

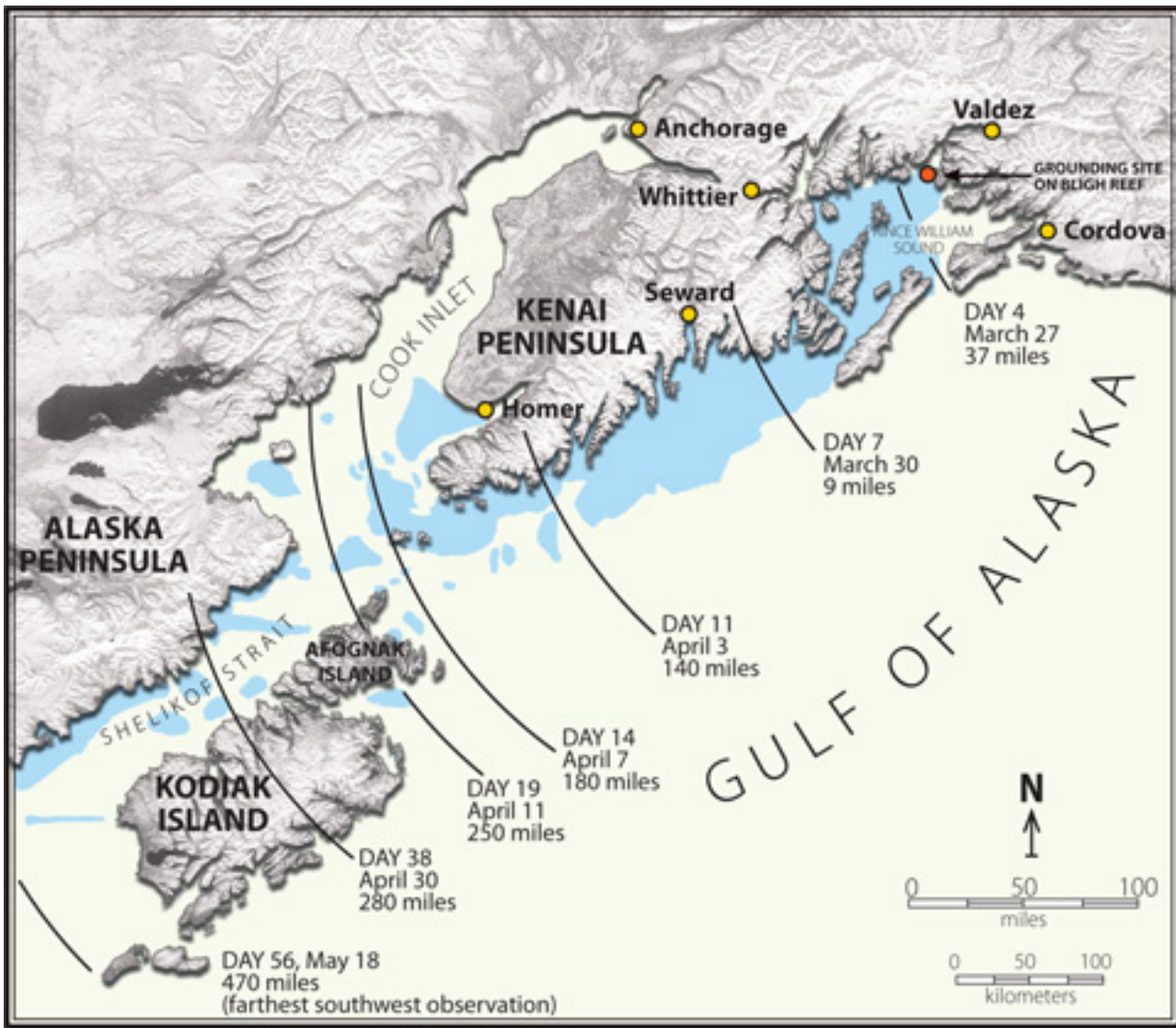
# **Psychological Impacts of Oil Spills: The Exxon Valdez Disaster**

