DIDSON Data Management

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USGS science for a changing world

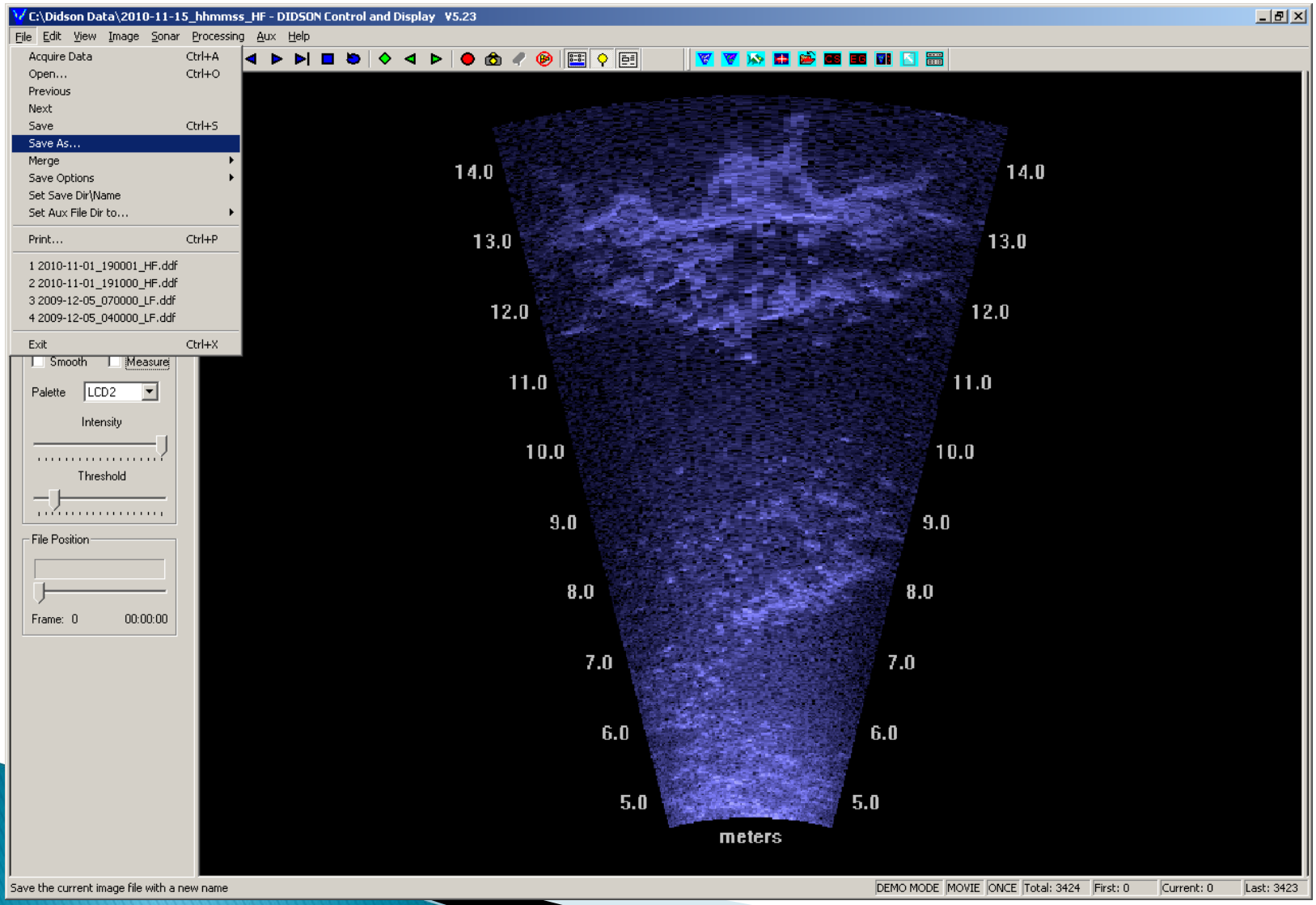
