Southern Gulf of Mexico Biodiversity gap-analysis

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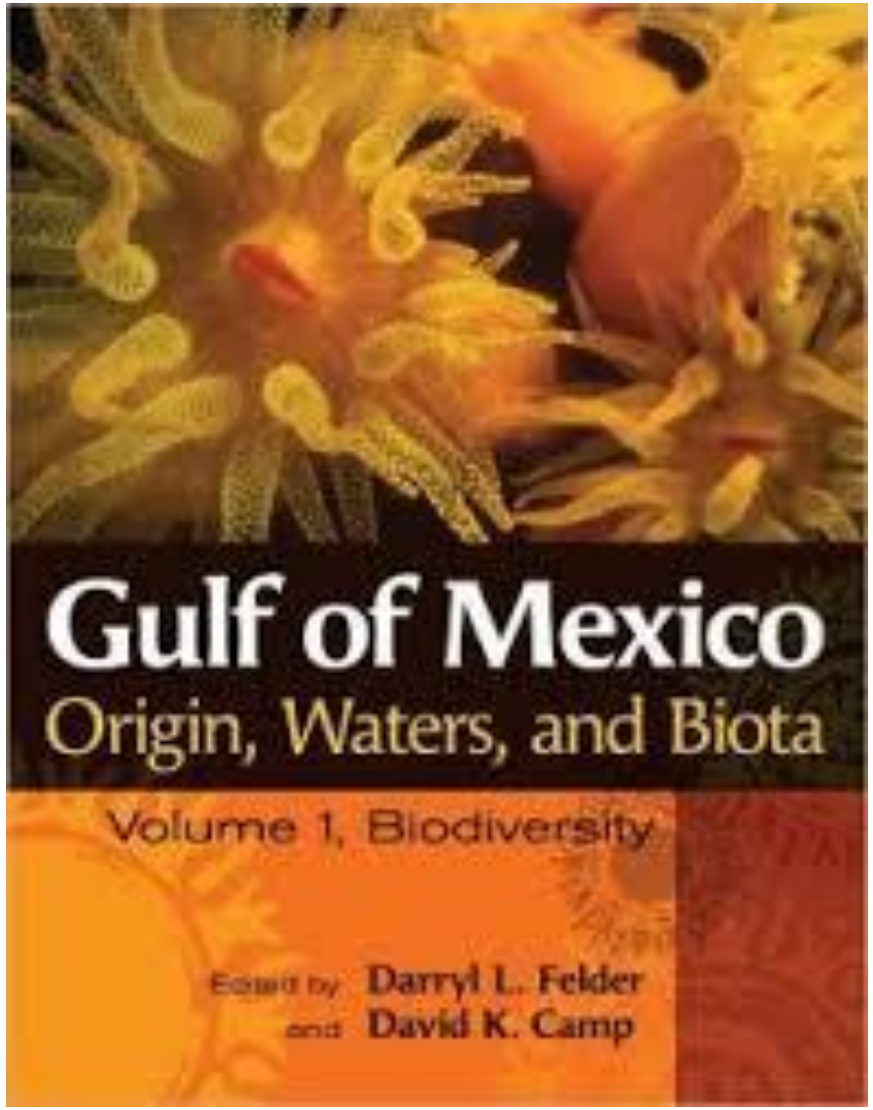
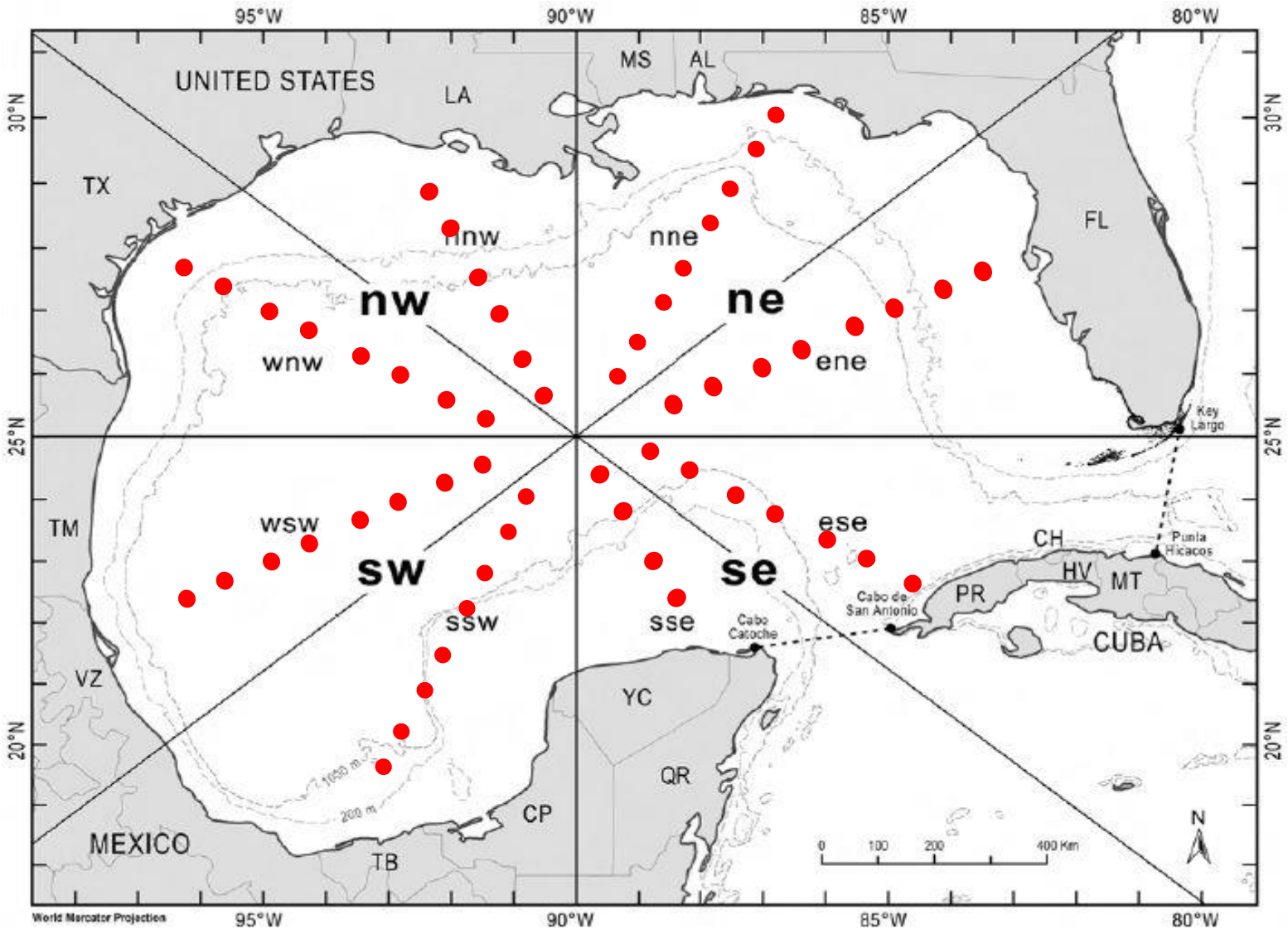
Mexico



2009 - 7834 species of invertebrates

Group / taxa	Spp N	endm	%
vertebrates (fish)	1541		
cnidarians	792	62	7.8
sponges	339	109	32.2
crustaceans	2579	388	15.0
moluscs	2455	257	10.5
anelids	866	120	13.9
equinoderms	522	31	5.9
platelmints	705	191	27.1
briozoans	266	55	20.7
Tunicates	78	5	6.4


