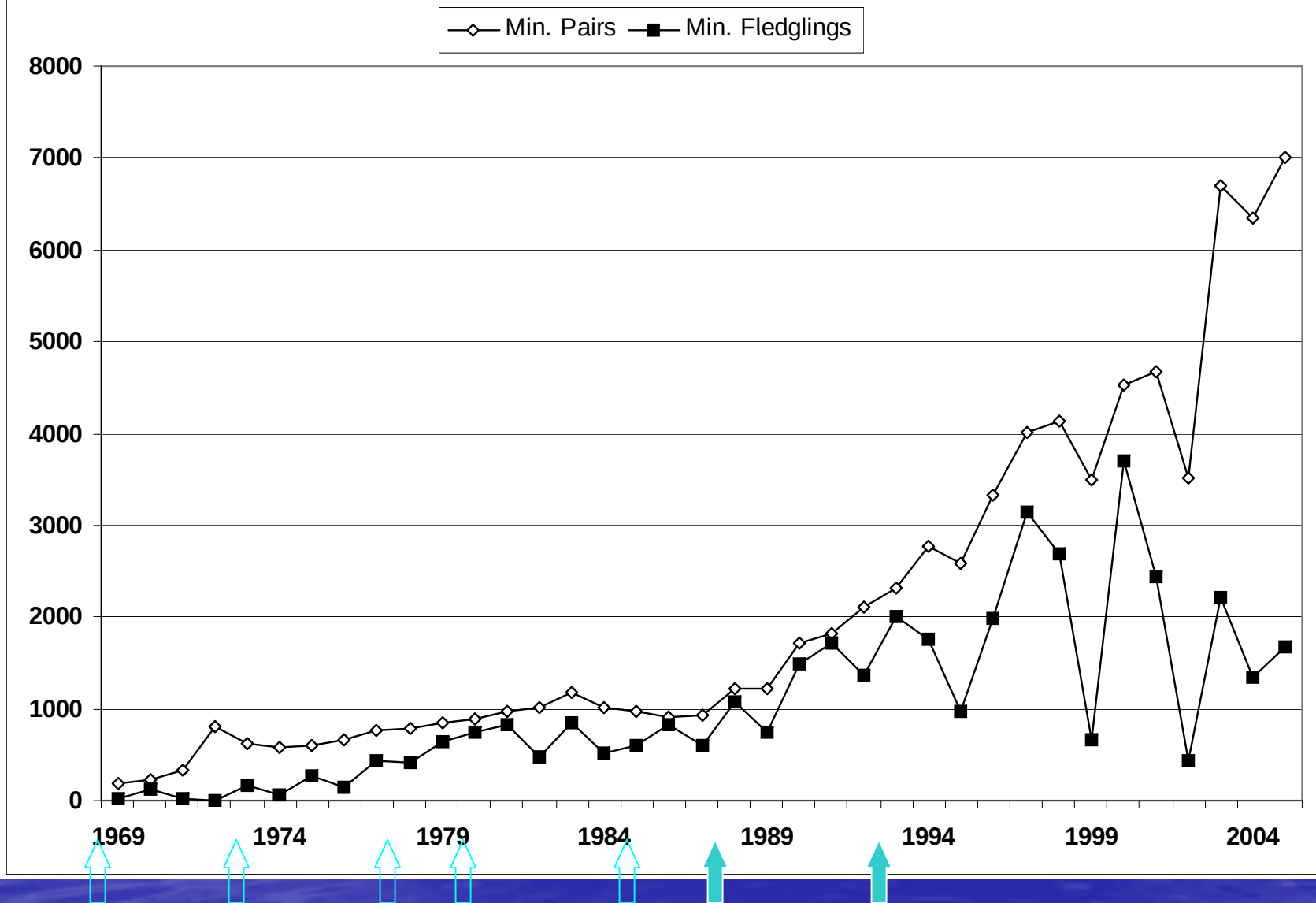
Craig 1971; Bender 1974a, 1974b; Massey 1975, 1988, 1989b; Atwood et al. 1977; Jurek 1977; Atwood et al. 1979; Collins 1984, 1986, 1987; Gustafson 1986; Johnston and Obst 1992; Obst and Johnston 1992; Caffrey 1993, 1994, 1995b, 1997, 1998; Keane 1998, 2000, 2001; Patton 2002, 2004 unpubl. Table; Marschalek 2005, 2006, 2007, 2008, 2009, 2010, 2011).



