Agenda Item G.5.a
Supplemental HMSMT Presentation 1
June 2018

G.5 HMSMT Report

Deep Set Buoy Gear – Range of Alternatives

Potential Fishery Constraints

1.) **Spatial**
- Potential fishable area
- Gear conflict

2.) **Economic**
- Price effects

3.) **Biological**
- Bycatch
- Swordfish stock

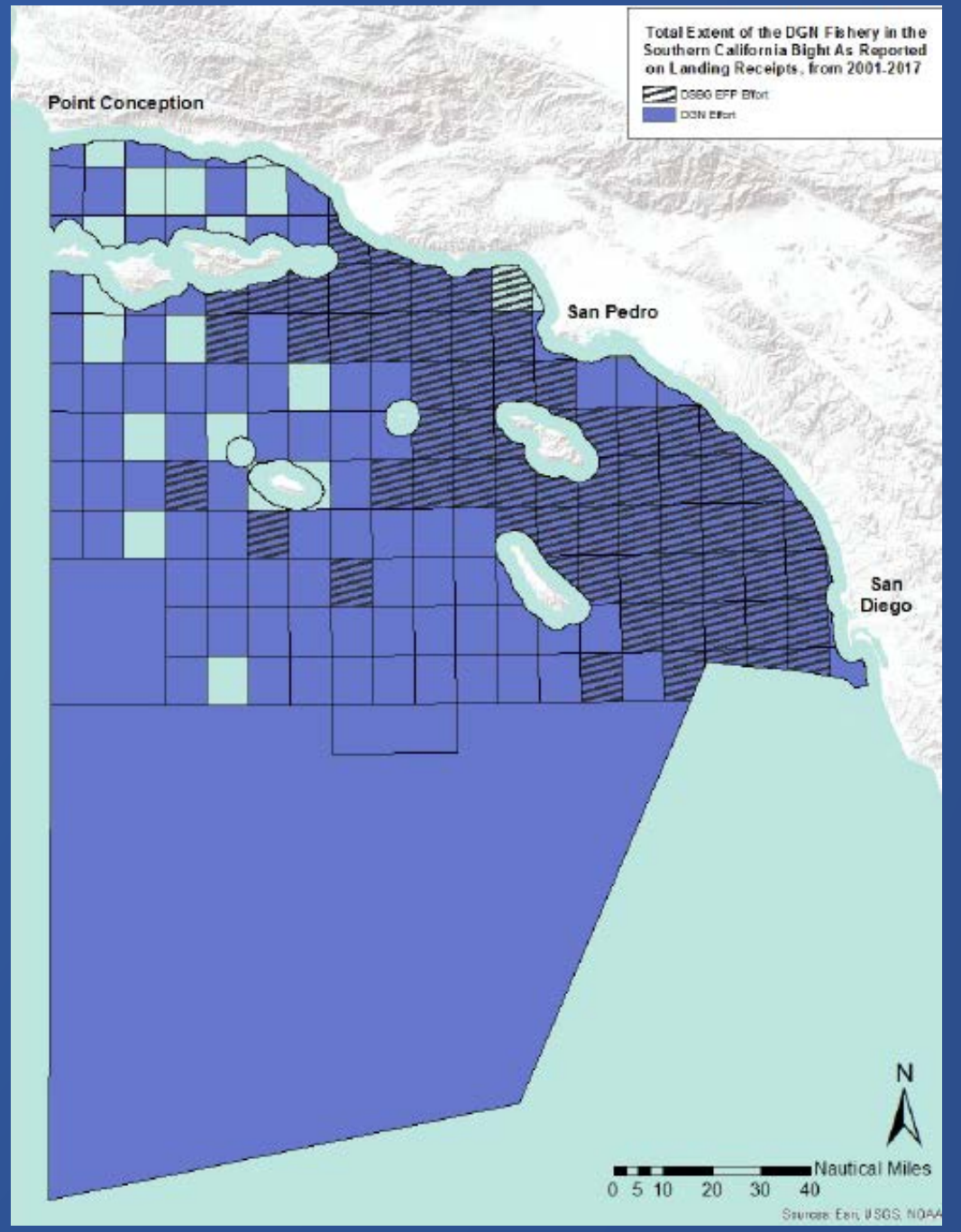
Spatial Constraints

- **Data sources:**
  - DGN logbook, landing receipts, observer data
  - CPFV logbooks, Angler interviews
- **Est. DSBG footprint** = 5 nm diameter (19.625 nm^2)
- **Caveats:**
  - Data integration issues
  - Mobility of swordfish stock
  - DSBG data limitations
  - Applicability of DGN to DSBG
  - Daily effort not equal to maximum permits

