

PIER-EFP update

Agenda Item F.2.a
Supp DSBG PPT
March 2016

Provide progress report for PIER-DSBG-EFP

Research history and progress to date

2015 EFP findings

Ongoing and proposed research



Chugey Sepulveda, PhD
Scott Aalbers, MS

© Ralph Pace

PIER - DSBG Research History

Phase I

**PIER award to design and test deep-set buoy gear (harpoon supplement)
(DSBG) in Southern California (NOAA-Saltonstall-Kennedy 2011; GTP)**

Phase II

**Investigate alternative DSBG configurations that may
increase efficiency and reduce potential for gear loss
(NOAA-Bycatch reduction and Engineering Program: 2013)**

Phase III

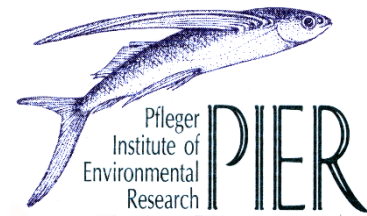
**Testing DSBG with cooperative fishers in the SCB
(Bycatch reduction and Engineering Program: 2013-2014;
Pew Charitable Trust: 2014; FishWise, GTP)**

Nocturnal shallow-set buoy gear experiments (Ongoing)

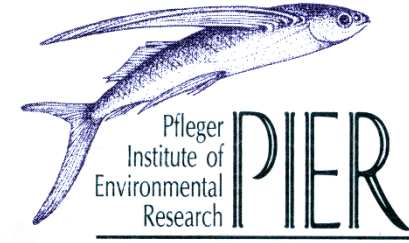
(Saltonstall-Kennedy: 2014; Pew Charitable Trust: 2014)

Expanding DSBG and designing a linked configuration (Ongoing)

**(Bycatch reduction and Engineering Program: 2015-2016)
The Nature Conservancy; Pew Charitable Trust: 2016**



All Federal awards included:



NOAA WCR consultation & collaboration

Environmental Assessment

Protected Resource Division Consultation

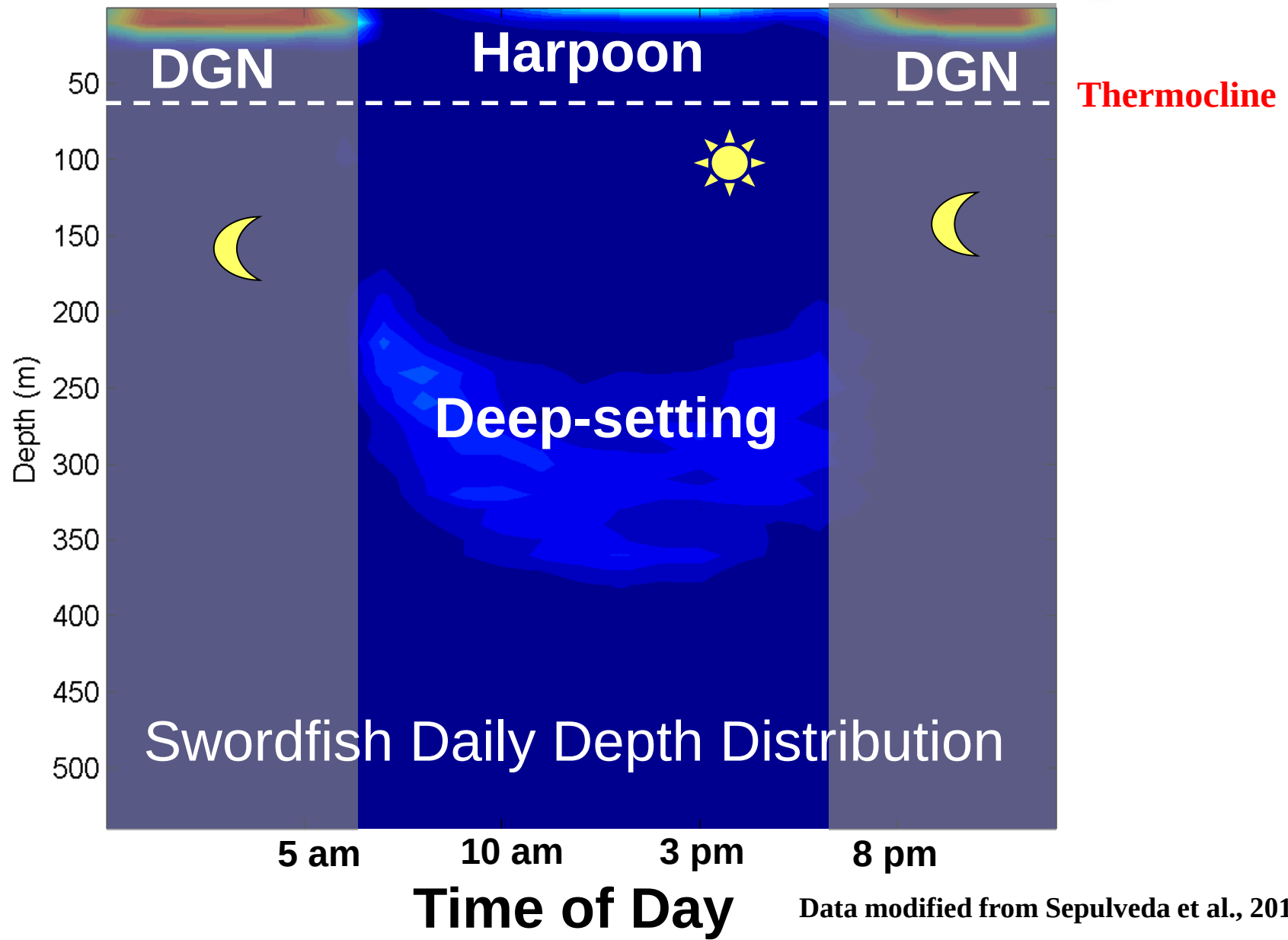
NEPA clearance

Inclusion of mandatory bycatch mitigation measures

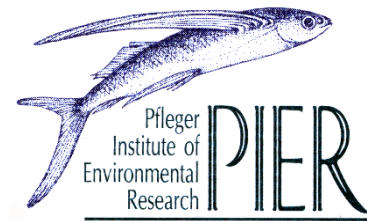