1985 Recovery Criteria

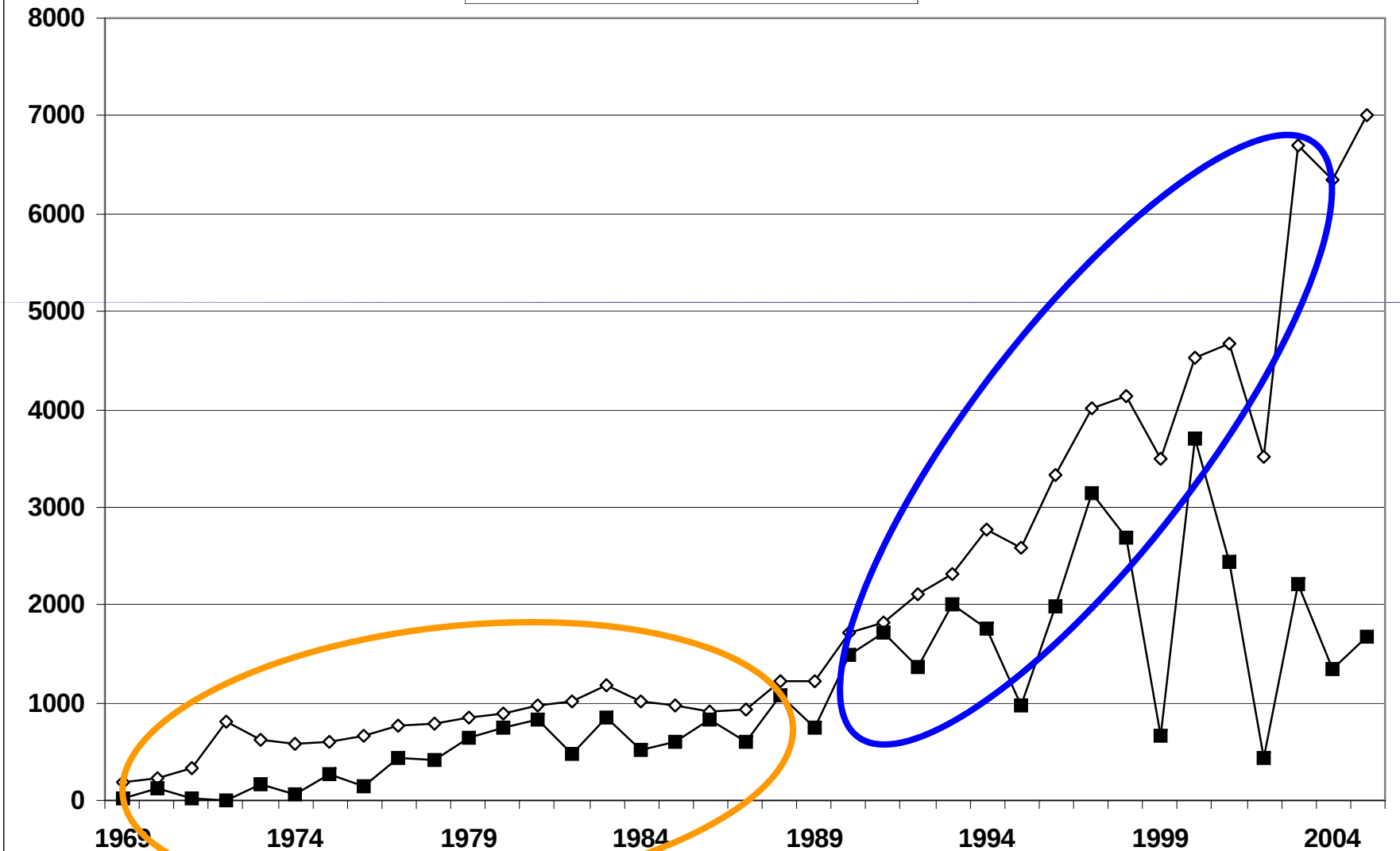
1,200 breeding pair
5-year avg. 1.0 fledge/pr
Min. 20 sites of 20 pairs each
San Francisco Bay 4 sites,
Mission Bay 6 sites,
San Diego Bay 6 sites;

California Least Tern Breeding Population and Fledglings (1969-2005)



California Least Tern Breeding Population and Fledglings (1969-2005)