95°W
90°W
85°W
80°W
30°N
25°N
20°N
UNITED STATES
LA
MS
AL
TX
FL
nnw
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nw
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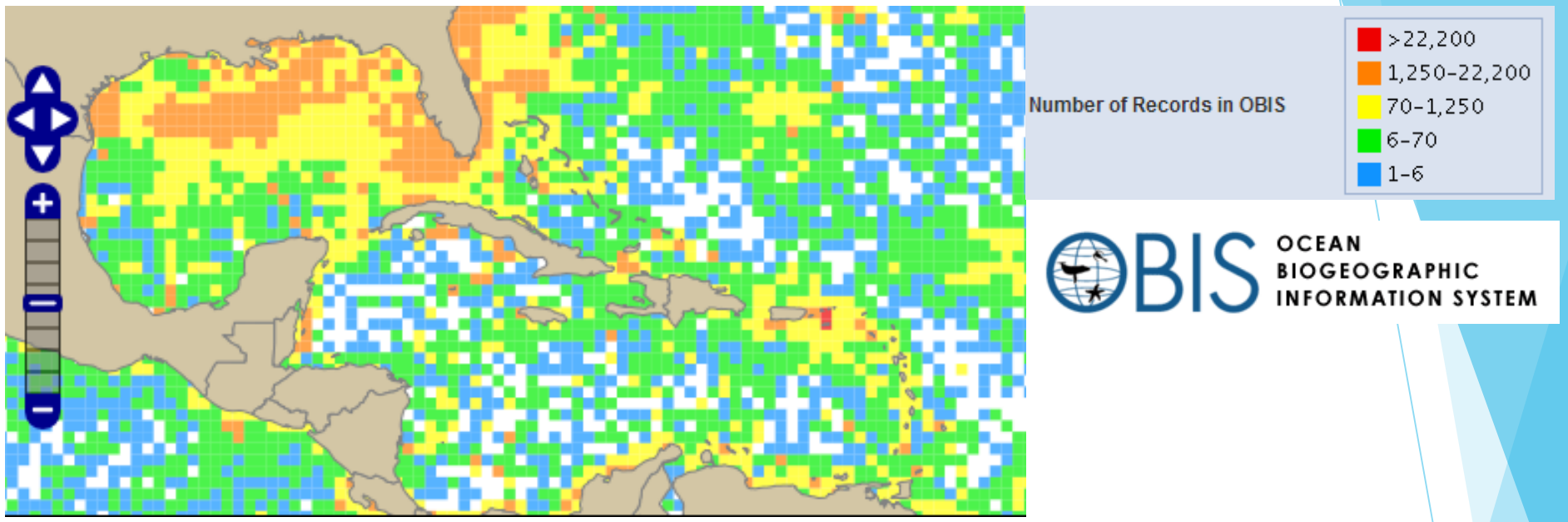
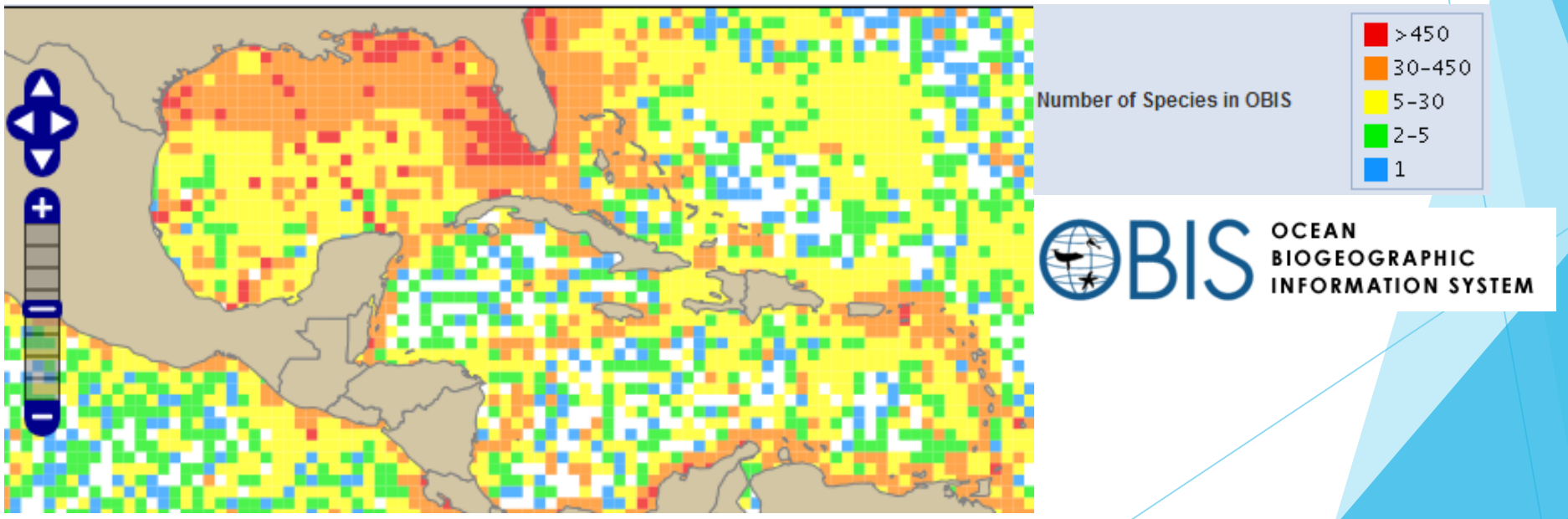
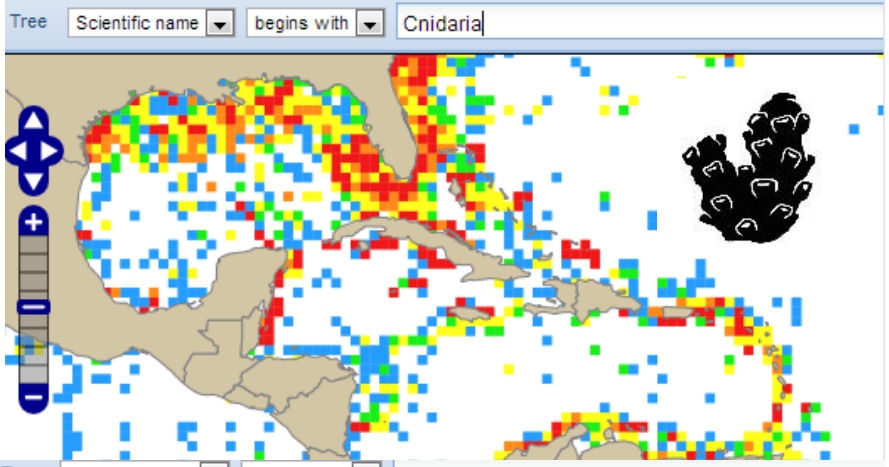
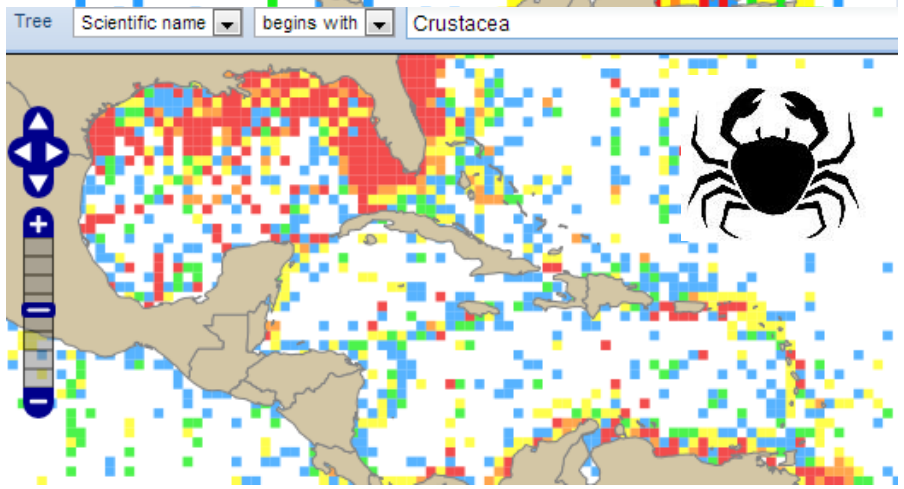
wnw
ene
Key Largo
TM
wsw
ese
CH
Punta Hicacos
sw
se
HV
MT
PR
Cabo de San Antonio
ssw
sse
Cabo Catoche
CUBA
VZ
YC
QR
1000 m
200 m
CP
MEXICO
TB
0 100 200 400 Km
N
World Mercator Projection

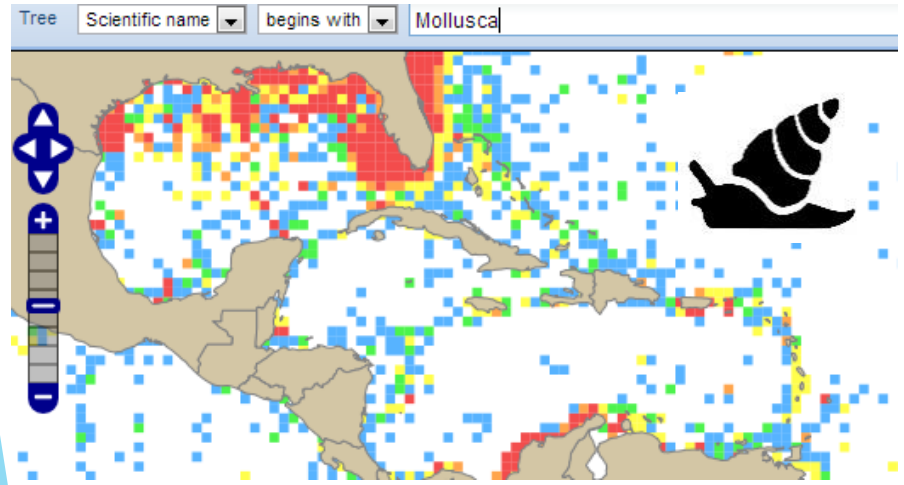


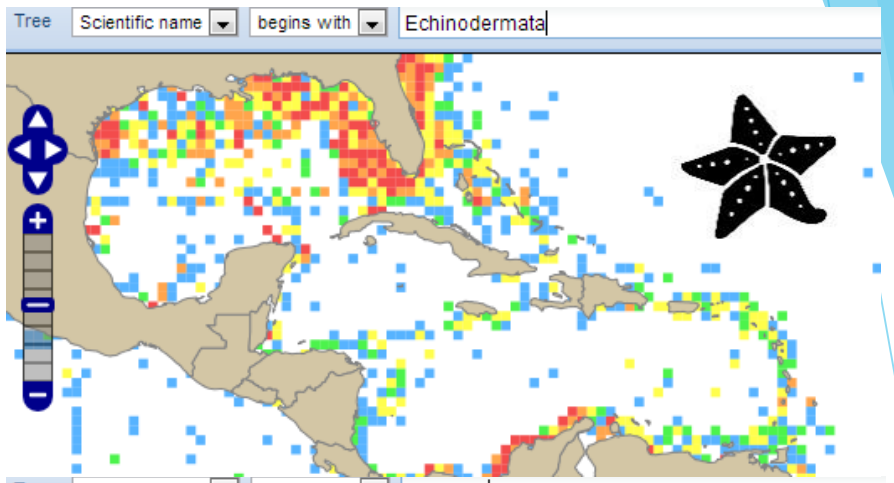


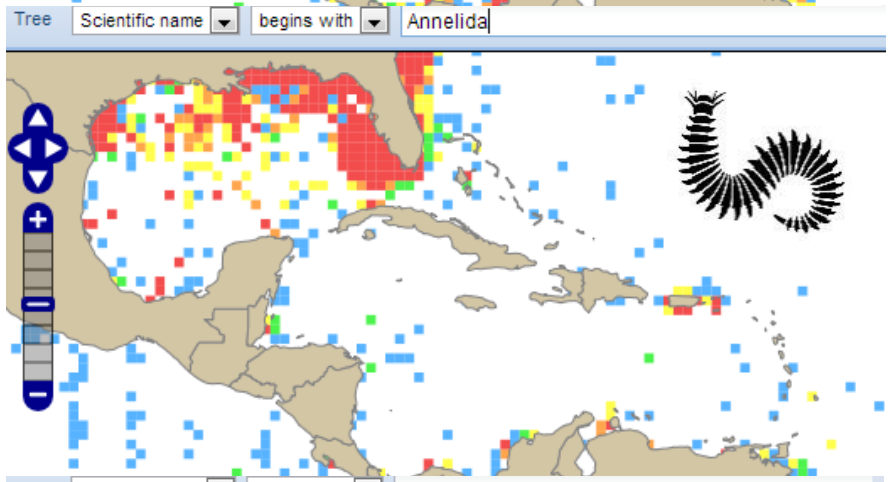
Intergovernmental Oceanographic Commission (IOC) of UNESCO. The Ocean Biogeographic Information System. http://www.iobis.org. (Consulted on 08/10/2013)