HUMBOLDT STATE UNIVERSITY

CALIFORNIA

Software Basics

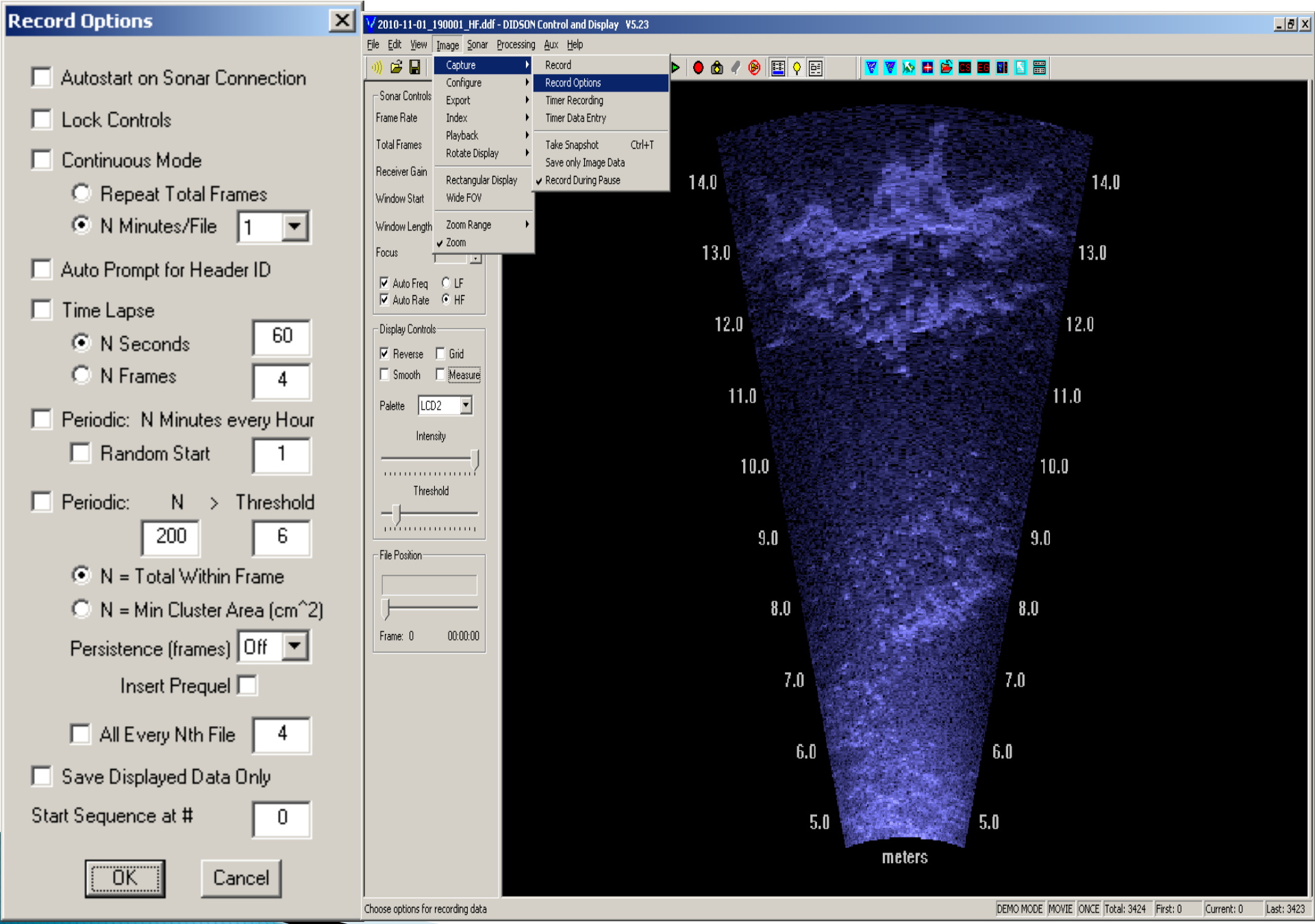
- Features especially for fish behavior and counting
- Recording
- File storage