PFMC Management Team updates

**We also included language in the Department SCP
amendments for each study**

Gear design based on depth distribution of target and bycatch species



Gear Experiments designed to avoid bycatch



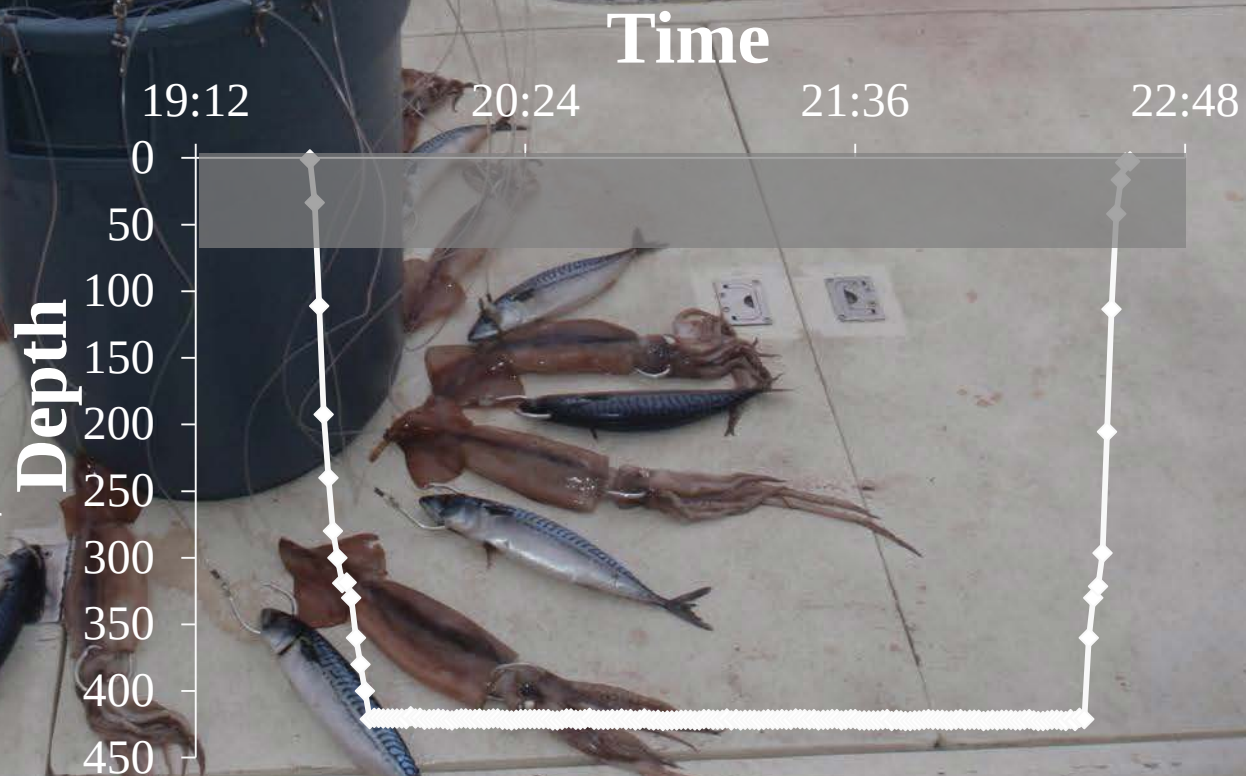
Below thermocline in <1 minute

At depth in <4 minutes

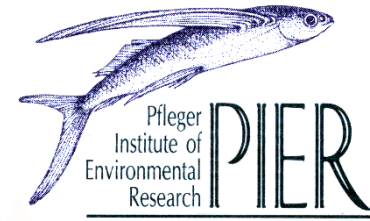
Leader lengths

Light source

Buoy configuration

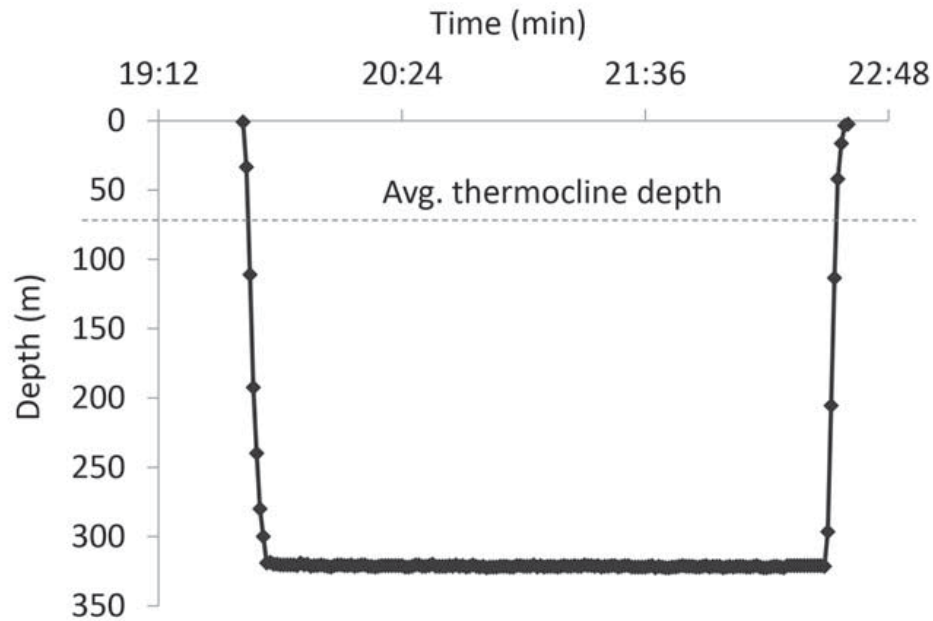
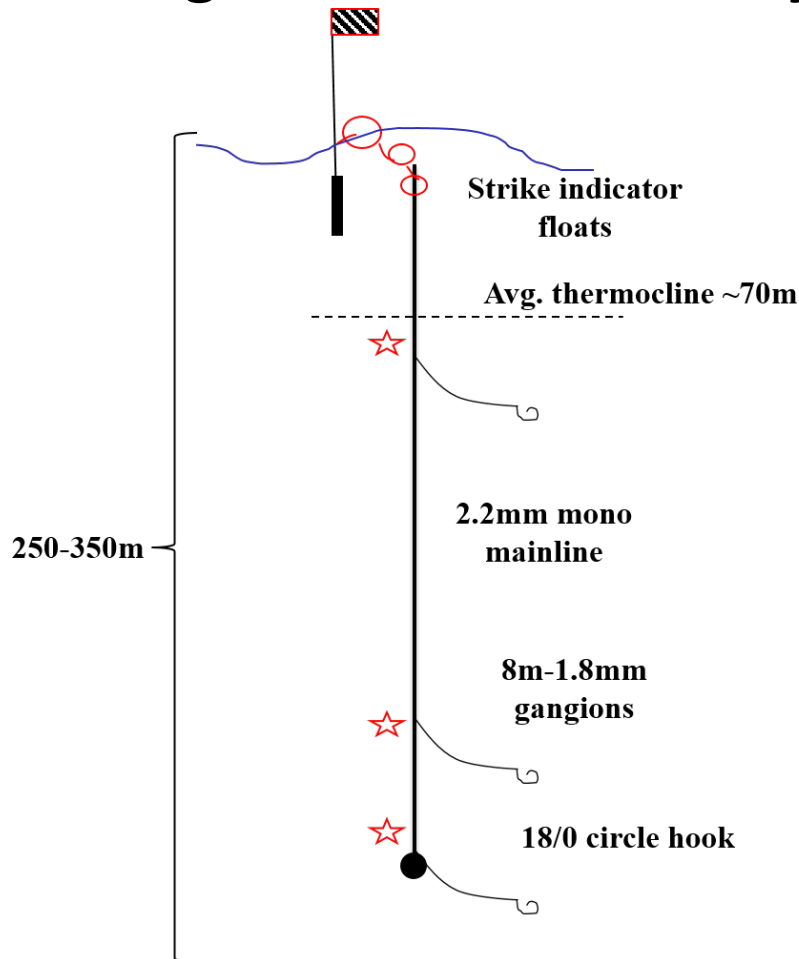