Spatial Constraints

Maximum DGN spatial extent (2001-2017)

- 163 unique CDFG blocks with **58,446.7 nm²** total area
- **2,978** DSBG footprints fit without overlap



Spatial Constraints

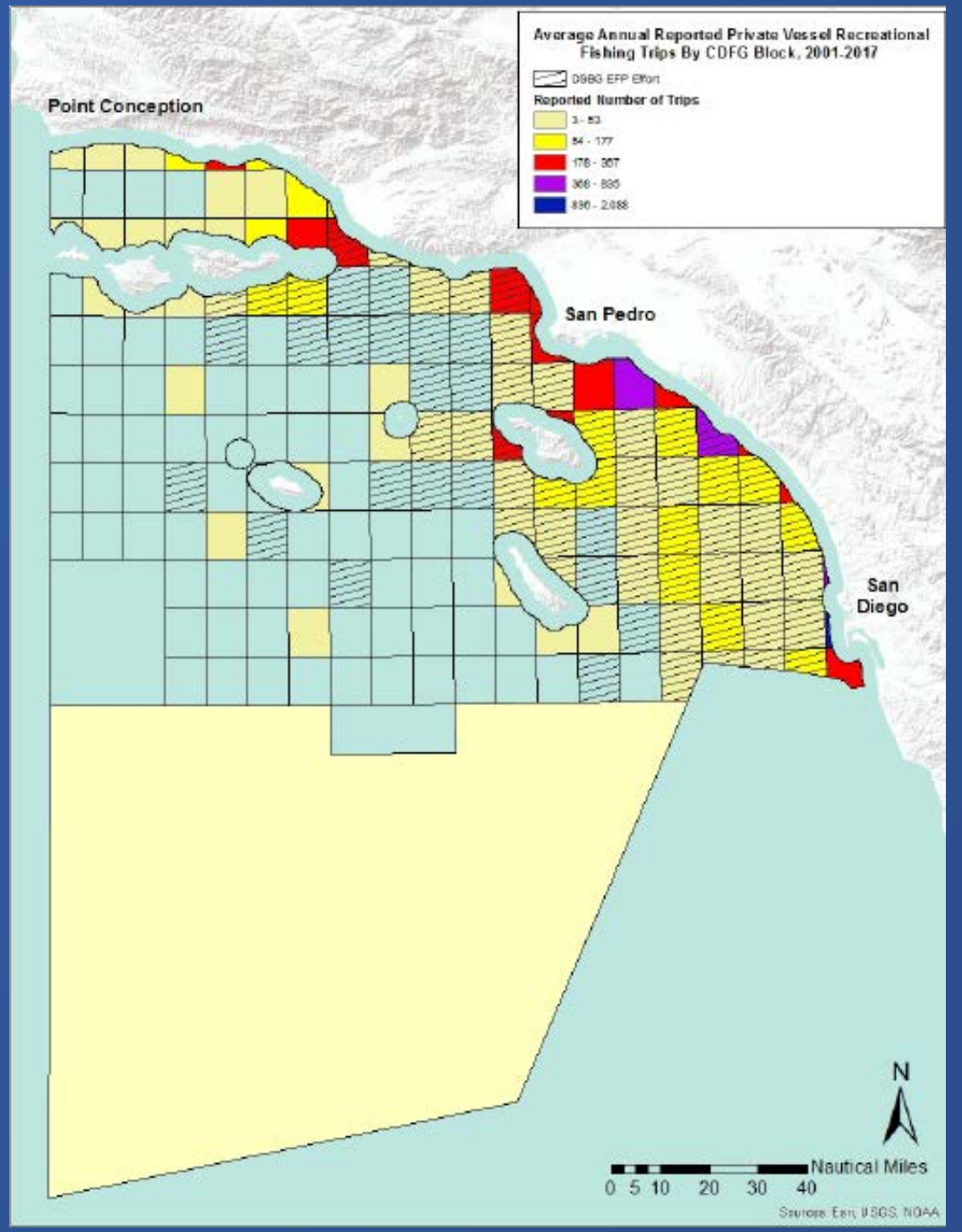
- Area of maximum # blocks in a DGN season: 330 DSBG footprints = 650 permits, assuming 50% activity