—◇— Min. Pairs —■— Min. Fledglings

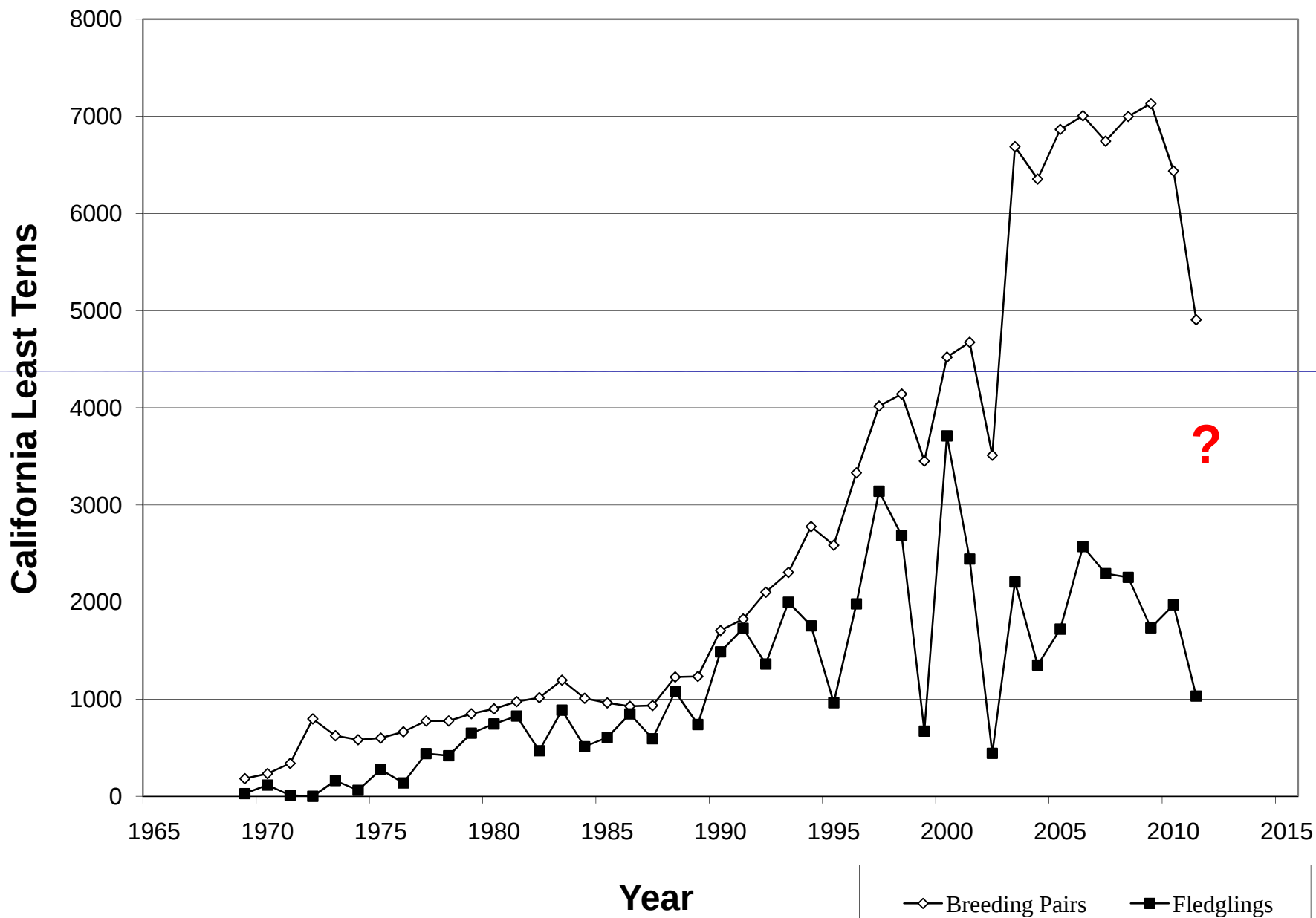


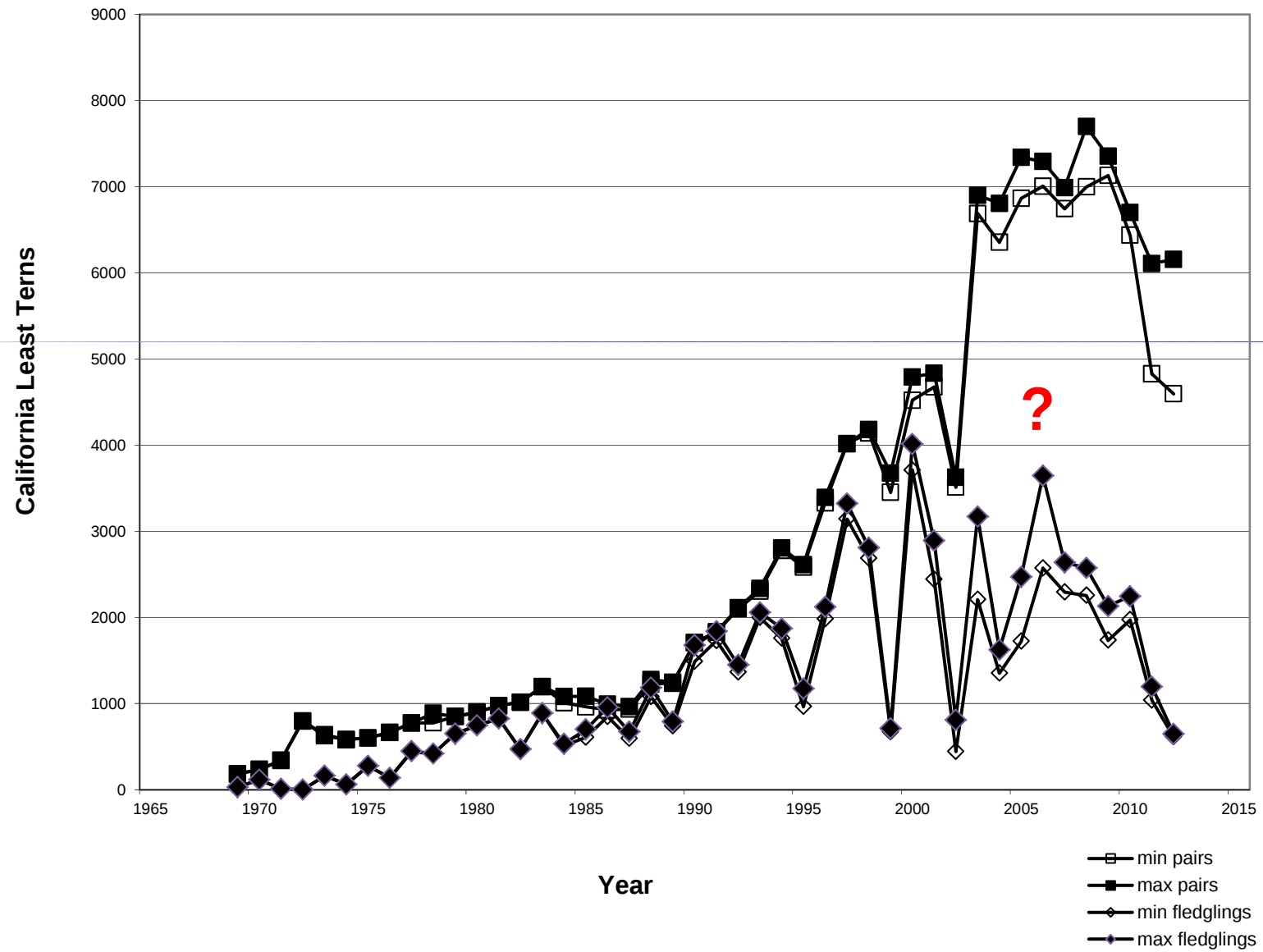
1985

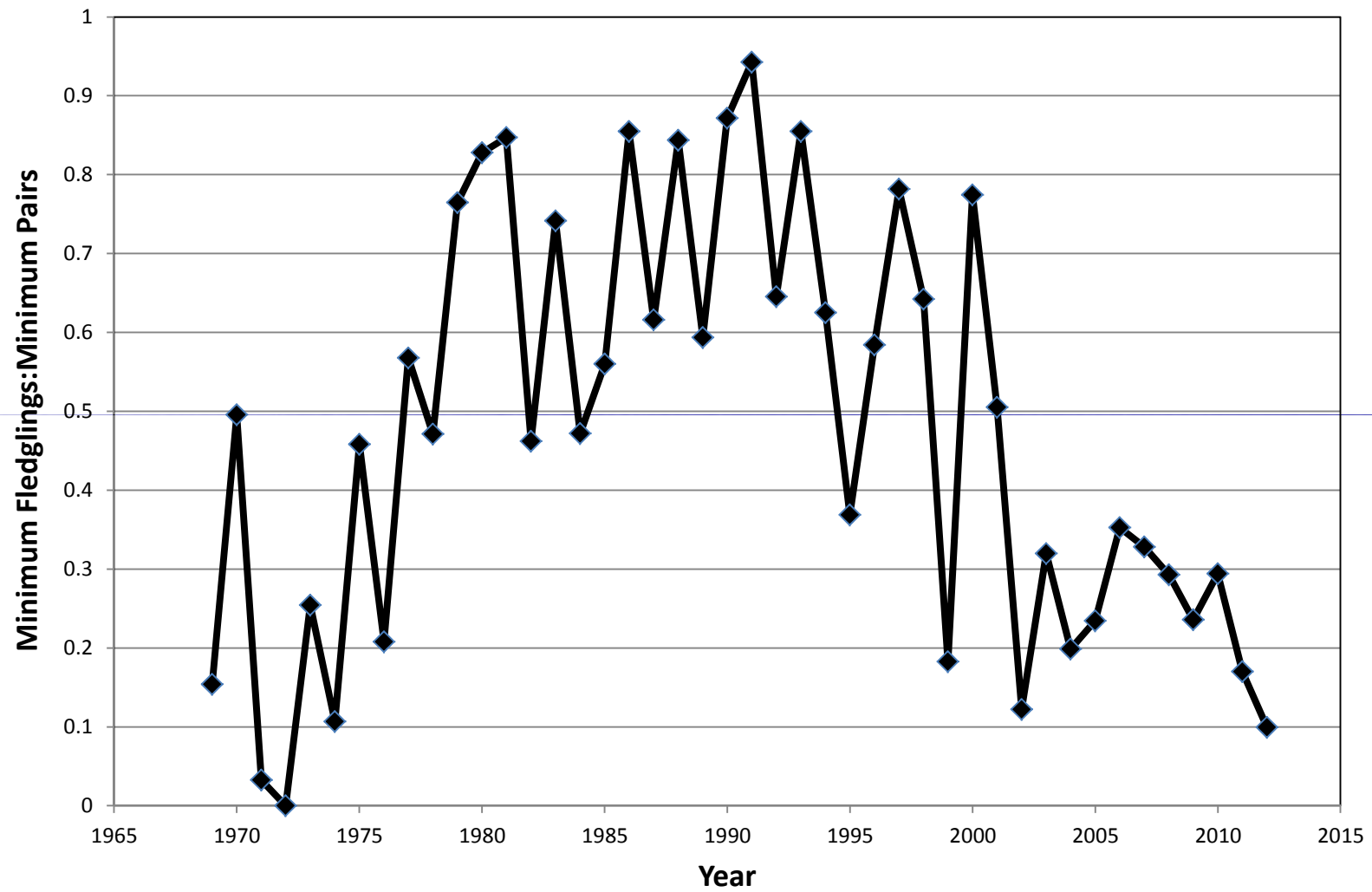
Recovery Criteria

2007-2010 Period averages

1,200 breeding pair	6,827 pair
Min. 20 sites of 20 pairs	22 sites of min. 20 pairs
5-year avg. 1.0 fledge/pr	<0.3 fledge/pair
SFB 4, MB 6, SDB 6	SFB 4-6, MB 6-9, SDB 3-5







Predation of sub-adult California least tern from 2004-2010.

	2004 ¹	2005 ²	2006 ³	2007 ⁴	2008 ⁵	2009 ⁶	2010 ⁷
Eggs	2342-2418	833	974-975	747	1686-1693	2037	1007
Chicks	460-508	104-107	261	578-583	308-443	437-455	340
Fledglings	15-16	36	22	86-87	73-100	65-66	161
Total	2817-2942	973-976	1257-1258	1411-1417	2067-2236	2539-2558	1508

2010 Causes of Mortality

	Eggs	Chicks	Fledglings	Adults	Total
Non-predation	2141	1619	549	24	4333
Predation	1007	340	161	115-129	1623-1637