PIER-DSBG Design



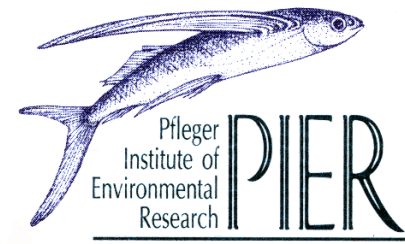
Rapid sink rate
Consistent fishing depth
Serviceability
High swordfish selectivity

Using only 10-30 hooks



Modified from Sepulveda et al., 2015

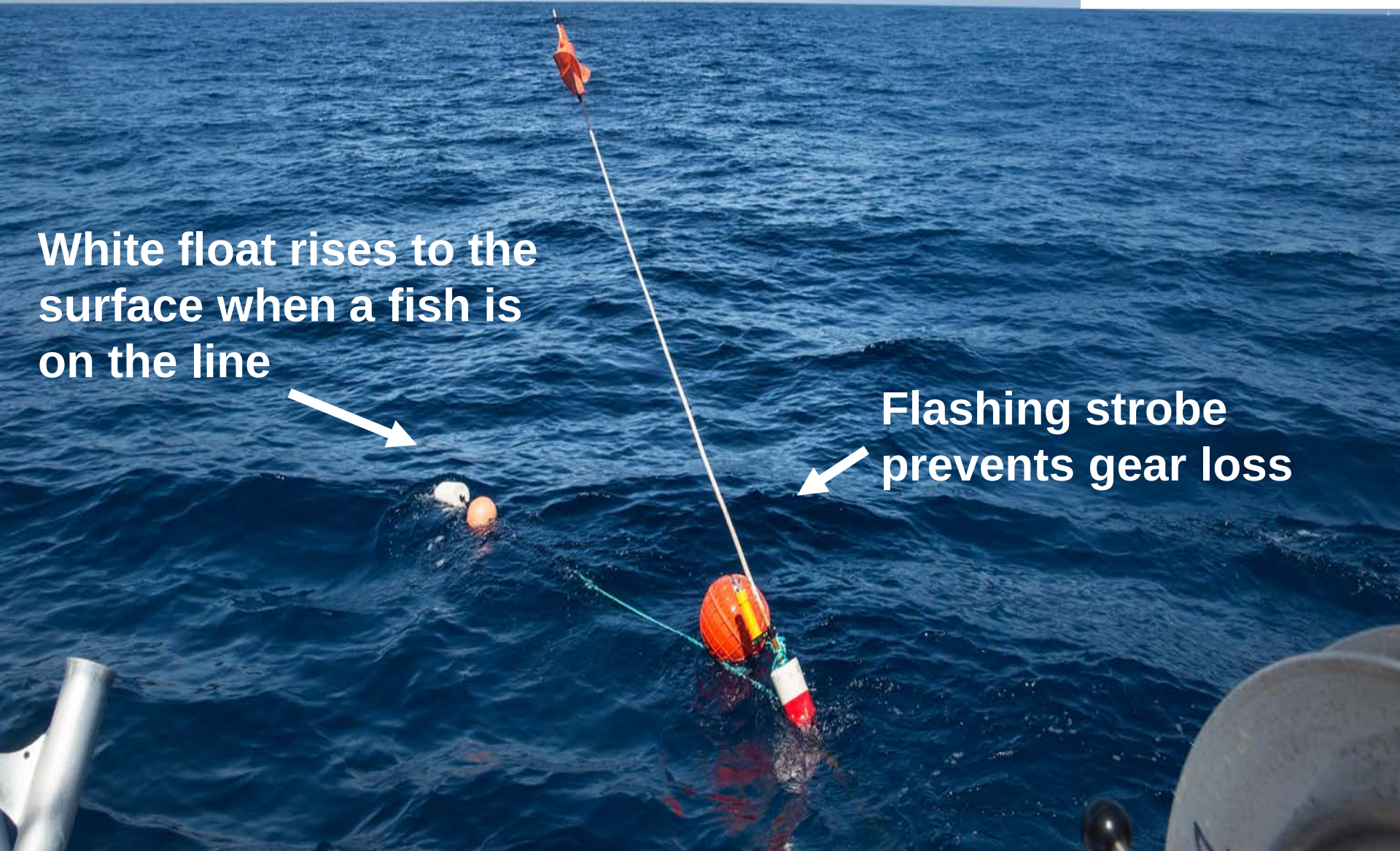
Strike indication system unique to DSBG



White float rises to the
surface when a fish is
on the line



Flashing strobe
prevents gear loss



2015-2016 PIER DSBG-EFP



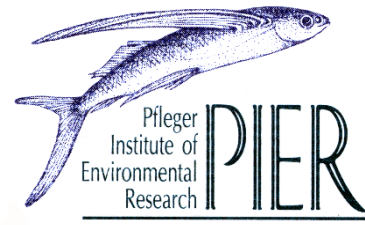
**Initiate DSBG EFP using 5 cooperative fishers
(only 4 fished in 2015-2016)
start date of 9/2016**

**Research application does not contribute to EFP catch
No Sale or Donation
Tagging or research samples only**

Per Council recommendation

**Minimum of 30% observer coverage mandate
on cooperative vessels (we had 45%)**

PIER's role in the EFP



PIER EFP Responsibilities:

- **Conduct gear experiments**
- **Oversee all PIER EFP-related activities**
- **Manage observer placement**
- **Report to Council**
- **NO sale or donation of fish caught on PIER RV**

Cooperative fishers working with PIER:

- **Deploy gear**
- **Maintain logbooks**
- **Call in to DFG & NOAA**
- **Report daily to PIER**
- **Maintain observers**
- **Take fish to market**

2015-2016 EFP- Observation costs

Total observer costs for 2015-2016 were ~70k

(Saltwater Inc.)

