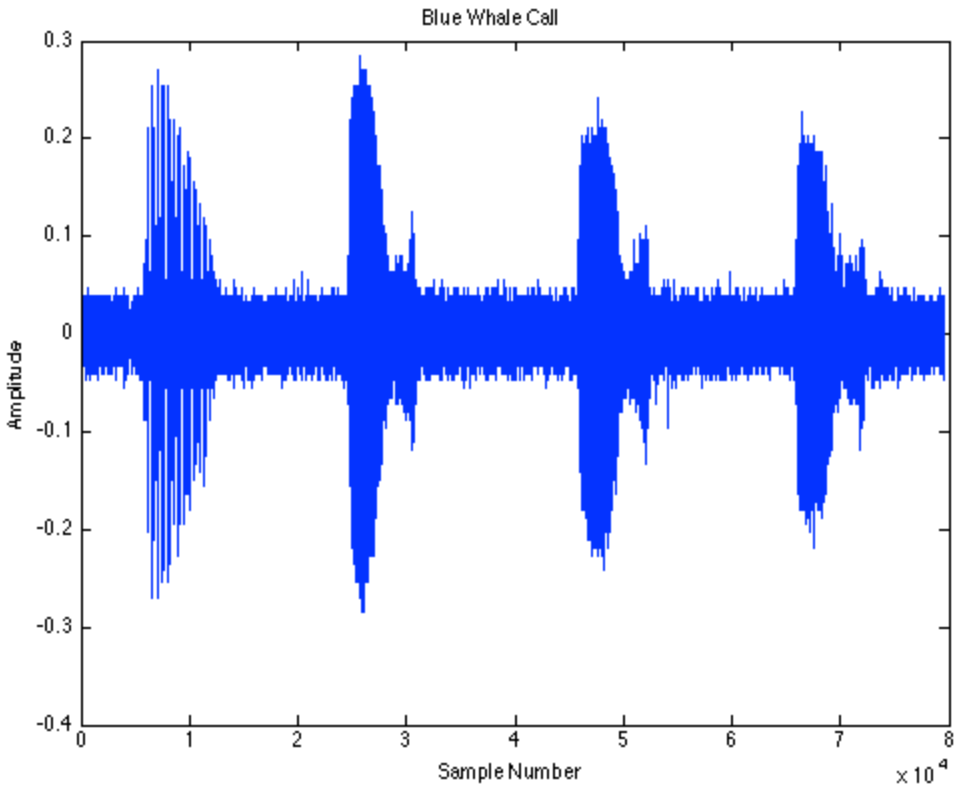
Contents

Ballena

```
whaleFile = '/Applications/MATLAB_R2012a.app/help/techdoc/math/examples/bluewhale.au';

% whaleFile = [matlabroot '\help\techdoc\math\examples\bluewhale.au'];
[x,fs] = auread(whaleFile);
```

```
figure(1)
plot(x)
xlabel('Sample Number')
ylabel('Amplitude')
title('{\bf Blue Whale Call}')
```

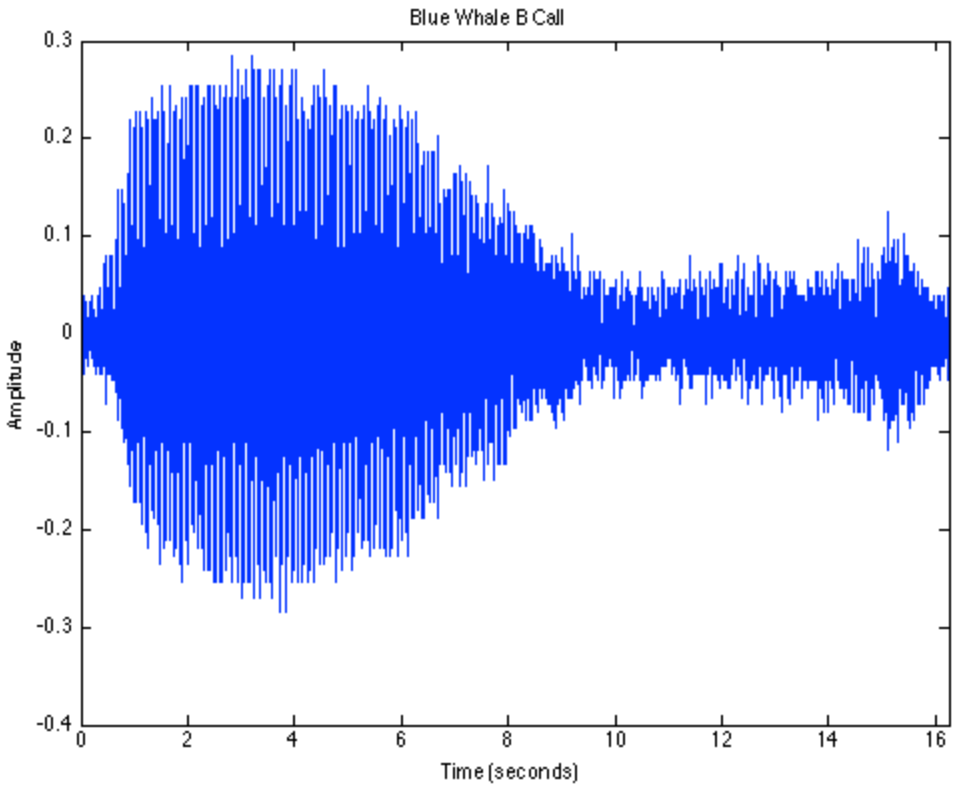



```
sound(x,fs)

bCall = x(2.45e4:3.10e4);
```

```
tb = 10*(0:1/fs:(length(bCall)-1)/fs); % Time base
```

```
figure(2)
plot(tb,bCall)
xlim([0 tb(end)])
xlabel('Time (seconds)')
ylabel('Amplitude')
title('{\bf Blue Whale B Call}')
```