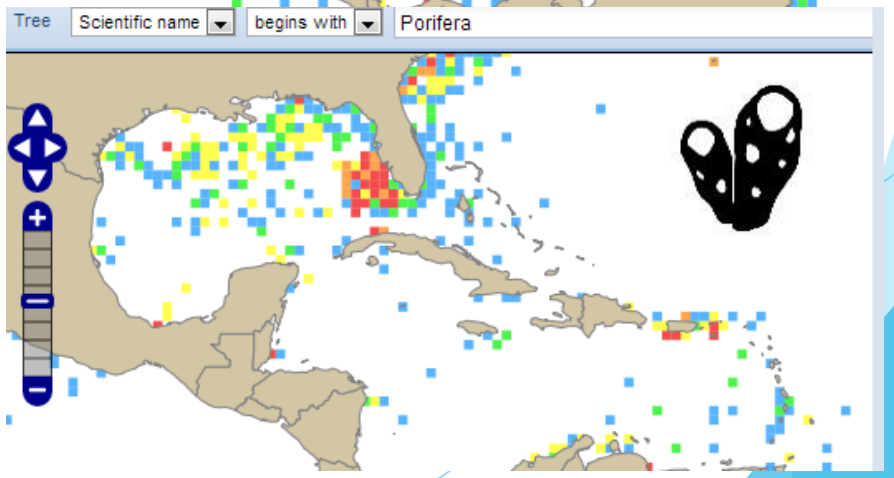












OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

Sampling data sources

Species data sources

OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

CONABIO
COMISIÓN NACIONAL PARA EL CONOCIMIENTO Y USO DE LA BIODIVERSIDAD

ZOOTAXA

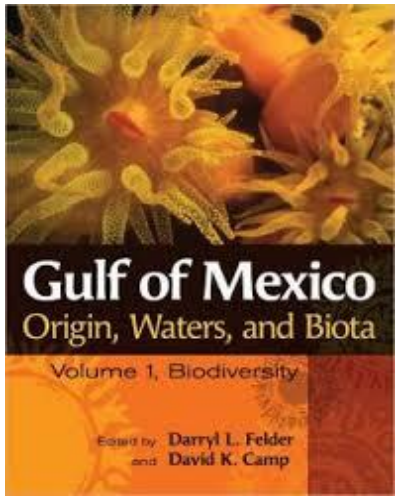
WoRMS
World Register of Marine Species

Instituto Nacional de Pesca

UNIDAD ACADÉMICA YUCATÁN

BioDiv GAP-GMx

The PRISMA Statement (modified)



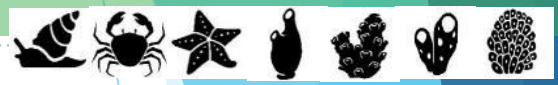
2009

Identification

Additional records identified through other sources (n = 0)

Records identified through database searching (n = 2820)

Mollusca (n = 1151) Fishes (n = 573)
Decapoda (n = 466) Cnidaria (n = 392)
Ehinodermata (n = 118) Porifera (n = 63)
Tunicata (n = 35) Bryozoa (n = 22)



Screening

Records after duplicates removed (n = 2820)

Records screened (n =2820)

Records excluded (n = 0)

Eligibility

Full-text articles assessed for eligibility (n = 1069)

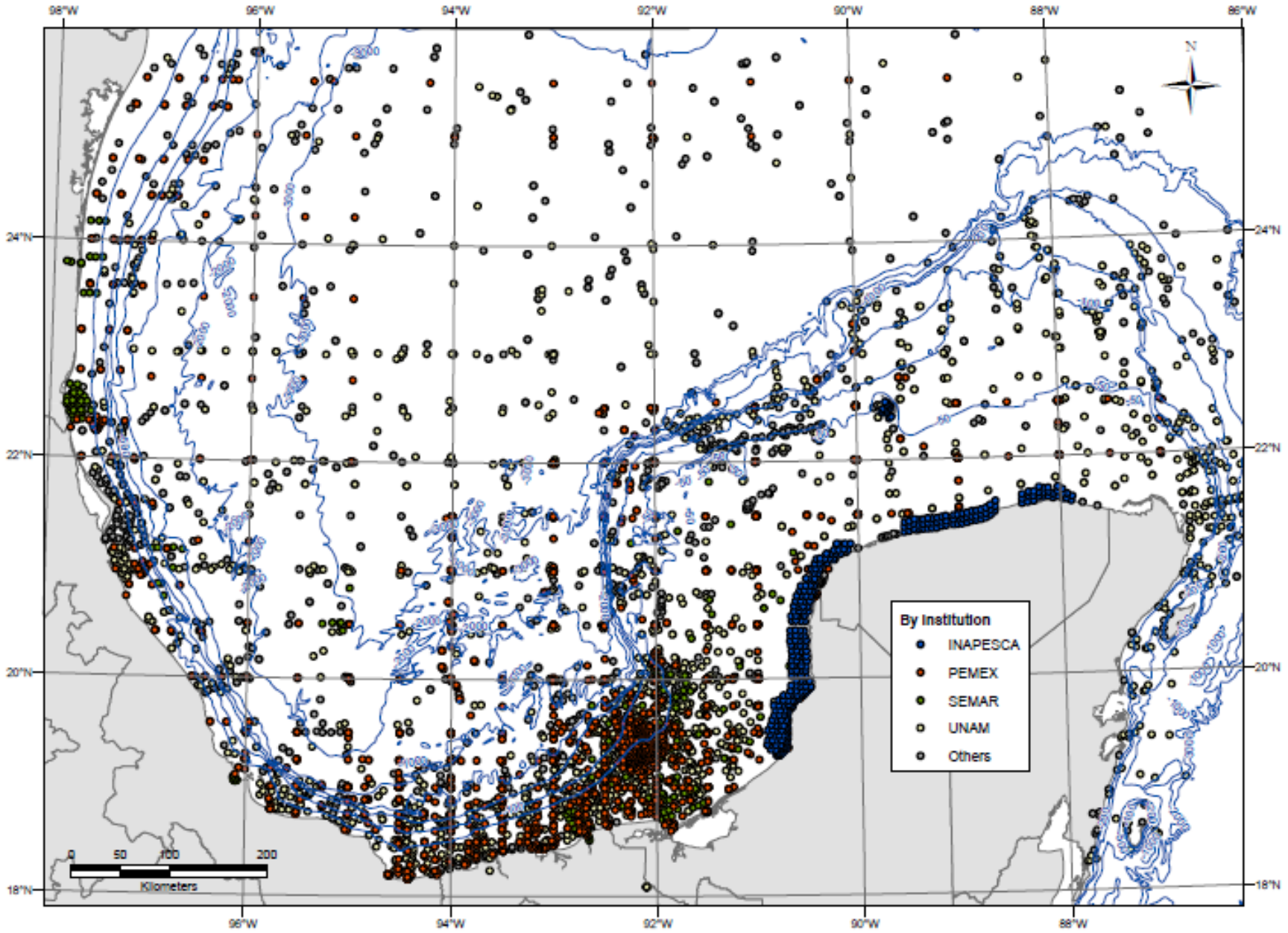
Full-text articles excluded, with reasons (n =0)

Included

Studies included in qualitative synthesis (n = 1069)

Mollusca (n = 368) Fishes (n = 287)
Decapoda (n = 145) Cnidaria (n = 138)
Ehinodermata (n = 42) Porifera (n = 44)
Tunicata (n = 30) Bryozoa (n = 17)

Benthic Sampling stations (historic, by institution)