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# Exxon Valdez Oil Spill



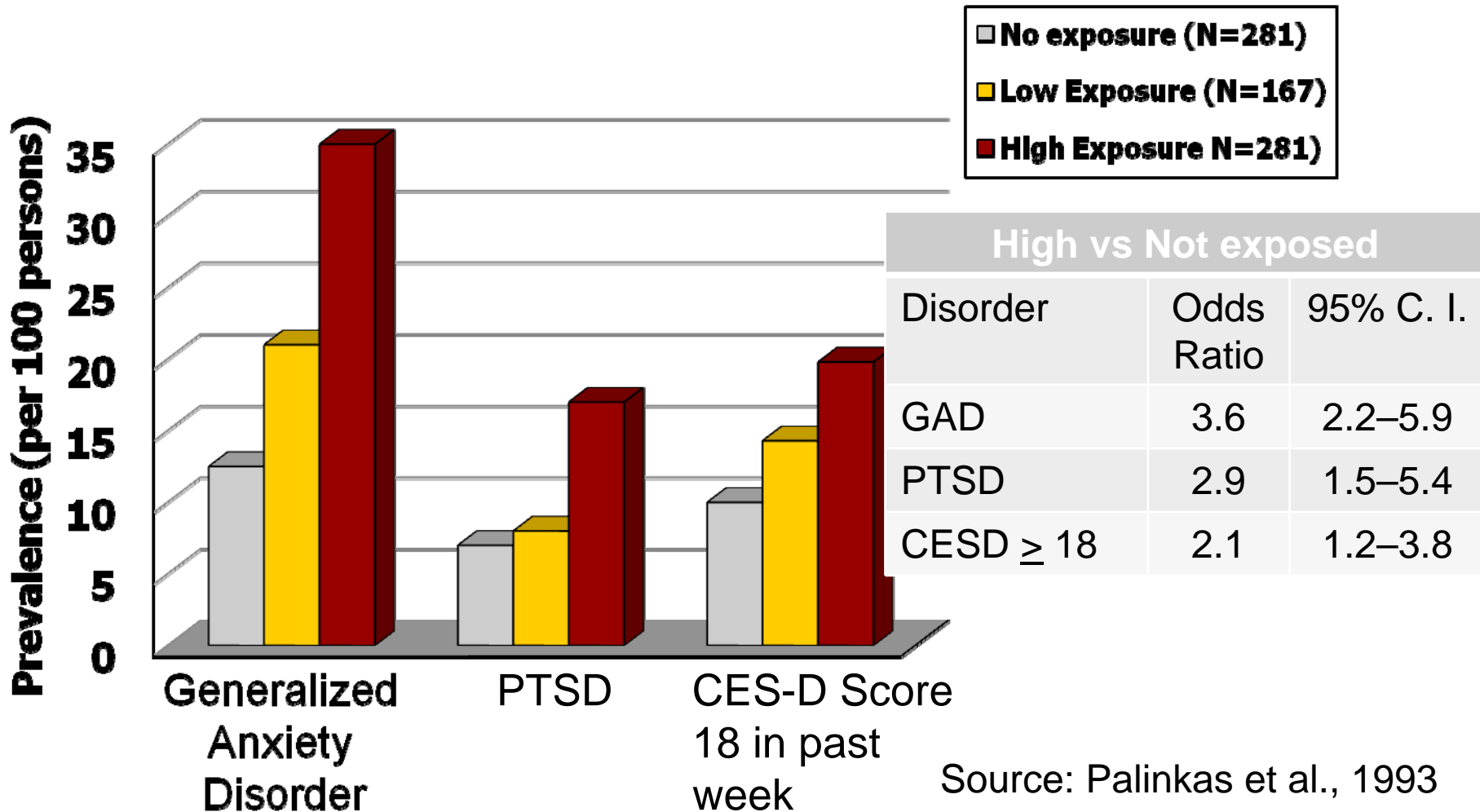
# Exxon Valdez Oil Spill



# Oiled Mayors Study

- Methods
  - Ethnographic fieldwork in 22 communities
  - Quantitative survey of 600 households in 13 communities
  - Cross-sectional 1 yr post-spill
- Assessment of Exposure (Not, low and high)
  - Affected area used by household
  - Participation in cleanup
  - Other contact with oil
  - Property damaged or lost
  - Damage to commercial fishing areas
  - Effects on hunting, fishing and gathering

# Prevalence of Generalized Anxiety Disorder, PTSD, and Depressive Symptoms in Exxon Valdez Study Respondents (N=593) by Exposure Status, 1990