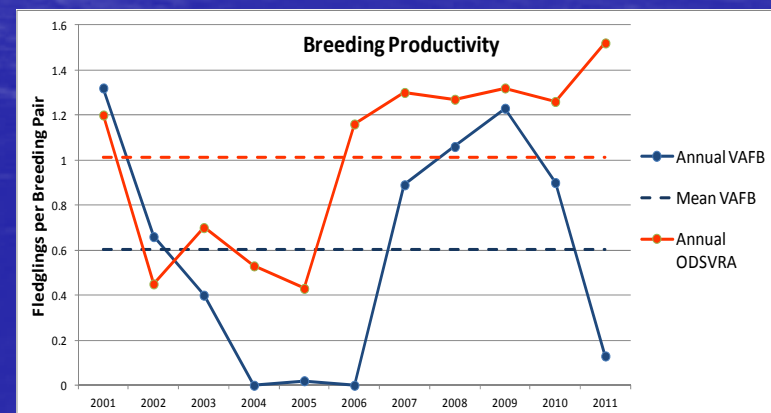
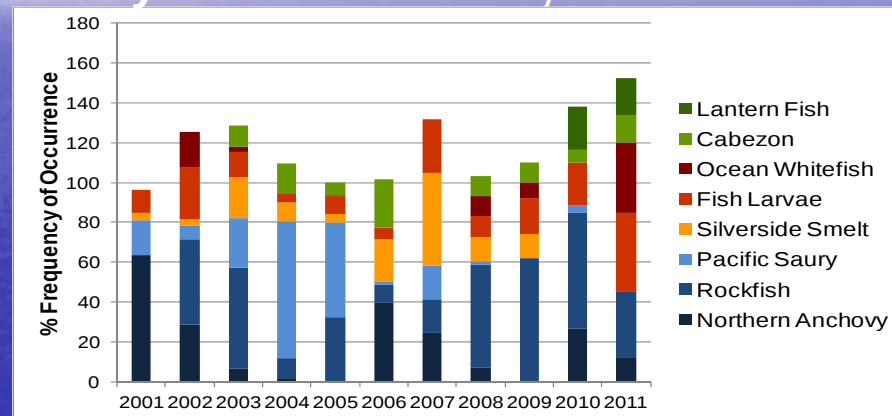
Prey



Reduction Prey

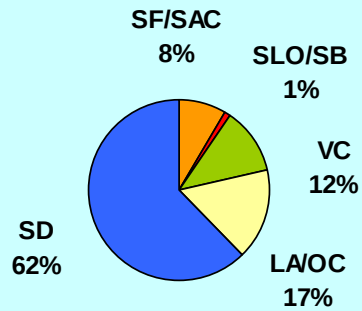
Vandenburg / Oceano Diet Study- Dan Robinette, PRBO

- increase in rockfish and anchovy, CLT reproduction is high
- increase in Pacific saury, CLT reproduction is low