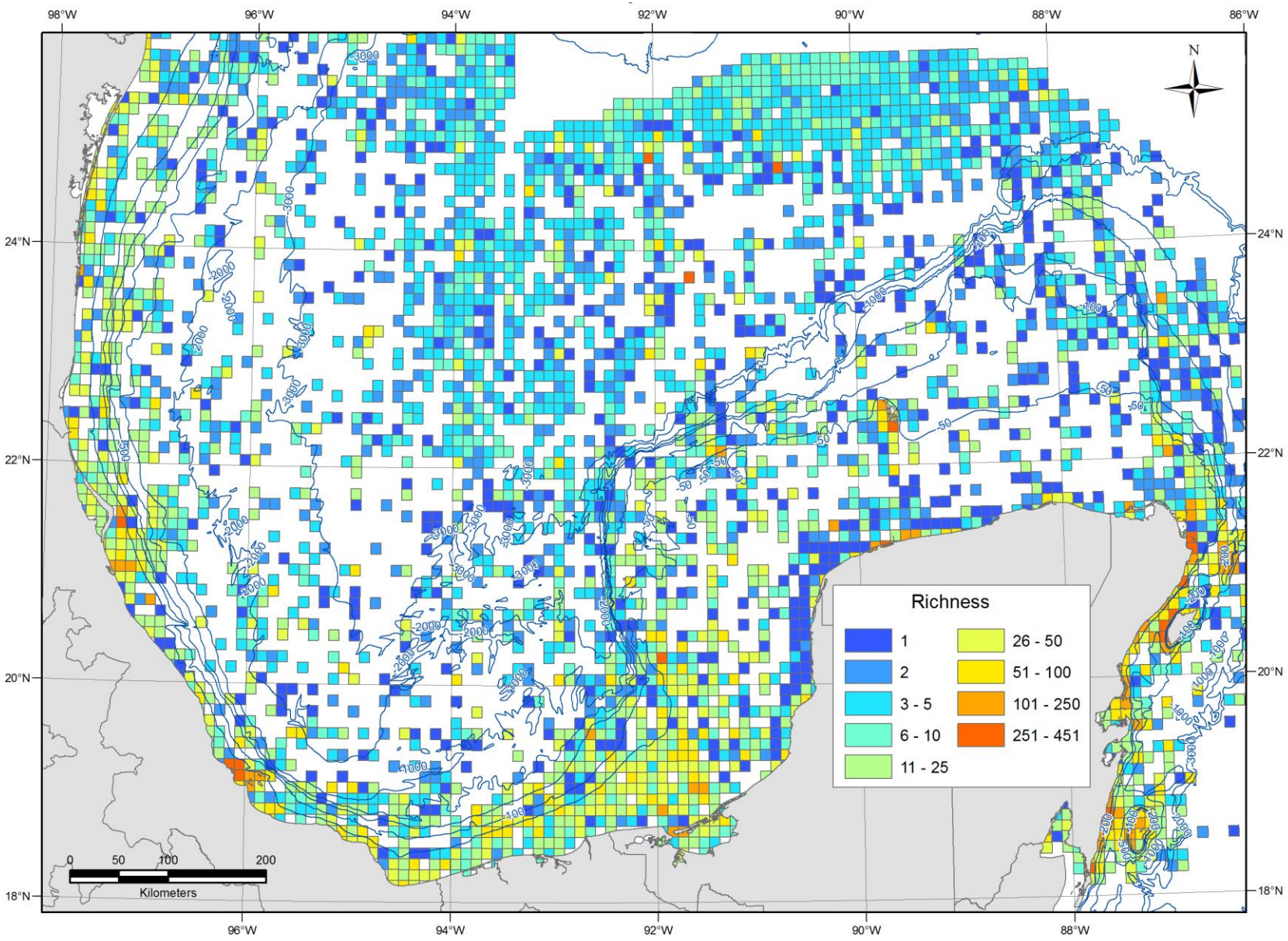


Registered sampling points

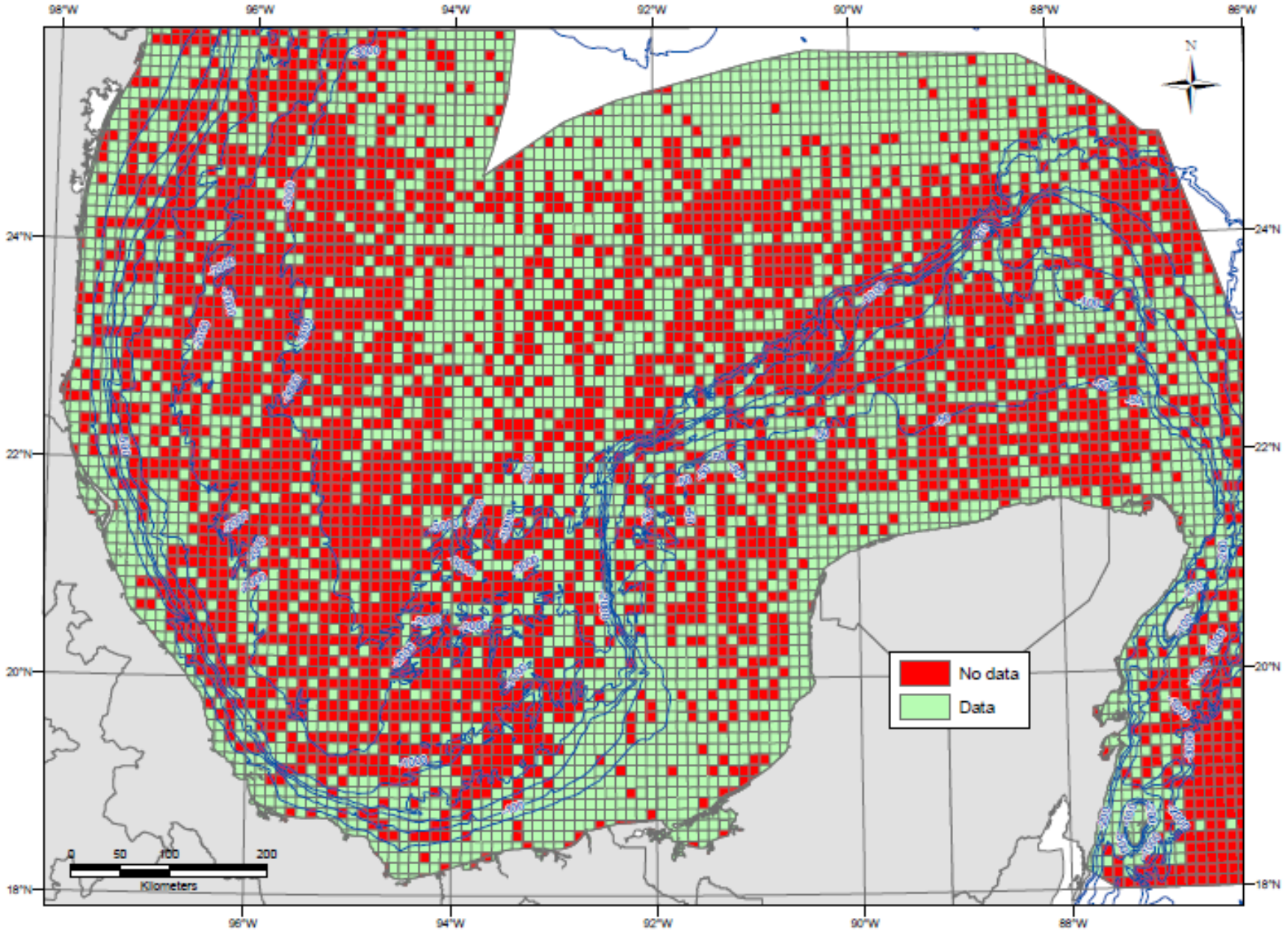
UNAM (excl.PEMEX) 1829
SEMAR 202
PEMEX 2560
INAPESCA 728
CINVESTAV (incl. PEMEX y otros)
OTROS 2758