Source: Palinkas et al., 1993



## Prevalence of Posttraumatic Stress Disorder by Exposure and Ethnicity, Exxon-Valdez Oil Spill

	Alaska Natives (N=188)		Euro-Americans (N=371)	
	Yes %	No %	Yes %	No %
Type of exposure				
Affected area used by household	15.7	8.1	10.7	6.6
Participation in cleanup	20.8**	6.9	9.0	7.0
Other contact with oil	18.5	8.9	9.7	8.0
Property damaged or lost	37.5**	9.9	9.4	8.6
Damage to commercial fishing areas	18.9**	6.1	11.5	7.1
Effects on hunting, fishing and gathering	19.8**	5.2	14.3*	6.4
Not exposed	5.8		8.3	
Low exposed	5.3		6.8	
High exposed	25.0**		10.0	

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

## Problems with Alcohol and Drug Abuse and Domestic Violence by Exposure Status, Alaska, 1990

Social Unit & Problem	% High Exposed	% Low Exposed	% Not Exposed
<b>Community</b>			
More Drinking*	56.8	40.4	5.0
More Drinking Problems*	45.3	32.5	6.9
More Drug Use*	50.4	43.2	6.8
More Drug Problems*	39.5	30.8	9.4
More Fighting*	40.5	32.3	3.5
More Fighting Problems*	33.9	27.7	4.8