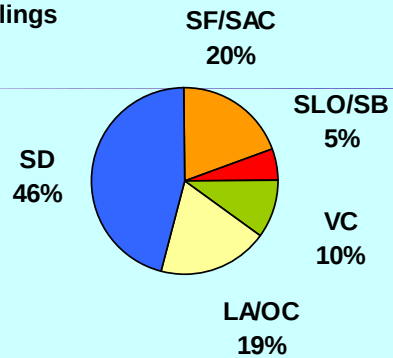


Breeding Pairs

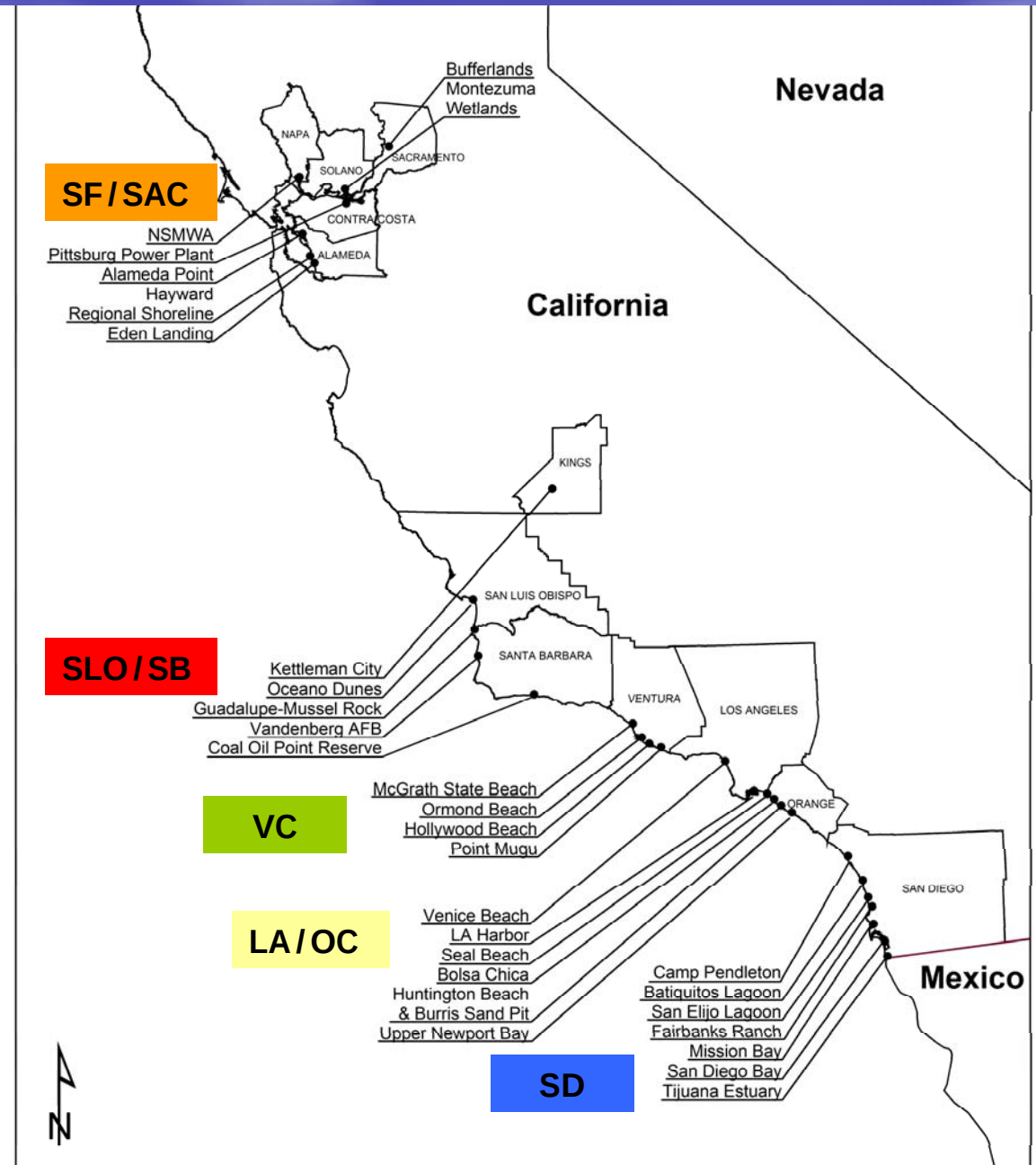
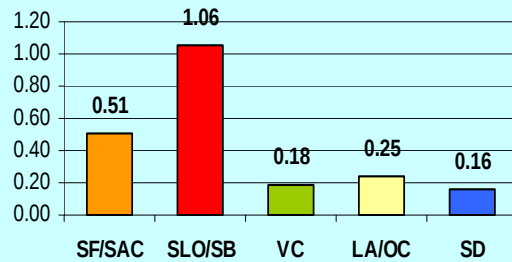
2011