- Area of minimum # blocks in a DGN season: 83 DSBG footprints = 165 permits, assuming 50% activity

- Using # blocks in DSBG EFP data = 300 permits assuming 50% activity

Spatial Constraints

- Recreational conflict is possible but speculative at this time
- Highest levels of recreational effort nearshore, likely to be in state waters
- Spatial constraints unlikely to limit the DSBG fishery



Economic Constraints

- DSBG price effects considering:

  Landings volume (multiple gear types)

  Availability of substitute species

  Temporal fluctuation in supply

  Imports

Economic Constraints

- LL and DGN = Highest volume November to May
- DSBG = Highest volume summer/early fall (shift to DGN)

(Figure 5 on Page 9 of Agenda Item G.5.a)

Economic Constraints

- Heavy reliance on imports
- DSBG price highest in summer
- Price decreases as LL/DGN landings increase

(Figure 6 on Page 10 of Agenda Item G.5.a)

Economic Constraints

- ↑ LL/DGN Landings = ↓ DSBG Price
- Limited effect of DSBG landings on DSBG price
- More data required to conduct full economic analysis

Biological Constraints

- EFP data (logbook/observer)
- Average annual EFP trips per vessel = 45
- Analyzed limited entry at: 10, 50, 150, 250 vessels
- Analyzed open access at 300 vessels
- Applied CPUE of target species and bycatch

Table 1. EFP Catch, CPUE, and Expanded Potential Annual Catch for Alternative Numbers of DSBG Permits.

	Swordfish	Bigeye Thresher Shark	Blue Shark	Shortfin Mako Shark	Pelagic Thresher Shark	Opah	Escolar	Yelloweye Rockfish	Jumbo Squid	Northern Elephant Seal	Unid Misc
Total Caught	1171	161	9	1	1	3	10	1	1	1	1
757 Total Days Fished											
Catch Per Day	1.547	0.213	0.012	0.001	0.001	0.004	0.013	0.001	0.001	0.001	0.001
45 Days Per Year Per Vessel											
Annual Catch Per Vessel	69.6	9.6	0.5	0.1	0.1	0.2	0.6	0.1	0.1	0.1	0.1
10 Vessel Annual Catch	696	96	5	1	1	2	6	1	1	1	1
50 Vessel Annual Catch	3481	479	27	3	3	9	30	3	3	3	3
150 Vessel Annual Catch	10442	1436	80	9	9	27	89	9	9	9	9
250 Vessel Annual Catch	17403	2393	134	15	15	45	149	15	15	15	15
300 Vessel Annual Catch	20883	2871	161	18	18	54	178	18	18	18	18

- Using EFP data, estimated DSBG harvest of WCNPO swordfish would not exceed surplus even at open access number of permits or in addition to current West Coast landings
- Unlikely to have major impacts on protected species

Biological Constraints

- EFP activity to-date:
  - Limited interactions with N. elephant seal
  - No interactions with other protected species

- With additional fishing effort, may see additional interactions

- Potential for entanglement (whales/leatherbacks) could be higher on LBG than SBG.

- Outcomes of these potential interactions are not yet assessed.

Additional HMSMT Considerations

- March 2018 motion specified DSBG permits would be non-transferrable
  - Inability to transfer should limit speculative applications for permits

- Team discussed various approaches to further address concerns regarding number of permits and speculative interests

Integrated Analysis

- Bayesian analysis
- Consider spatial, biological and economic interdependencies
- Simulation model to determine primary constraint on permits
- Include additional variables
- Potential SSC review?