<b>Family &amp; Friends</b>			
More Drinking*	29.3	15.3	2.8
More Drinking Problems*	26.0	13.3	5.4
More Drug Use*	21.2	10.8	1.7
More Drug Problems*	19.4	9.1	1.5
More Fighting*	19.7	3.8	0.9

\*  $\chi^2$  test for trend  $p < 0.0001$

(Source: Palinkas et al., 1993; Russell et al., 1996)

## Changes in Traditional Social Relations, Alaska, 1990

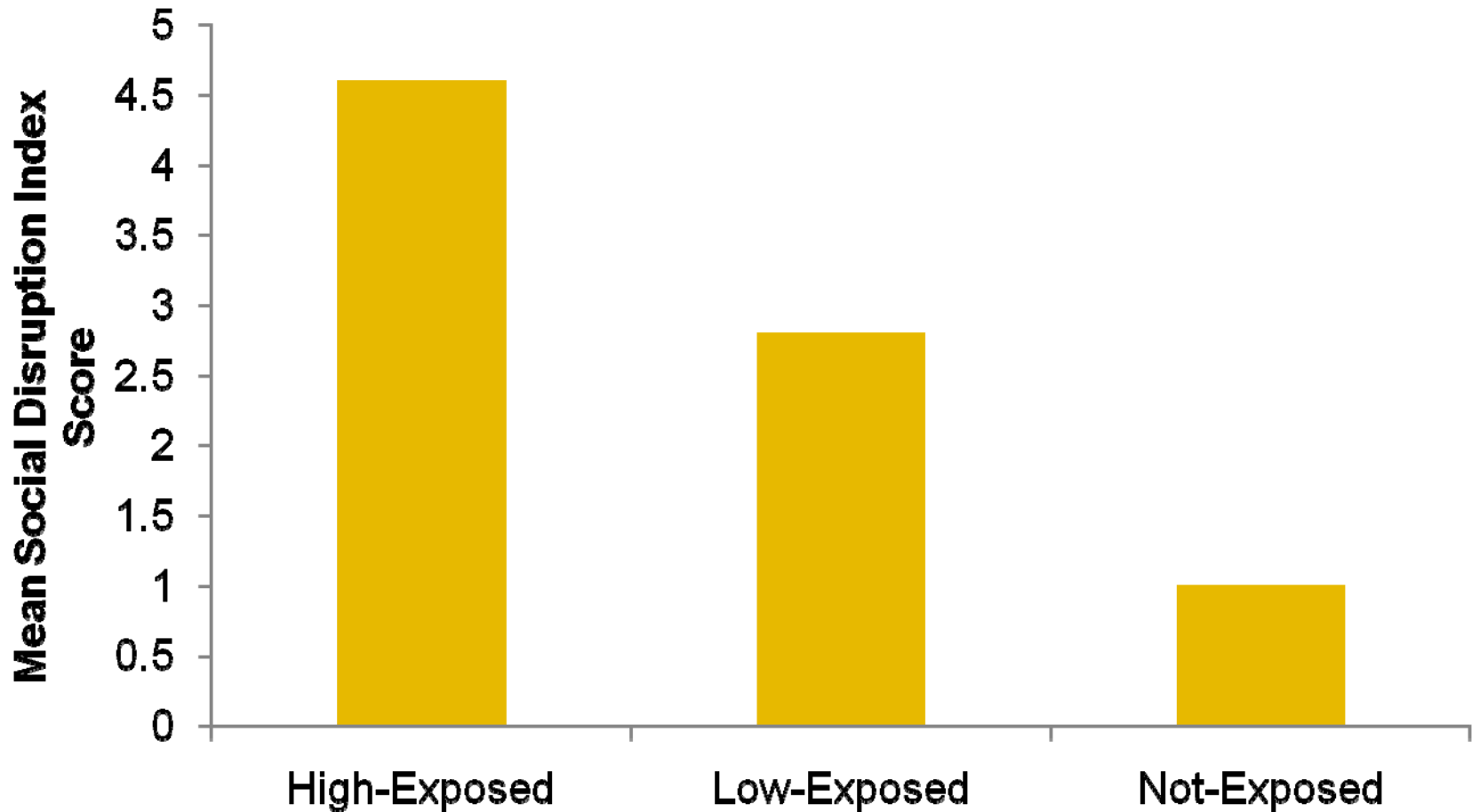
Not getting along as well compared with same period in 1988	Exposure Status						
	High Exposed		Low Exposed		Not Exposed		
	N	N	%	N	%	N	%
Spouse or partner**	444	25	14.5	7	4.6	0	0.0
Children living at home**	371	14	10.1	5	4.2	1	0.9
Other relatives living at home**	188	11	17.2	2	3.7	0	0.0
Relatives not living at home**	536	24	11.6	9	4.9	0	0.0
Neighbors and friends**	565	28	13.1	9	4.5	1	0.7
People from other communities**	447	28	13.7	14	7.8	2	1.3
Co-workers*	483	20	10.6	15	8.9	5	4.0
<b>Increased conflicts with</b>							
Outsiders**	593	106	47.5	47	22.6	5	3.1
Friends**	591	89	40.3	30	14.4	4	2.5