**Observer costs include -
training, communication
room and board, travel**

Funding Sources:

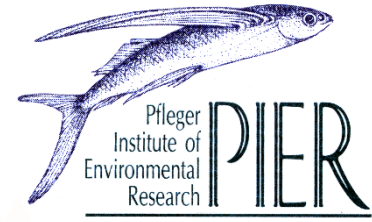
Pew Charitable Trust

NOAA/PSMFC

George T. Pflieger Foundation



Observer Placement Criteria



Mandatory if vessel falls under 35% coverage

Observer (DGN or DSBG) must be onboard if DSBG
& DGN gear is fished on the same trip.

All vessels call in and out to PIER, DFW and NOAA

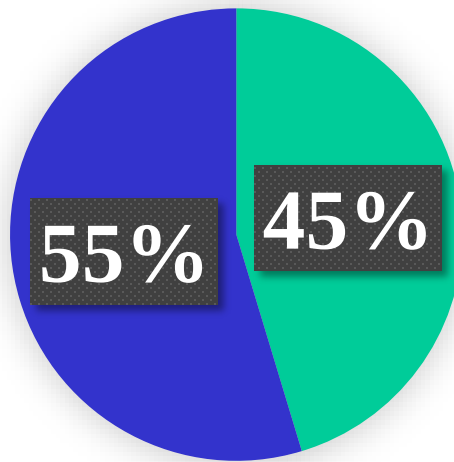
All catch is reported to PIER daily (sat phone or radio call in)

Confirmed with logbooks

2015-2016 EFP Observer Coverage

**Four cooperative fishers performed 107 8hr sets
(Vessels fished from 11 to 39d; total d=138)**

2015-16 PIER DSBG EFP Observer Coverage
Rate



- # observed sets
- # unobserved sets

EFP results to date



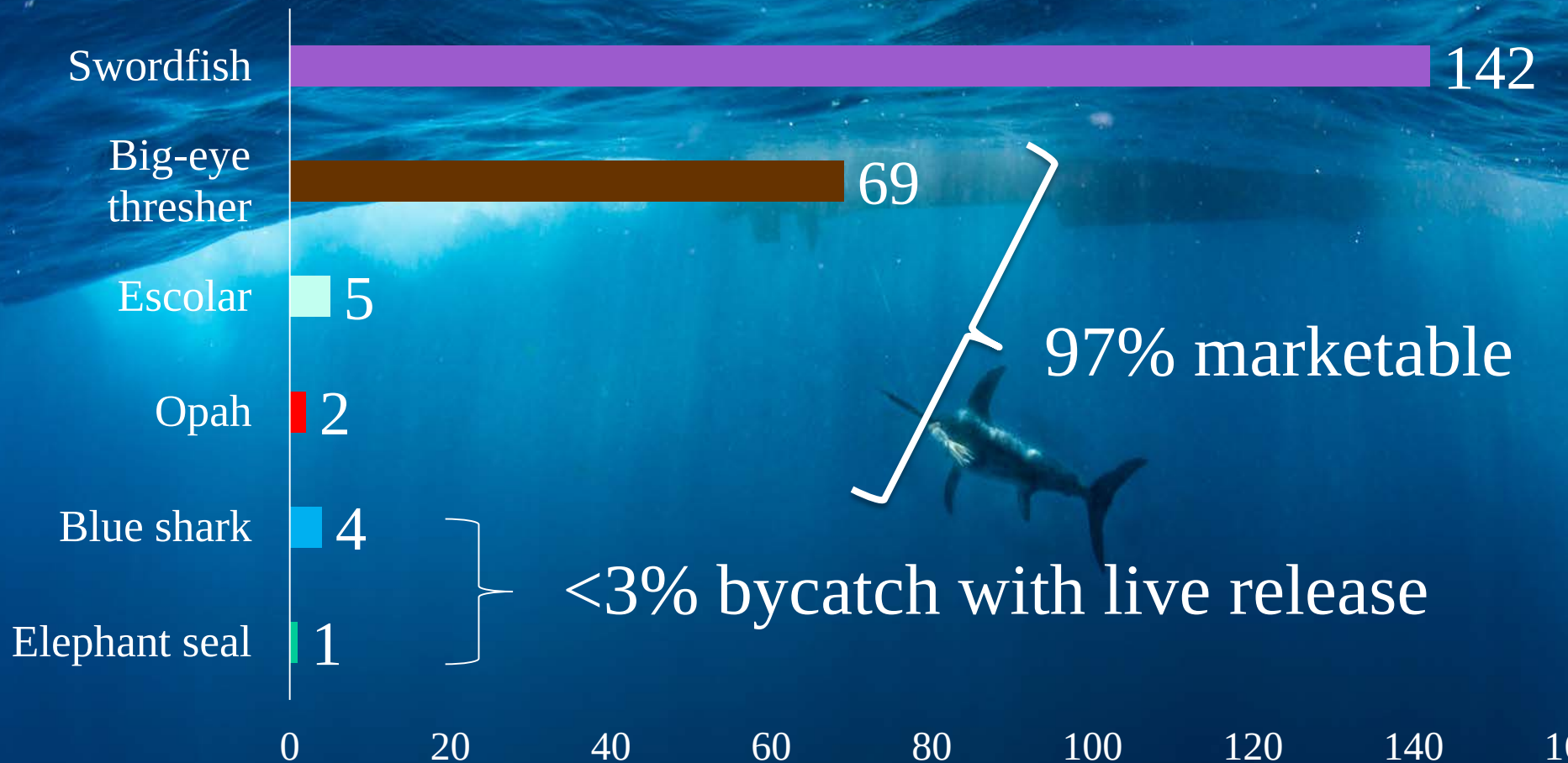
- 107 8h fishing days
- ~10 sets deployed each day
- 1-3 hooks/buoy
- 0 pieces of lost gear
- Catch rates range from 0.6 to 1.6 fish/8hr
(average 1.3 fish/8hr)