Fledglings

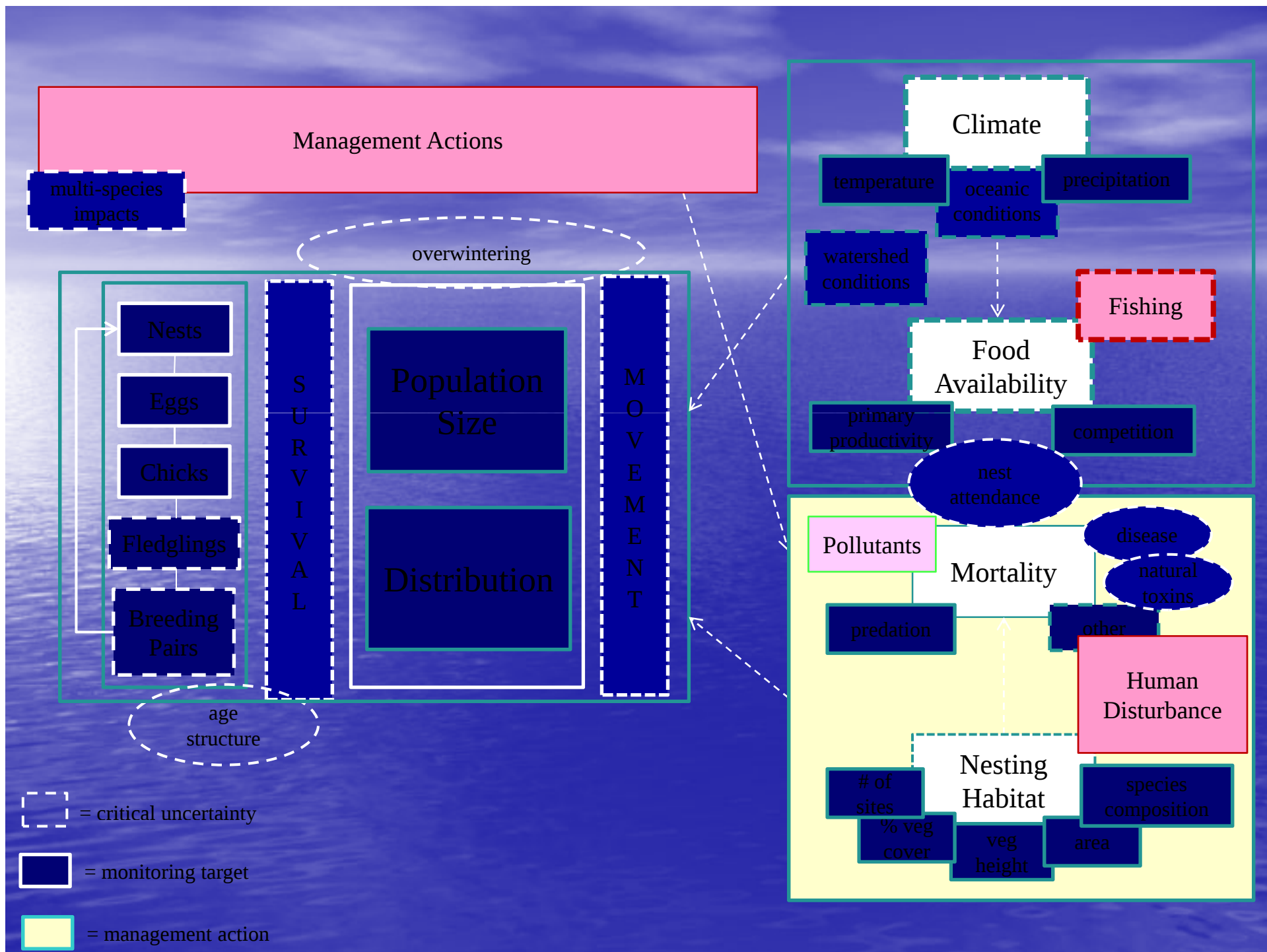


Productivity



2011	Estimated Number of Breeding Pairs		Number of Nests	Estimated Number of Fledglings		Fledgling per Pair Ratio	
	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
San Diego County							
MCB Camp Pendleton- Totals	1014	1510	1526	104	105	0.07	0.10
Batiquitos Lagoon Ecological Reserve- Totals	519	522	532	50	50	0.10	0.10
San Elijo Lagoon Ecological Reserve	0	0	0	0	0	0.00	0.00
San Dieguito Lagoon Ecological Reserve	0	0	0	0	0	0.00	0.00
Mission Bay							
FAA Island	16	19	21	9	9	0.47	0.56
North Fiesta Island	1	1	1	0	0	0.00	0.00
Mariner's Point	118	143	145	50	60	0.35	0.51
Stony Point	9	11	12	3	3	0.27	0.33
San Diego River Mouth	10	11	13	5	6	0.45	0.60
San Diego Bay							
Lindbergh Field & Former Naval Training Center	42	77	78	11	15	0.14	0.36
NI MAT	66	83	83	12	25	0.14	0.38
Naval Base Coronado- Totals	950	976	1062	96	147	0.10	0.15
D Street Fill/Sweetwater Marsh NWR	41	113	116	34	41	0.30	1.00
Chula Vista Wildlife Reserve	34	47	53	12	19	0.26	0.56
South San Diego Bay Unit, SDNWR - Saltworks	27	45	55	2	3	0.04	0.11
Tijuana Estuary NERR	152	240	264	90	98	0.38	0.64





- **Integrate and consolidate existing data and information into a cohesive framework based on the model.**
- **Evaluate the reliability and bias in the different colony metrics for the monitoring targets.**
- **Conduct trend and spatial analyses on existing individual site or colony data to identify patterns in population parameters over space and time to develop hypotheses for the uncertainties.**
- **Quantitatively explore abiotic and biotic variables that influence reproductive output**

[illegible]

32 27.4% 20 or more records
(Years)

17 14.5% 10 to 20 records

68 58.1% 9 or fewer

California Least Tern Scientific Advisory Group

- Susan Euing, USFWS monitor- SFB
- Robert Patton, monitor/researcher- SD
- Dan Robinette, monitor/researcher- Ven
- Tom Ryan, monitor/researcher- LA
- Justin Schuetz, PRBO, tern data analyst
- Tiffany Shepherd, Navy biologist- SD
- Jon Bart, USGS, tern data analyst
- Casey Lott , ABC, interior least terns