$\chi^2$  test for trend \*  $p < 0.05$ ; \*\*  $p < 0.001$

(Source: Palinkas et al., 1993; Russell et al., 1996)



## Association between exposure to oil spill and disruption of social relations



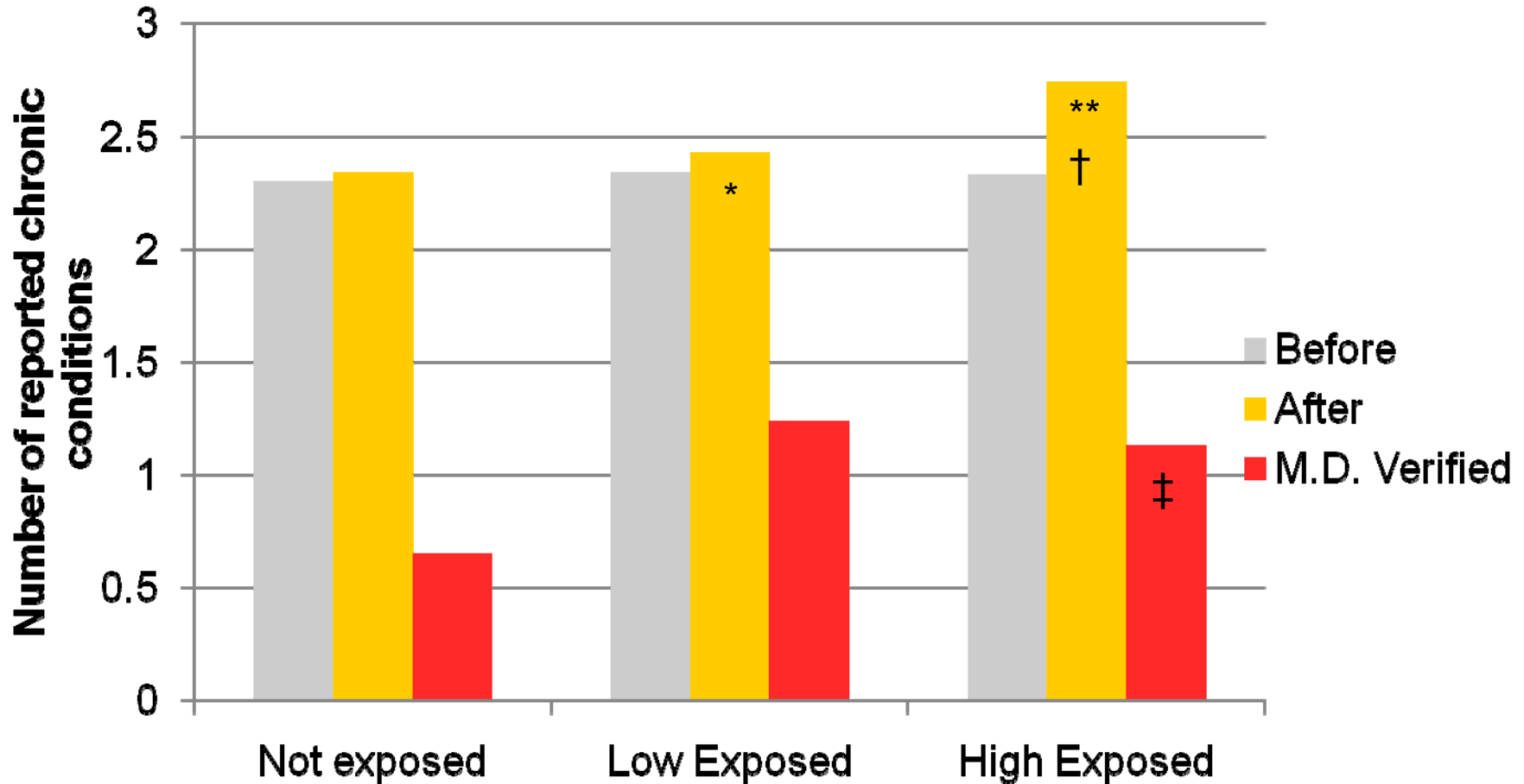
(Source: Palinkas, 2009)

# Effects of oil spill on families and children

- Exposure to the oil spill was associated with parents reports
  - Decline in relations with other children in community
  - Children have more difficulty sleeping
  - Children's grades in school have declined
  - Children get upset when someone talks about the spill
  - Bedwetting is a new problem for one of my children
  - Children do not like being left alone
  - Children fight more with other children
  - Children have more difficulty getting along with parents
  - Children have more difficulty getting along with siblings
- These outcomes also associated with parents' mental health
- Difficulty finding child care was a significant predictor of PTSD, GAD and Depression

(Source: McLees-Palinkas, 1994)

# Impact of oil spill on physical health



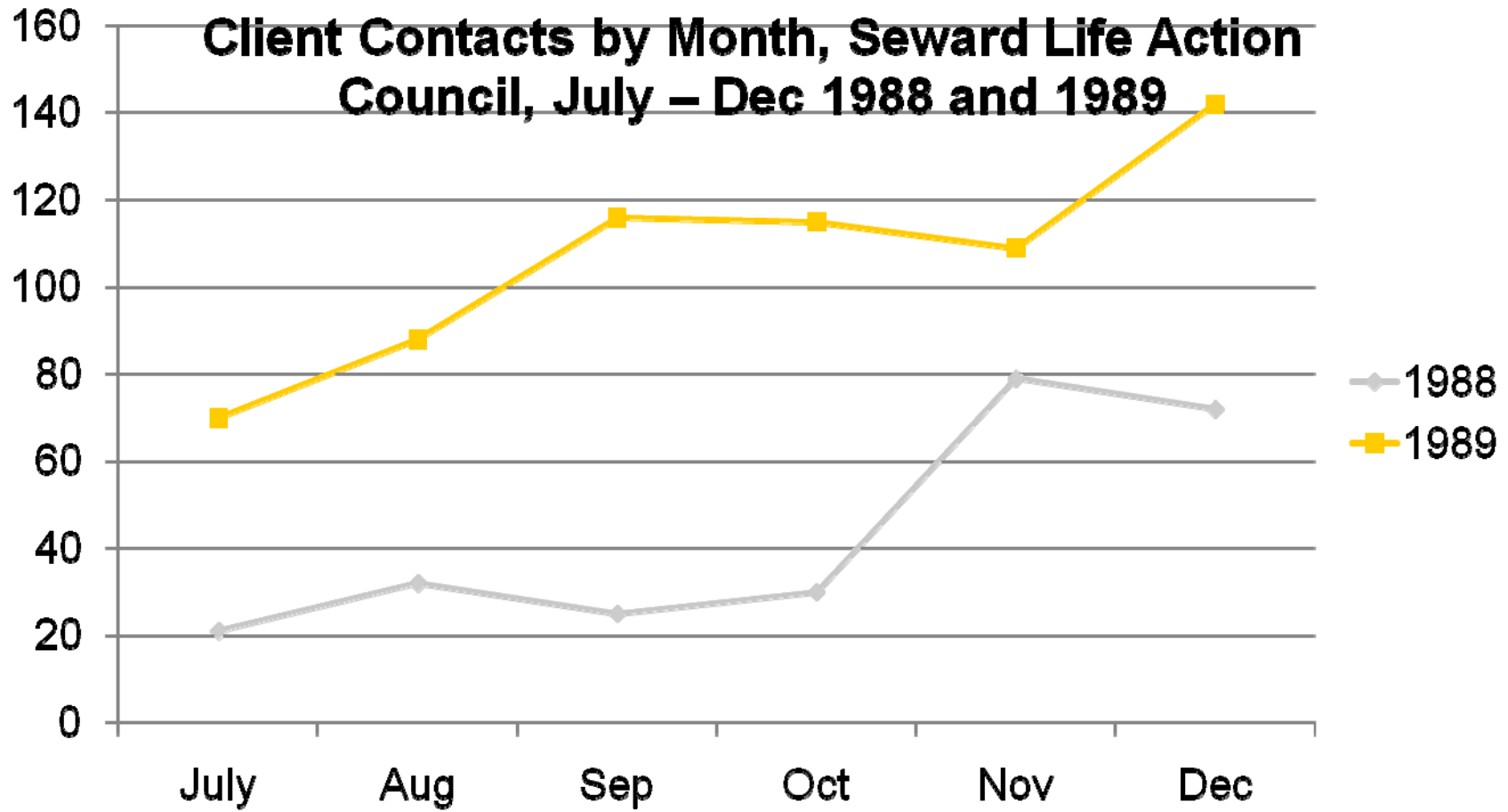
e.g., heart disease, high blood pressure, diabetes, thyroid problem, cancer, asthma, ulcer, bronchitis, chronic cough. skin rashes

\*  $p < 0.01$ , \*\*  $p < 0.001$  compared to health status prior to spill

†  $p < 0.01$ , ‡  $p < 0.001$  by exposure status

(Source: Impact Assessment, Inc., 1990)

# Impact of oil spill on mental health visits



( Source: Impact Assessment, 1990)

# Lessons Learned

- Monitoring vulnerable populations
  - Previously traumatized communities
    - Refugees (e.g., Vietnamese)
    - Hurricane Katrina victims
  - Children and Families
  - Underserved populations (ethnic minorities)
  - Participants in spill cleanup activities
    - Separation from families for prolonged periods
    - Conflicts between those who did and did not accept cleanup jobs
    - Witnesses to destruction of ecosystem

# Lessons learned

- Data collection needs
  - Mental health indicators
    - PHQ for depression and anxiety
    - PCL for PTSD
  - Measures of social disruption
  - Measures of drug and alcohol use
  - Measures of child behavior
    - CBCL for internalizing/externalizing behavior
    - Academic performance
  - Qualitative data on individual and community level response to oil spill



# Lessons Learned

- Influence of litigation
  - A form of long-term oil spill exposure
    - Community conflict
    - Uncertainty over outcomes
  - Impact on data collection
    - Constraints on ability to provide confidentiality to and obtain informed consent from study participants

# Lessons Learned

- Importance of community collaboration
  - Academic-research partnerships
  - Identification of what should be monitored, who should be monitored, and how monitoring should be done
  - Assistance in data collection and analysis
  - Coordination of data collection efforts by different researchers
  - Rapid identification of service needs and allocation of resources to treat and prevent psychological impacts

# Acknowledgements

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