Use fft to compute the DFT of the signal. Correct the

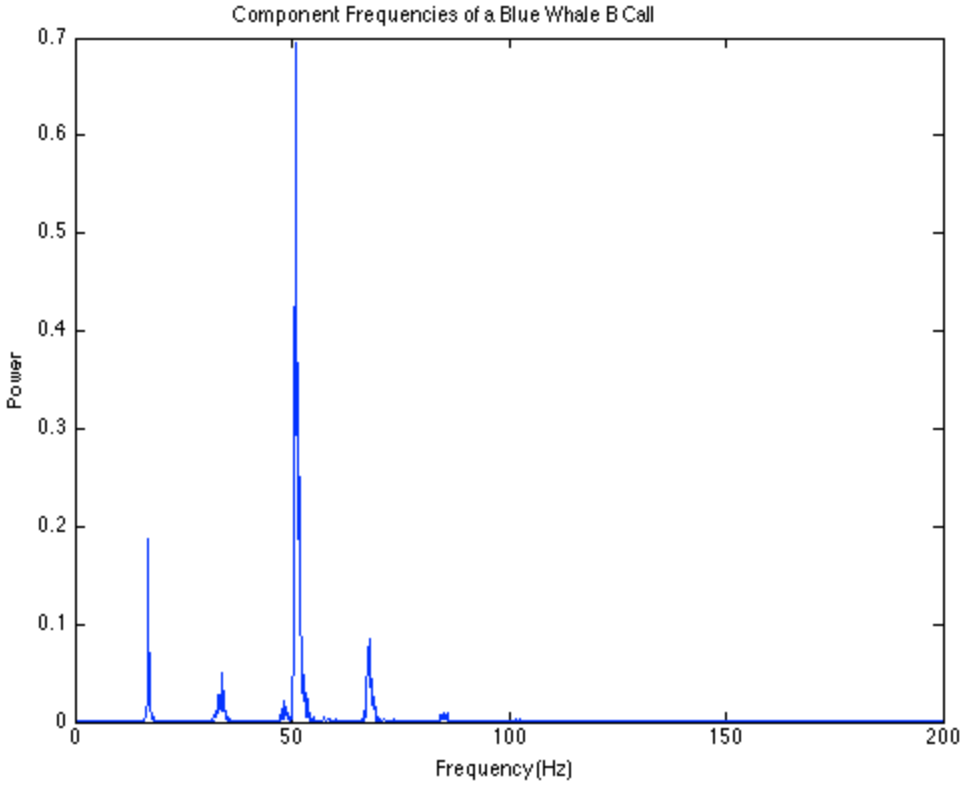
frequency range for the factor of 10 speed-up in the data:

```
m = length(bCall);      % Window length
n = pow2(nextpow2(m));  % Transform length
y = fft(bCall,n);         % DFT of signal
f = (0:n-1)*(fs/n)/10;  % Frequency range
p = y.*conj(y)/n;       % Power of the DFT
```

Plot the first half of the periodogram, up to the Nyquist frequency:

```
figure(3)
plot(f(1:floor(n/2)),p(1:floor(n/2)))
xlabel('Frequency (Hz)')
```

```
ylabel('Power')
set(gca,'XTick',[0 50 100 150 200]);
title('{\bf Component Frequencies of a Blue Whale B Call}')
```



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