Breakdown of EFP swordfish Catch by vessel

Vessel	#trips	Days (8h)	SF total
Gold Coast	12	33.4	43
Chula	13	38.7	53
Spirit	4	11.2	7
3Boys	9	24.2	39
2015 Total	38	107.5	142

2015-2016 Total EFP Catch



How does EFP catch compare with previous years?

Swordfish catch/8hr has ranged from 0.5 to 1.75 fish/8hr across all years

<u>Catch/8hr day</u>		<u>% Marketable Catch</u>
2012		~93%
2013	~1.0	~94%
2014	~0.65 to 1.75	~96%
2015	~ 0.6 to 1.6	~97%



2016 DSBG EFP Game Plan

- **Initiate fishing in May/June**
- **Continue market outreach presentations, brochures**
- **Tracking catch- traceability tags**
Fish tag # will correspond with logbook and can be traced to the vessel via project website



2016 Next Steps (research vessel only)

Linked Buoy Gear (NA15NMF4720380)

Test larger-scale deep-set operations that are:

- 1) Serviceable
- 2) Fished during the day
- 3) Low-incidental and bycatch
- 4) Based on similar DSBG principles



2016 Next Steps (research vessel only)



Linked Buoy Gear (NA15NMF4720380)

Goals are to expand buoy gear concept to:

- 1. Increase horizontal footprint**
- 2. Increases hook count**
- 3. Provides comparable catch to that of the DGN**
- 4. Provide options for larger vessels**
- 5. Provide option for offshore fishing**

Attributes that distinguish the PIER Linked Buoy Gear (NA15NMF4720380) from traditional longline

	PIER LBG	Traditional longline
Horizontal footprint	3 to 5 nm	40-50 nm
Hook count	30-50	600-1,000
Tending	Active tending	Overnight soak / no tending
Hook depth	Below 250m	Surface
Time of set	Day	Night
Strike detection	Yes	No
Serviceability	Yes	No
Weighted vertical legs	Yes	No



Acknowledgements & Support



NOAA

**Saltonstall-Kennedy Grant Program
Cooperative Fisheries Grant Program
Southwest Fisheries Science Center
Bycatch Reduction and Engineering Program**

**California Fisheries Research Grant Program
Pew Charitable Trust
George T. Pflieger Foundation
The Nature conservancy
Santa Monica Seafood
NOAA WCR & CA DFW**