Total: 8077 points

Relative species richness



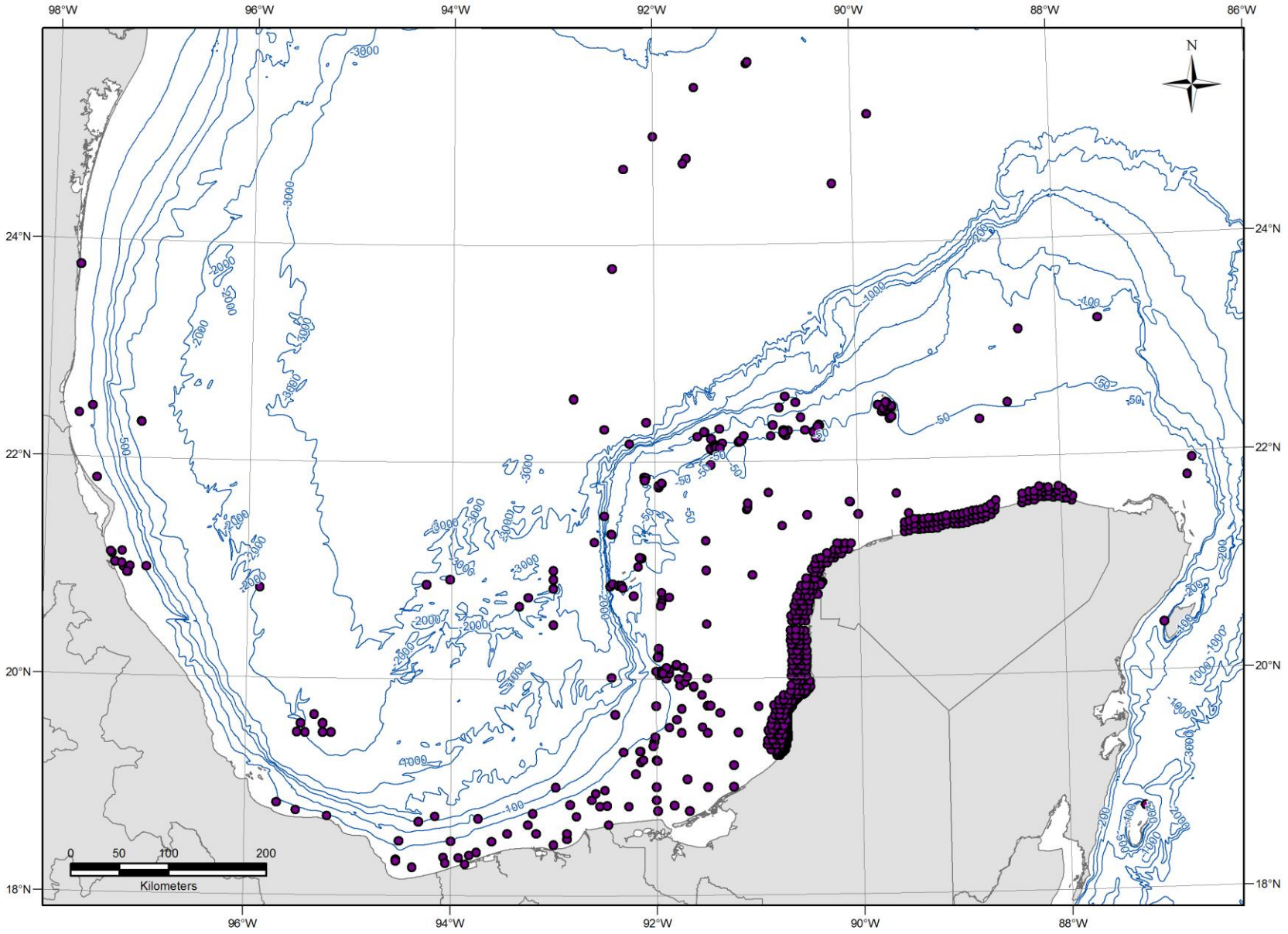
Sampling Gaps



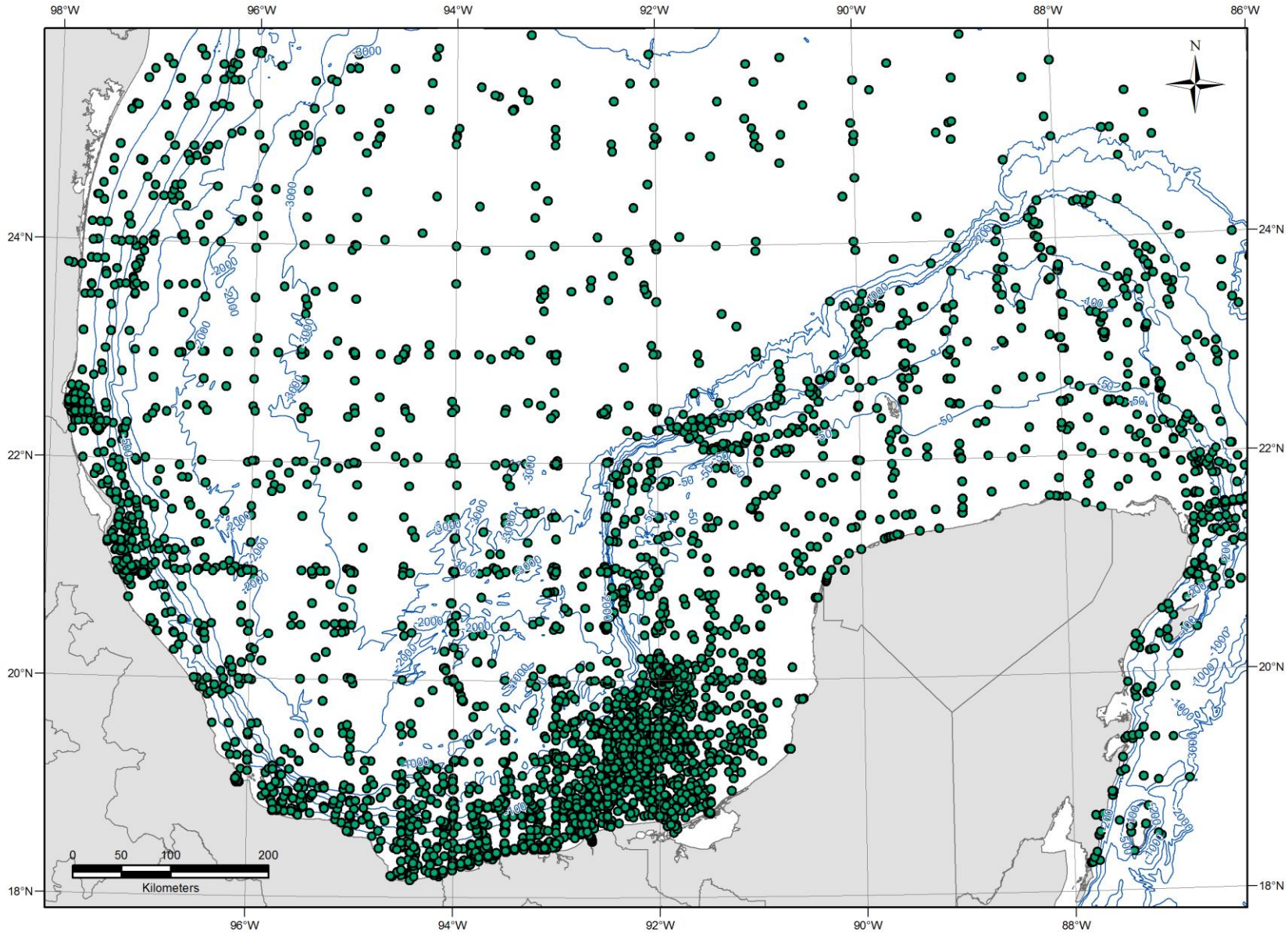
53% gaps

gaps: 4015 en la ZEE mexicana
7572 pixeles en total

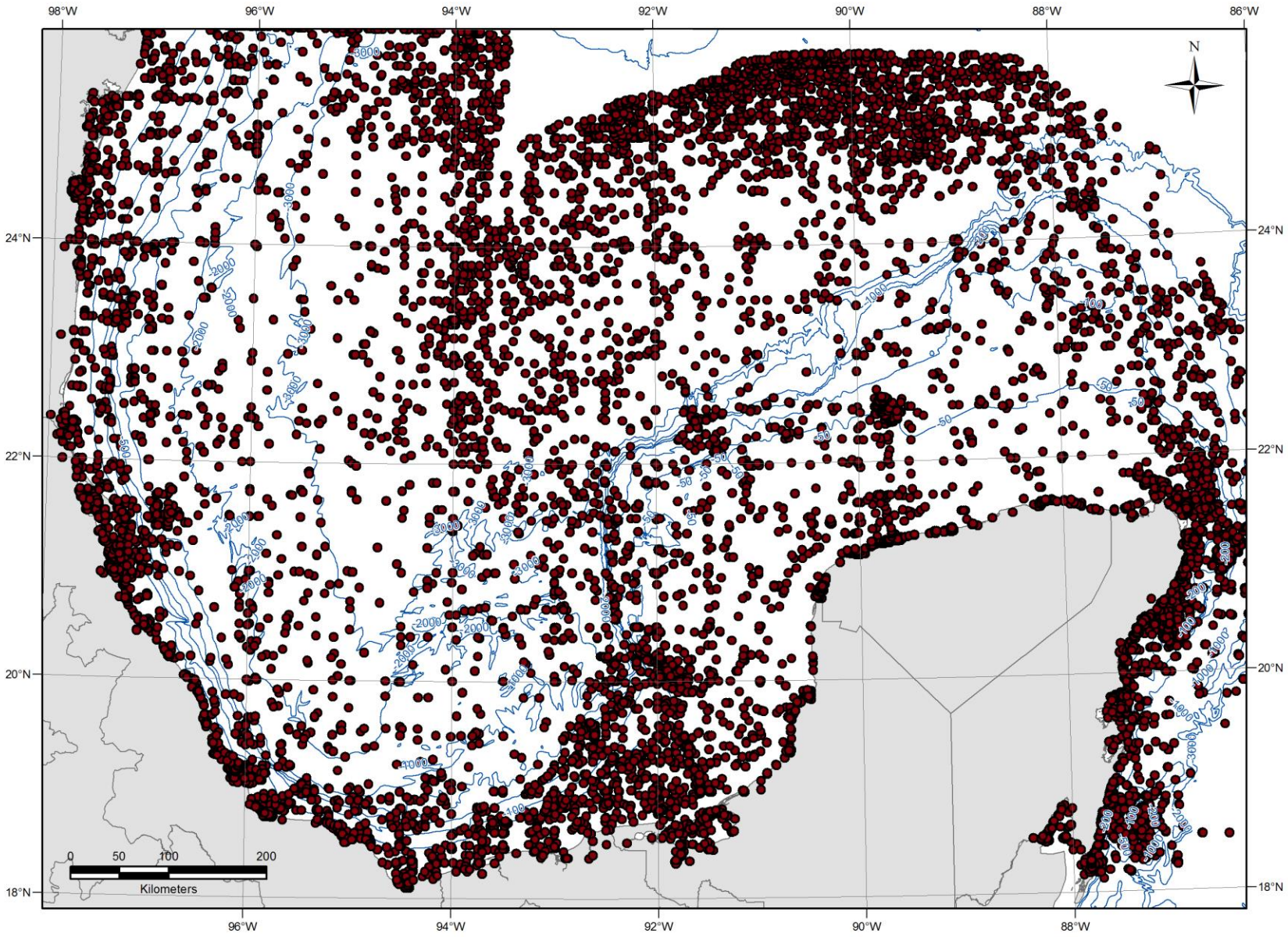
Species records with related sampling information



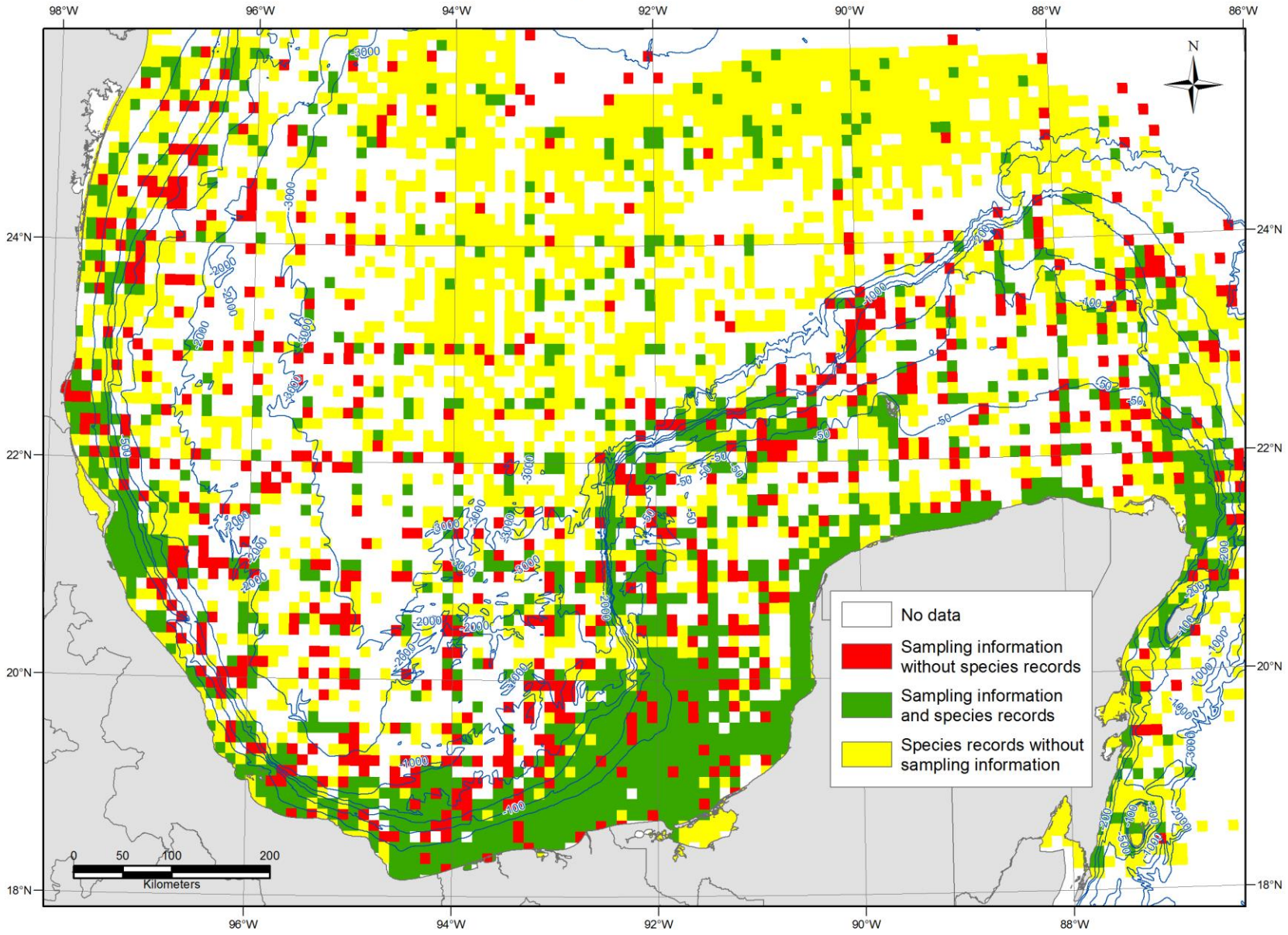
Sampling locations without species information