Set Save Location



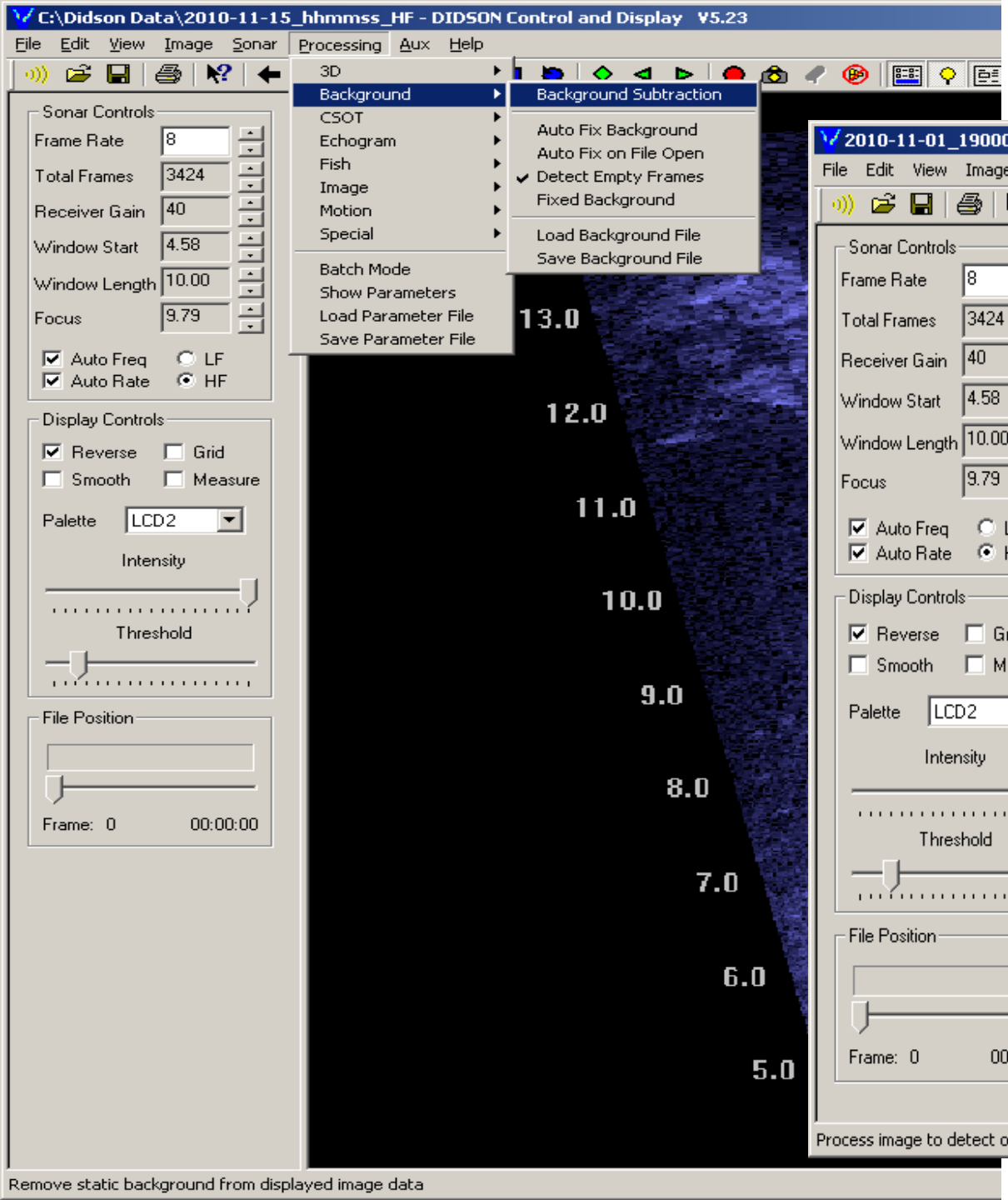
Recording Options

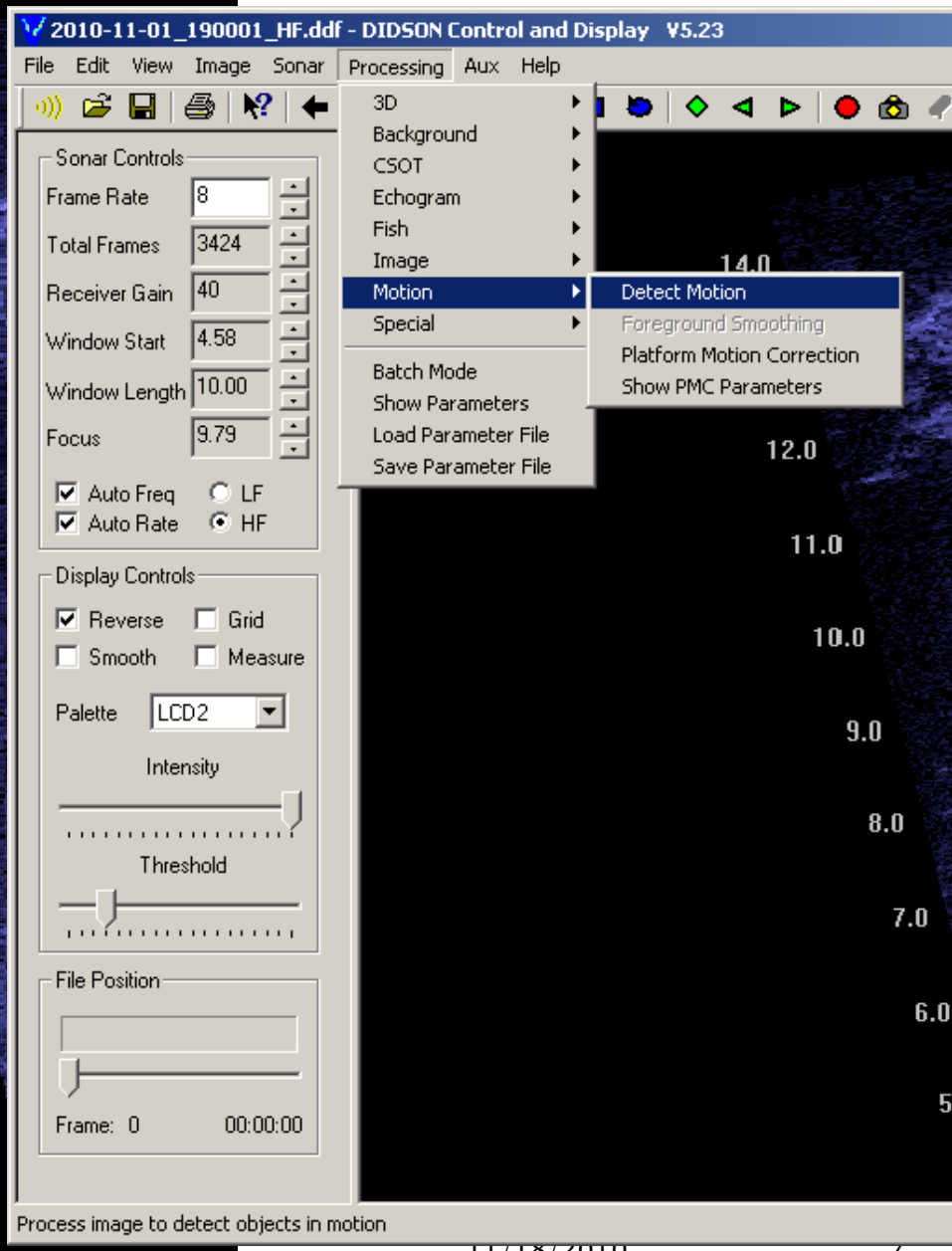
- Brute force recording
- Recording selected intervals
- Timed recording
  - Pan/Tilt option


Record Options
Autostart on Sonar Connection
Lock Controls
Continuous Mode
Repeat Total Frames
N Minutes/File
1
Auto Prompt for Header ID
Time Lapse
N Seconds
60
N Frames
4
Periodic: N Minutes every Hour
Random Start
1
Periodic: N > Threshold
200
6
N = Total Within Frame
N = Min Cluster Area (cm^2)
Persistence (frames)
Off
Insert Prequel
All Every Nth File
4
Save Displayed Data Only
Start Sequence at #
0
OK
Cancel
2010-11-01_190001_HF.ddf - DIDSON Control and Display V5.23
File Edit View Image Sonar Processing Aux Help
Capture
Configure
Export
Index
Playback
Rotate Display
Rectangular Display
Wide FOV
Zoom Range
Zoom
Record
Record Options
Timer Recording
Timer Data Entry
Take Snapshot Ctrl+T
Save only Image Data
Record During Pause
Sonar Controls
Frame Rate
Total Frames
Receiver Gain
Window Start
Window Length
Focus
Auto Freq
Auto Rate
LF
HF
Display Controls
Reverse
Grid
Smooth
Measure
Palette
LCD2
Intensity
Threshold
File Position
Frame: 0
00:00:00
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
meters
Choose options for recording data
DEMO MODE
MOVIE
ONCE
Total: 3424
First: 0
Current: 0
Last: 3423

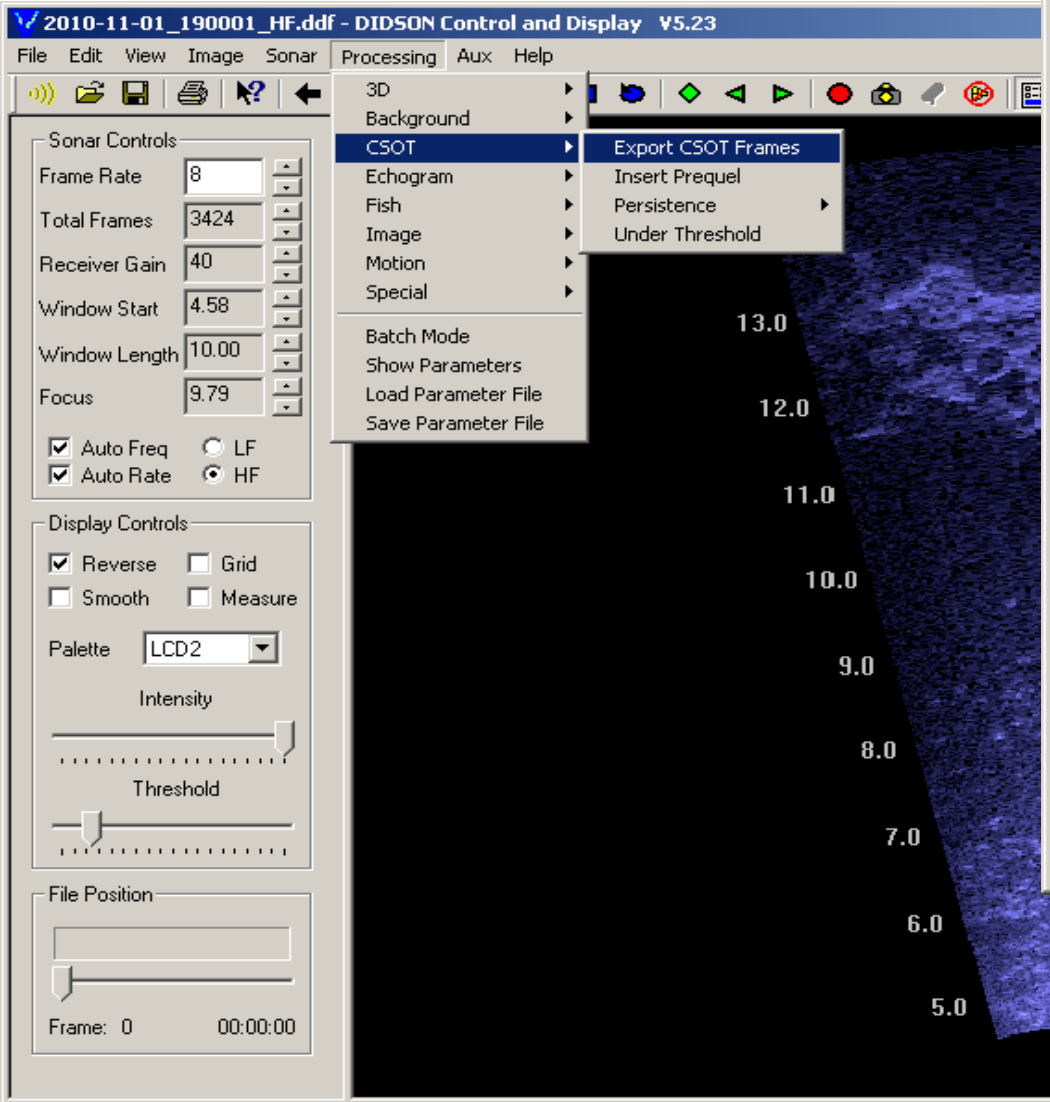
Analysis Options

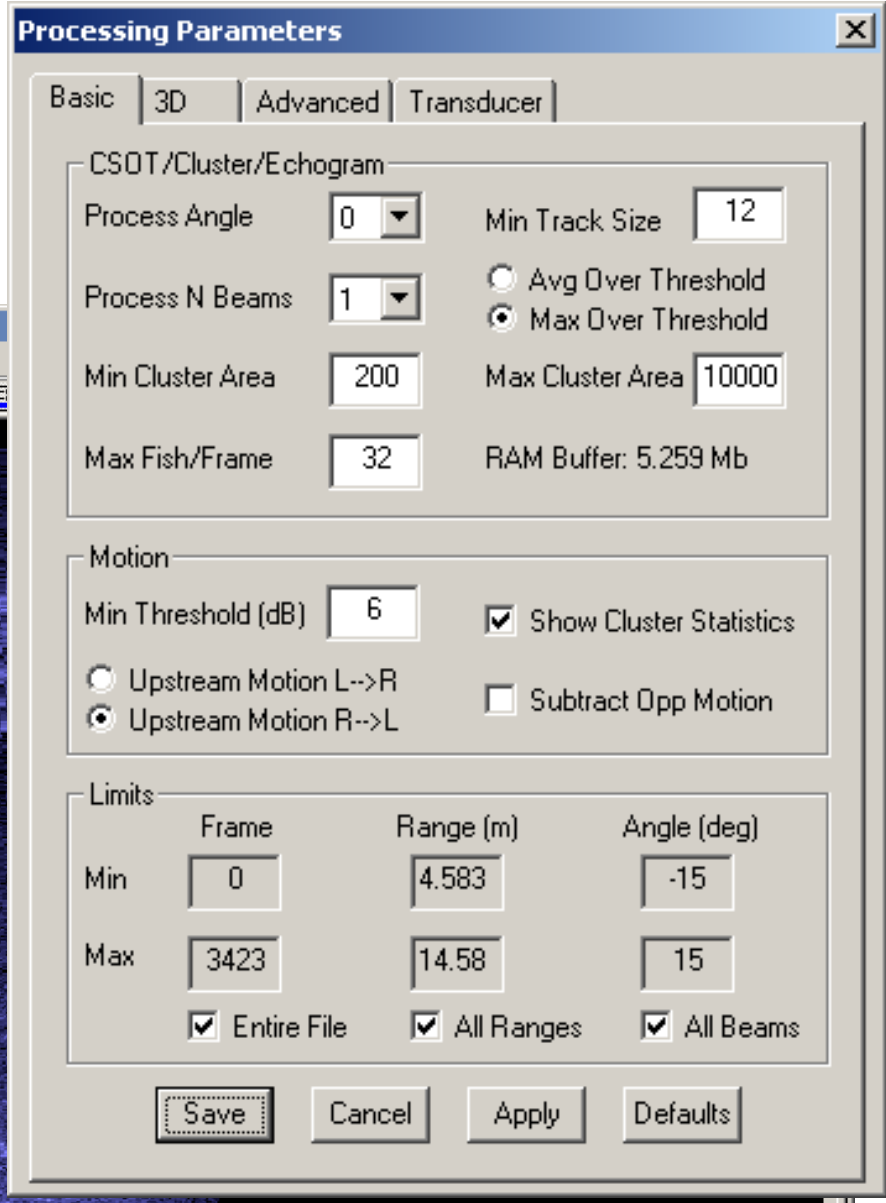
- Fast replay
  - Background subtraction
  - Detect and enhance motion
- Find rare events with CSOT (convolved samples over threshold
  - Remove “empty” frames
  - CSOT batch file option
  - Record only objects of interest **OR**
  - Record constantly, filter later (adjust settings)


C:\Didson Data\2010-11-15_hhmmss_HF - DIDSON Control and Display V5.23
File Edit View Image Sonar Processing Aux Help
3D
Background
CSOT
Echogram
Fish
Image
Motion
Special
Batch Mode
Show Parameters
Load Parameter File
Save Parameter File
Background Subtraction
Auto Fix Background
Auto Fix on File Open
Detect Empty Frames
Fixed Background
Load Background File
Save Background File
Sonar Controls
Frame Rate 8
Total Frames 3424
Receiver Gain 40
Window Start 4.58
Window Length 10.00
Focus 9.79
Auto Freq LF
Auto Rate HF
Display Controls
Reverse Grid
Smooth Measure
Palette LCD2
Intensity
Threshold
File Position
Frame: 0 00:00:00
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
Remove static background from displayed image data


2010-11-01_190001_HF.ddf - DIDSON Control and Display V5.23
File Edit View Image Sonar Processing Aux Help
3D
Background
CSOT
Echogram
Fish
Image
Motion
Special
Batch Mode
Show Parameters
Load Parameter File
Save Parameter File
Detect Motion
Foreground Smoothing
Platform Motion Correction
Show PMC Parameters
Sonar Controls
Frame Rate 8
Total Frames 3424
Receiver Gain 40
Window Start 4.58
Window Length 10.00
Focus 9.79
Auto Freq LF
Auto Rate HF
Display Controls
Reverse Grid
Smooth Measure
Palette LCD2
Intensity
Threshold
File Position
Frame: 0 00:00:00
14.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
Process image to detect objects in motion