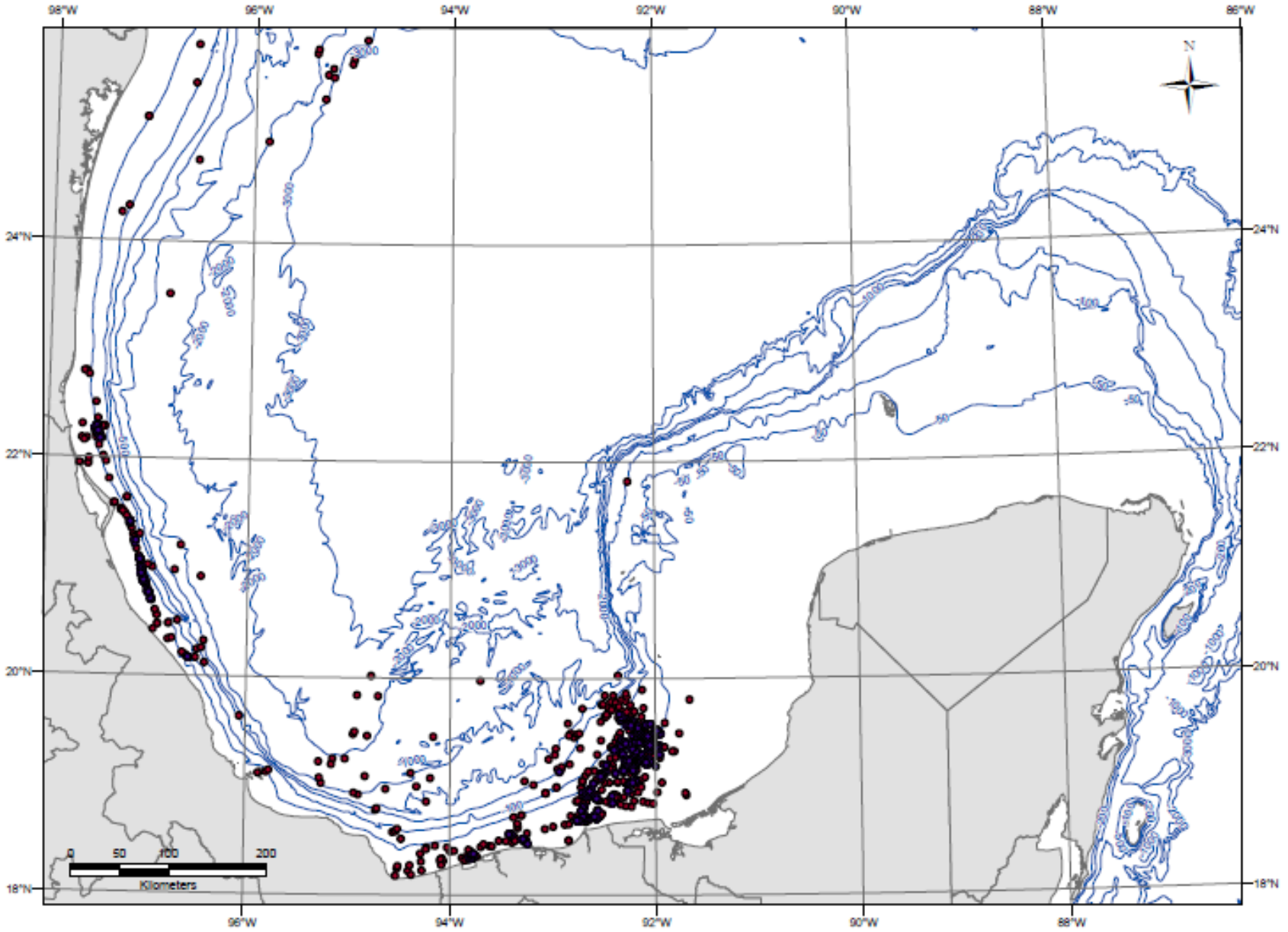
Species records without related sampling information