CSOT settings

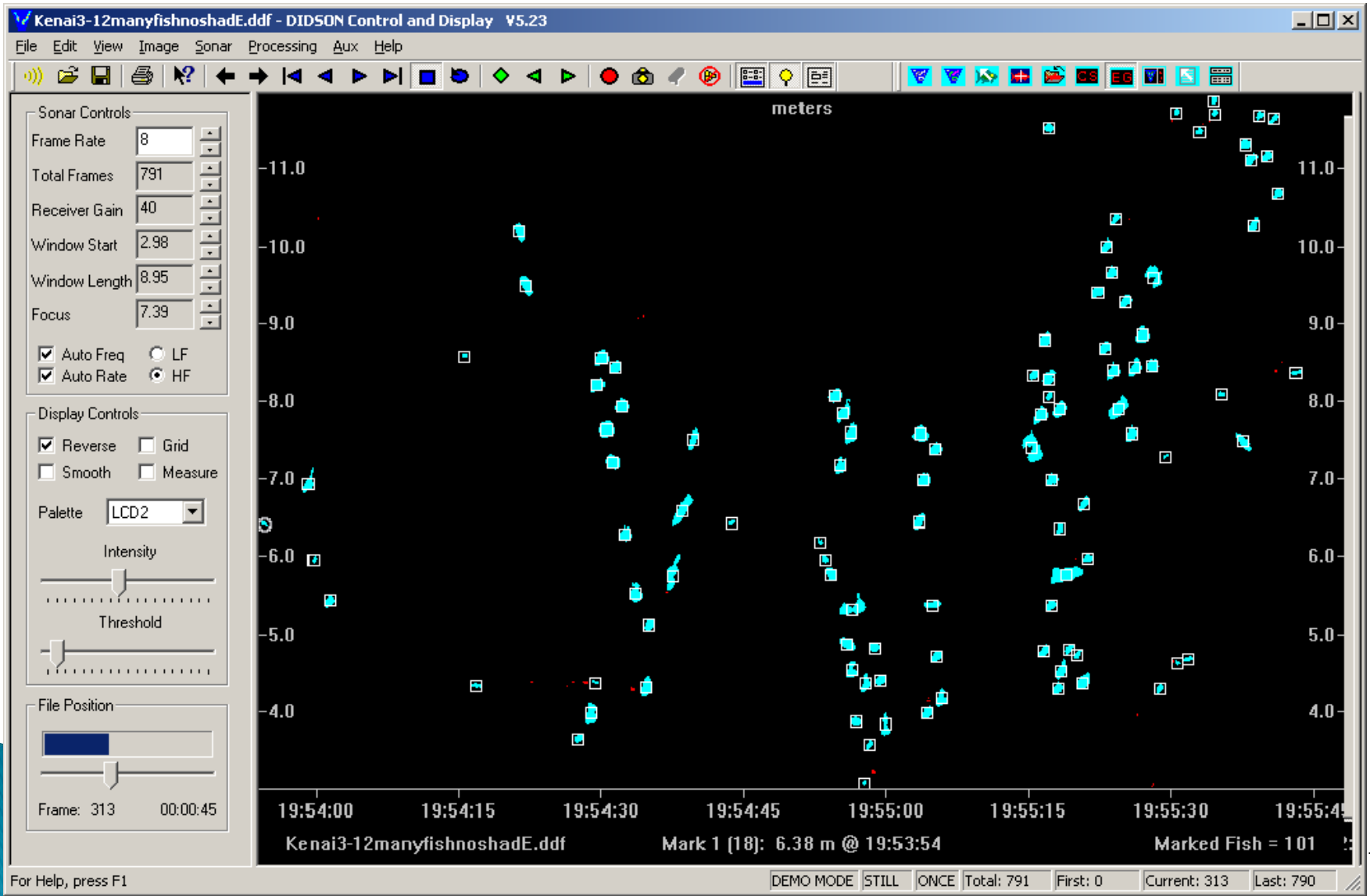




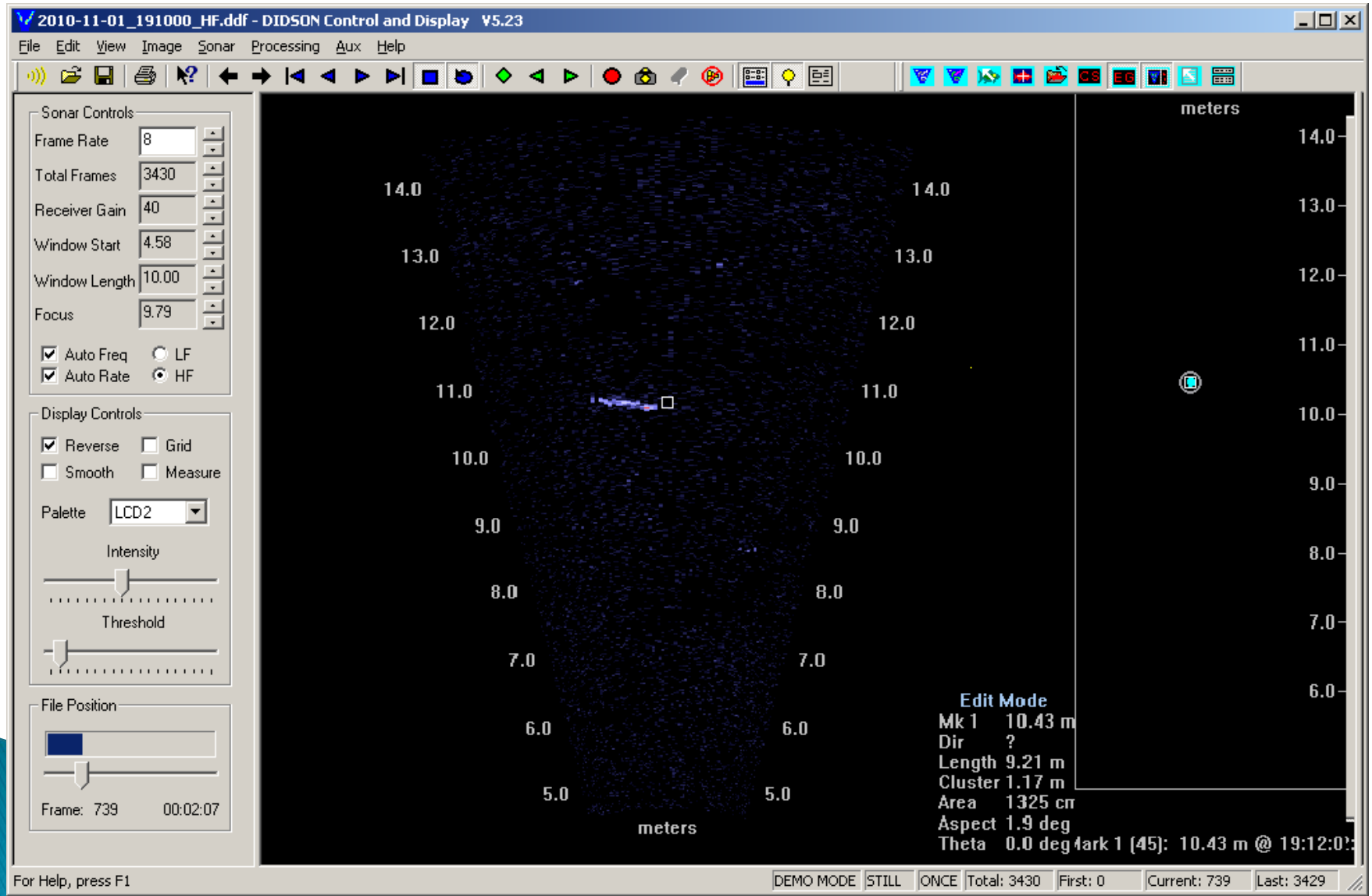
The Echogram option

- Time on x-axis, Range on y-axis
- Program “marks” potential fish targets
  - Validate fish counted
  - Identify non-fish targets
  - Checking length measurements
    - Semi-automatic calculation
    - Manual measure

Marks displayed in time-space



Split Screen Echogram View



Interpreting Count Data

*** Echogram Counting ***

Total Mark	Frame#	Dir	R (m)	Theta	L(cm)	T(cm)	L/T	Aspect	MaxArea	Time
1 1	37	Up	6.87	0.0	87.5	2.9	30.17	-28.4	1311	19:53:59
2 2	53	Up	5.40	0.0	91.7	1.5	61.13	-17.0	917	19:54:02
1 4	157	Dn	4.28	0.0	23.7	0.3	79.00	5.8	109	19:54:17
3 5	192	Up	10.13	0.0	92.5	1.7	54.41	9.7	1163	19:54:22
4 6	197	Up	9.45	0.0	87.8	1.9	46.21	12.3	1061	19:54:22
2 7	235	??	3.61	0.0	11.1	0.3	37.00	-3.7	66	19:54:28
5 8	243	Up	3.93	0.0	112.0	2.6	43.08	-8.3	1340	19:54:29

Total = running total of Up, Dn or ??
Frame# = fram # mark is in
Dir = direction of fish
R(m) = range of fish from sonar
Theta = angle of fish off center of display

L(cm) = length of fish
T(cm) thickness of fish
L/T = fish length/thickness
Aspect = aspect angle of cluster
MaxArea = max cluster area
Time = time fish was measured

More Options

- Review raw data
- Raw data->Background subtract->Manual Review
- Raw data -> Motion detect -> Manual review
- Raw data -> CSOT -> Manual Review
- Raw data->CSOT+motion detect->Manual review
- Raw data->CSOT->Echogram-> Validate
- Raw data -> Echogram -> Validate
- Changing settings at any stage affects outcome

Discussion and Questions