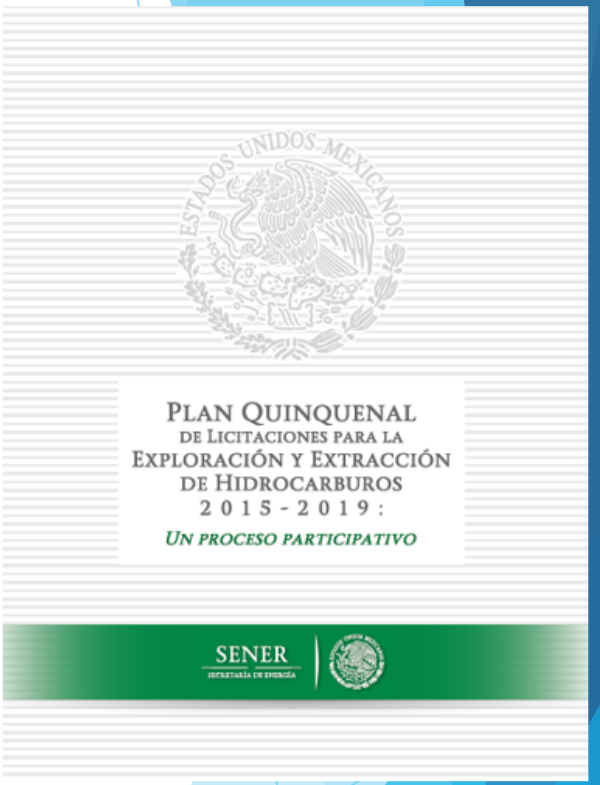


Benthic sampling and species records differences



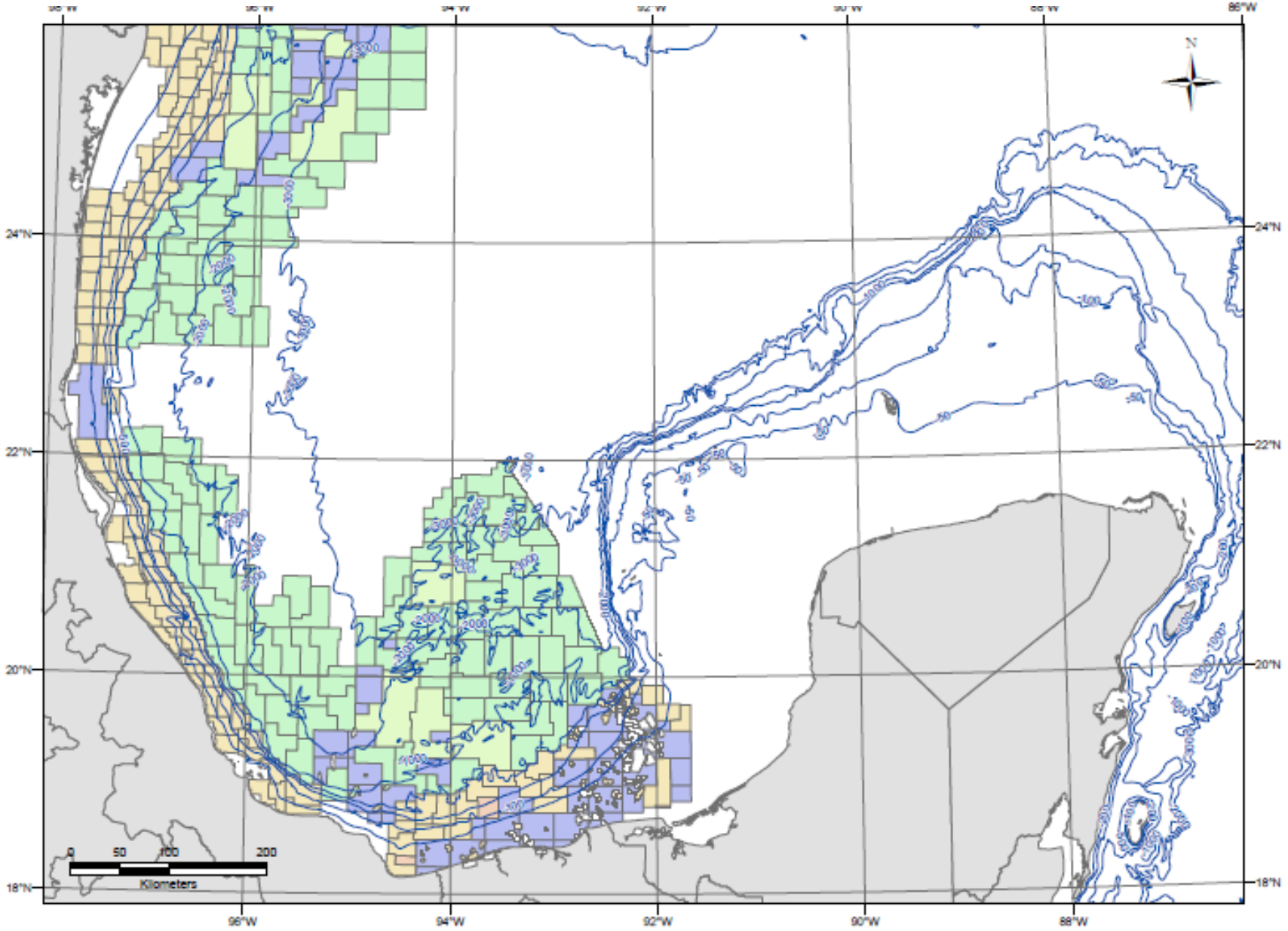
Current Oil Fields

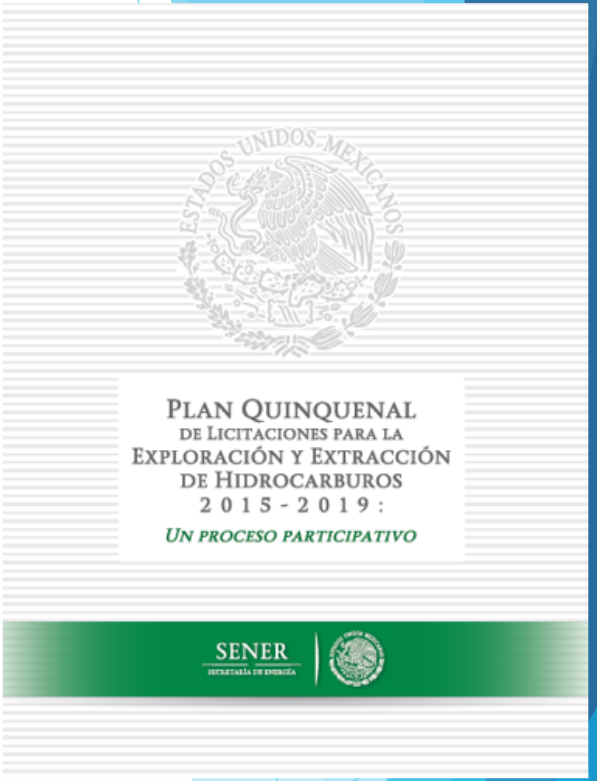




http://portal.cnih.cnh.gob.mx/

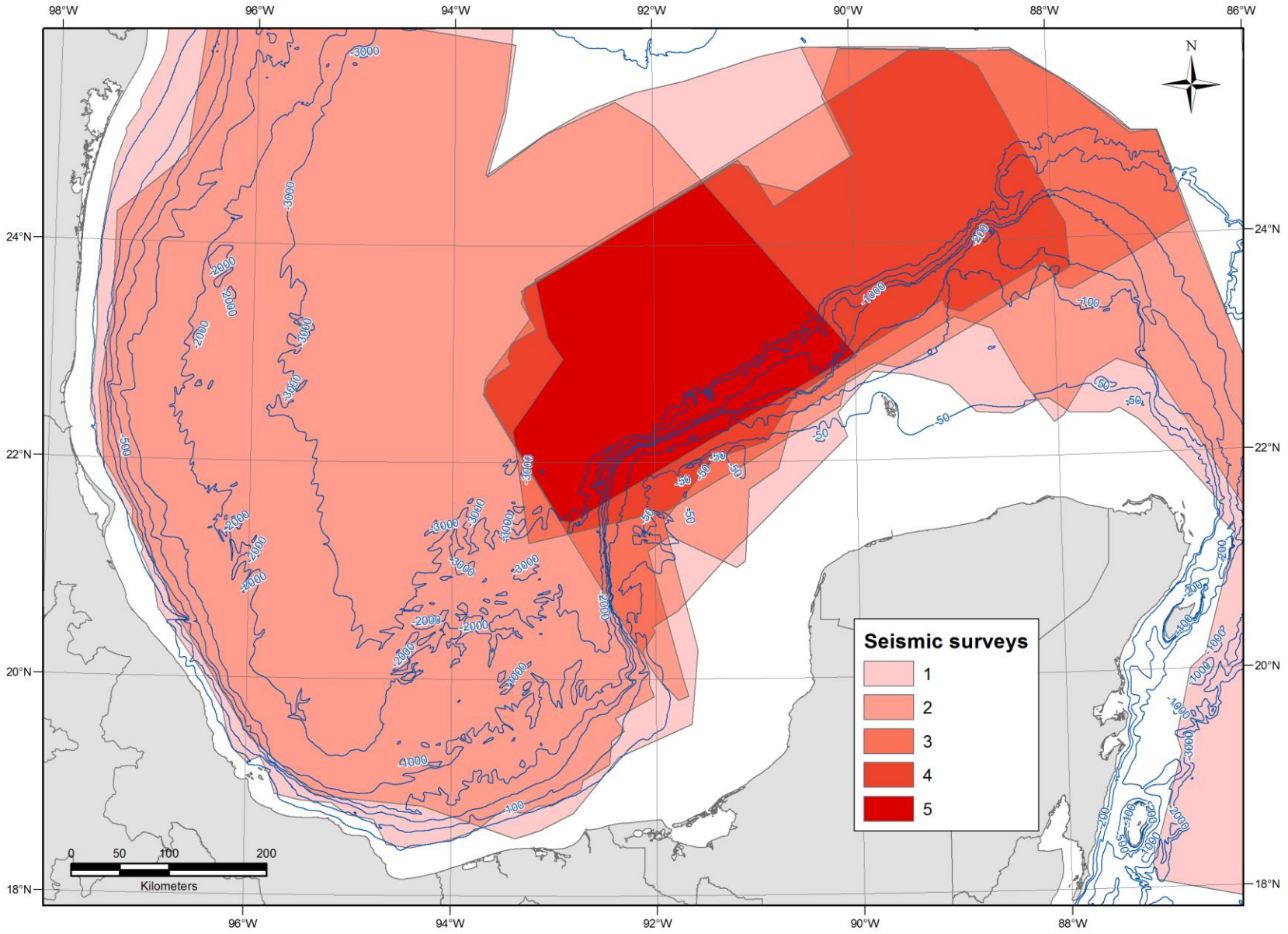
5 Years oilfield auction plan

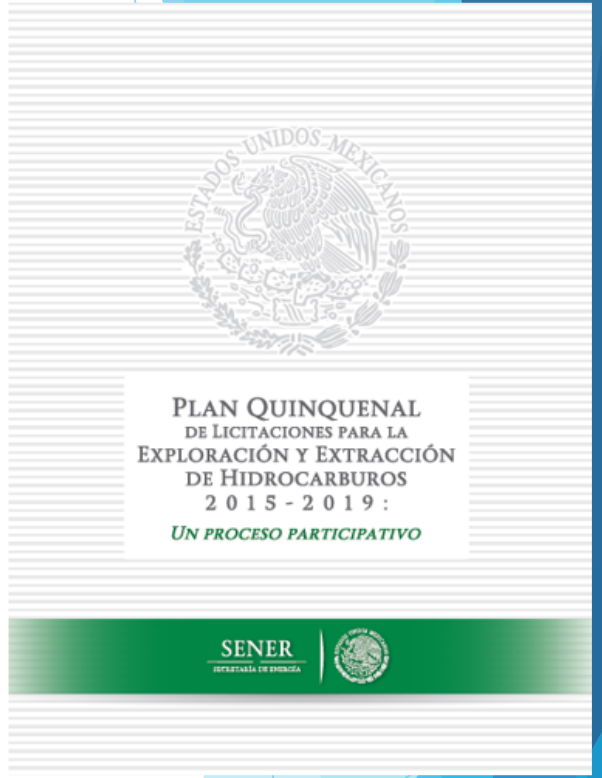




http://portal.cnih.cnh.gob.mx/

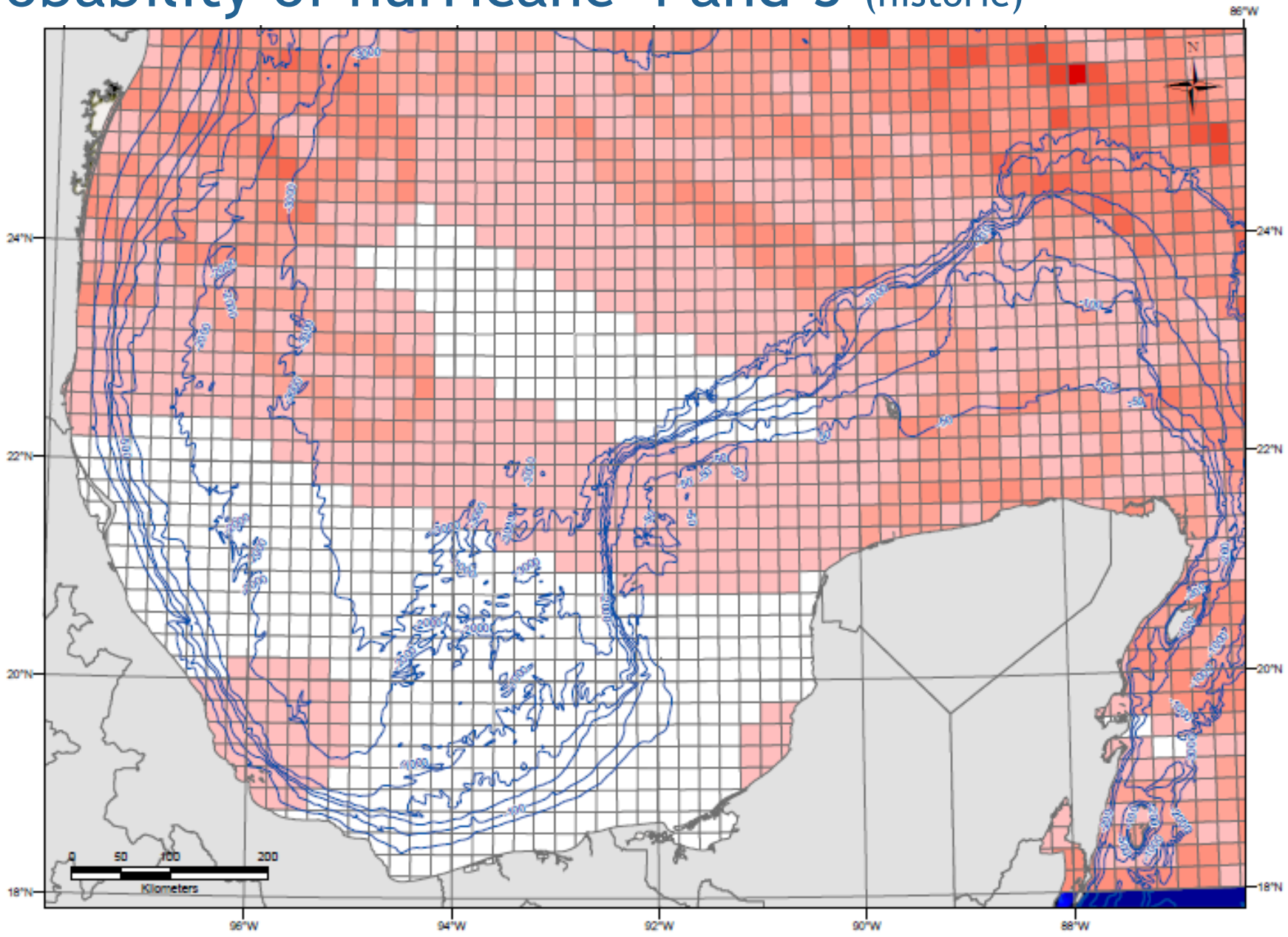
2015 Authorized Seismic Surveys



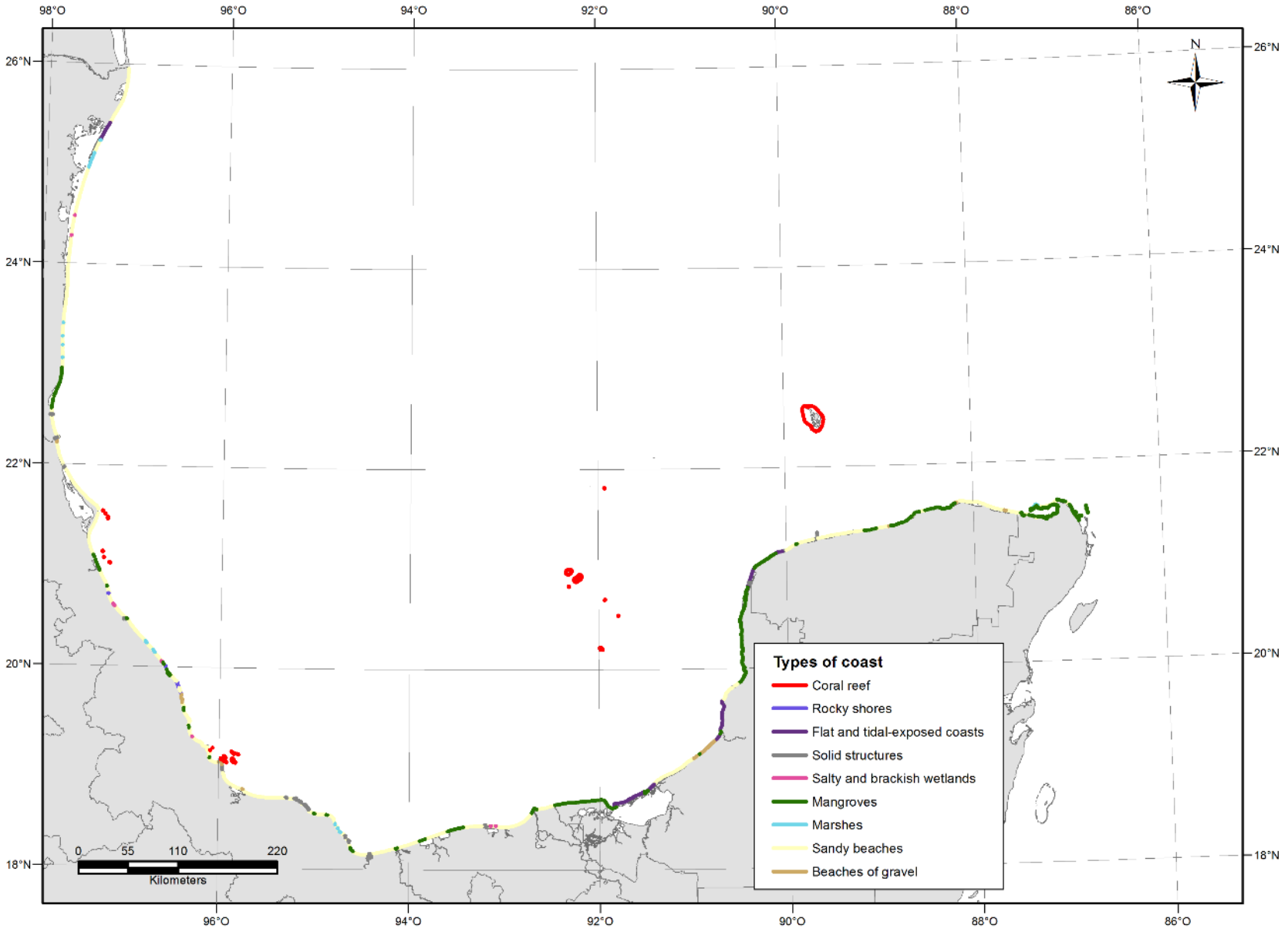


http://portal.cnih.cnh.gob.mx/

Probability of hurricane 4 and 5 (historic)

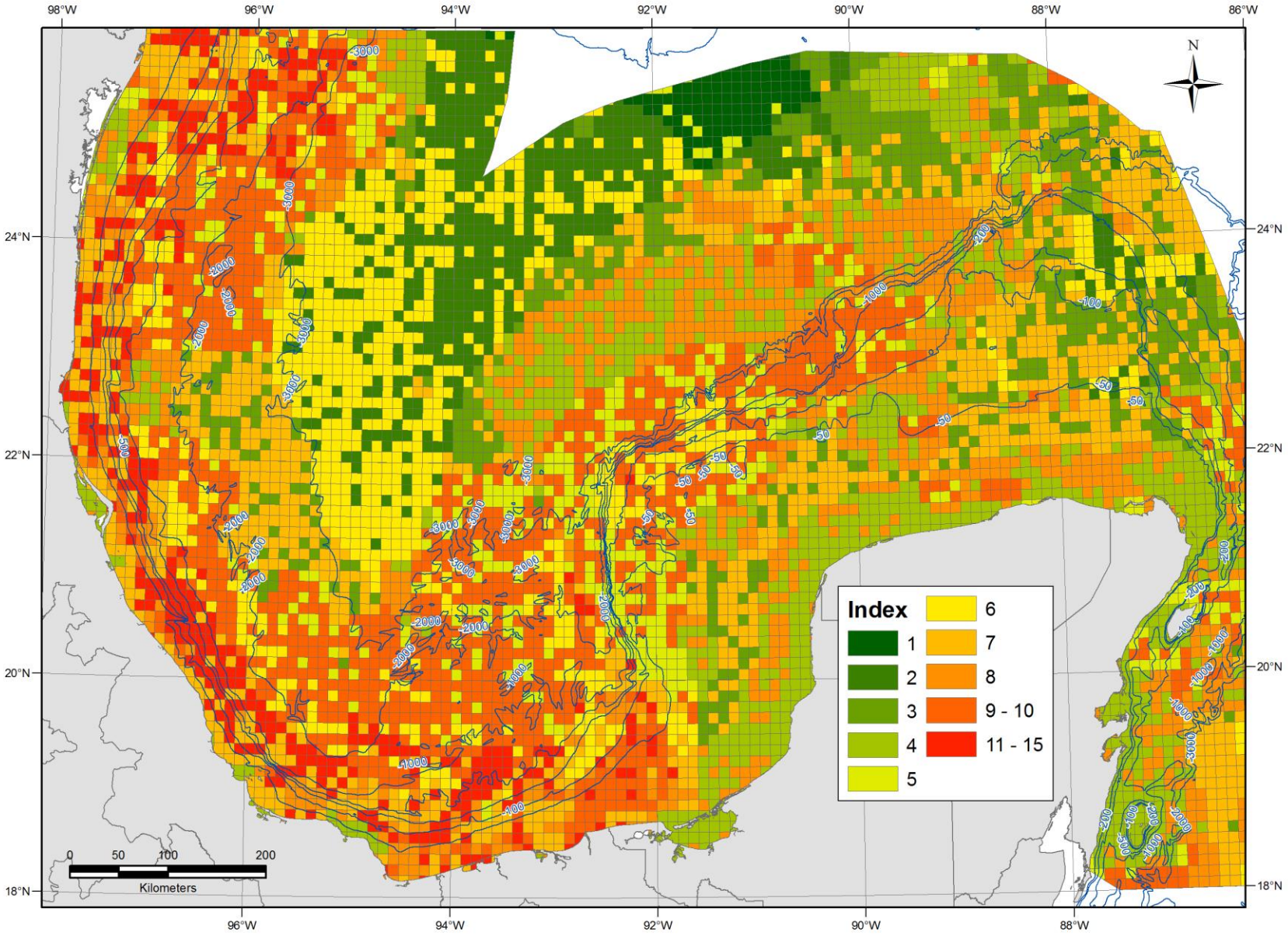


Types of coast



'Atlas de vulnerabilidad ambiental del Golfo de México', publicado en 2006 por la Unidad de Seguridad Industrial, Protección Ambiental y Calidad de La Subdirección de la Coordinación de Servicios Marinos de Pemex Exploración y Producción, Universidad Autónoma Metropolitana.

Preliminary oil “risk” index



Issues to deal with, in order to achieve the basis for biological modelling of the GMx biodiversity

- Point vs area-based-information
- Presence vs abundance-information
- Benthic vs nekton vs above water information
- Historic, current and time-series information
- Ecological role and/or trophic level
- Species distribution probability models
- Species interactions in space and time

BDMY
BioDiversidad Marina de Yucatán

CONABIO

CONACYT
Consejo Nacional de Ciencia y Tecnología

UNAM
POSGRADO
Ciencias Biológicas

TEXAS A&M UNIVERSITY CORPUS CHRISTI
HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES