Practice Exercise
Determining species identification from gel images

I have used 4 different PCR identification protocols on a set of 7 unknown shark samples. Using these gel images and the reference information provided please try to assign species identification to each sample.

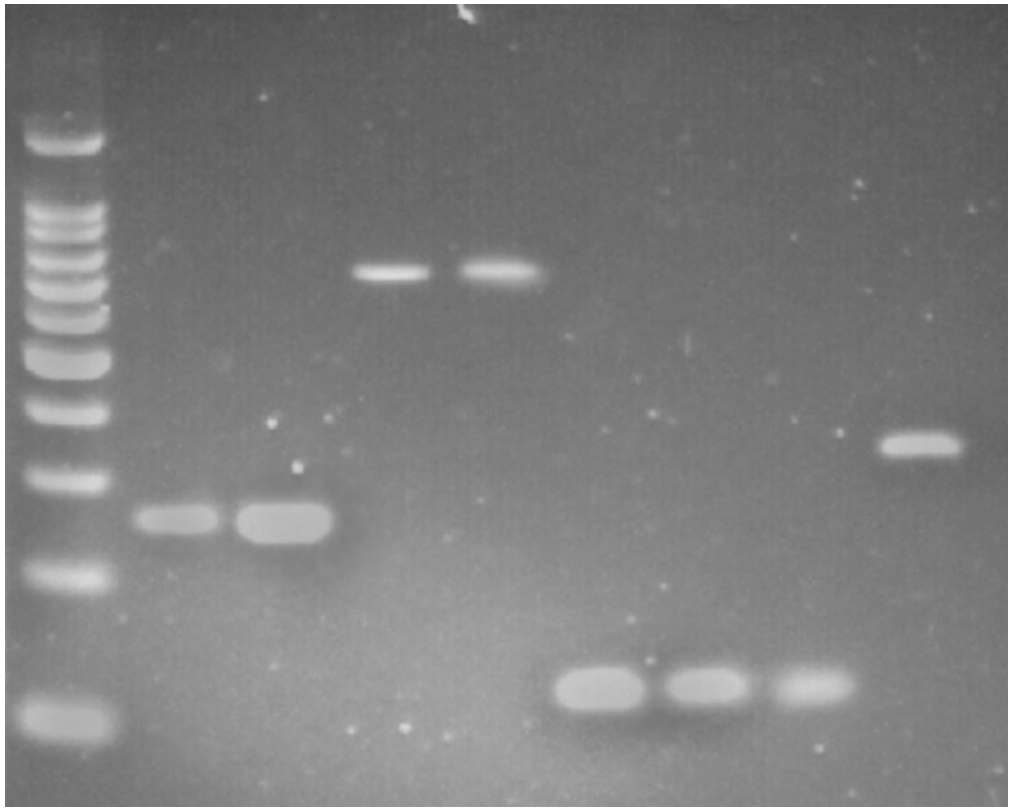
- Samples 1-7 are in the same order on each gel and results from 2 or more gels can be used to assist in identification

- Sample 8 is a “negative control” (no tissue was added) and is there to check for DNA contamination in the reagents

Shark Group Specific PCR

Caballero et al 2012

- 4 categories
  - *Isurus* spp. - 253bp
  - *Carcharhinus* spp. - 673bp
    - Also *Prionace glauca*
  - *Alopias* spp. - 119bp
  - *Sphyrna* spp. - 334bp



Caballero et al 2012 (Shark Group ID Primers)

Sample Identification

1_____

2_____

3_____

4_____

5_____

6_____

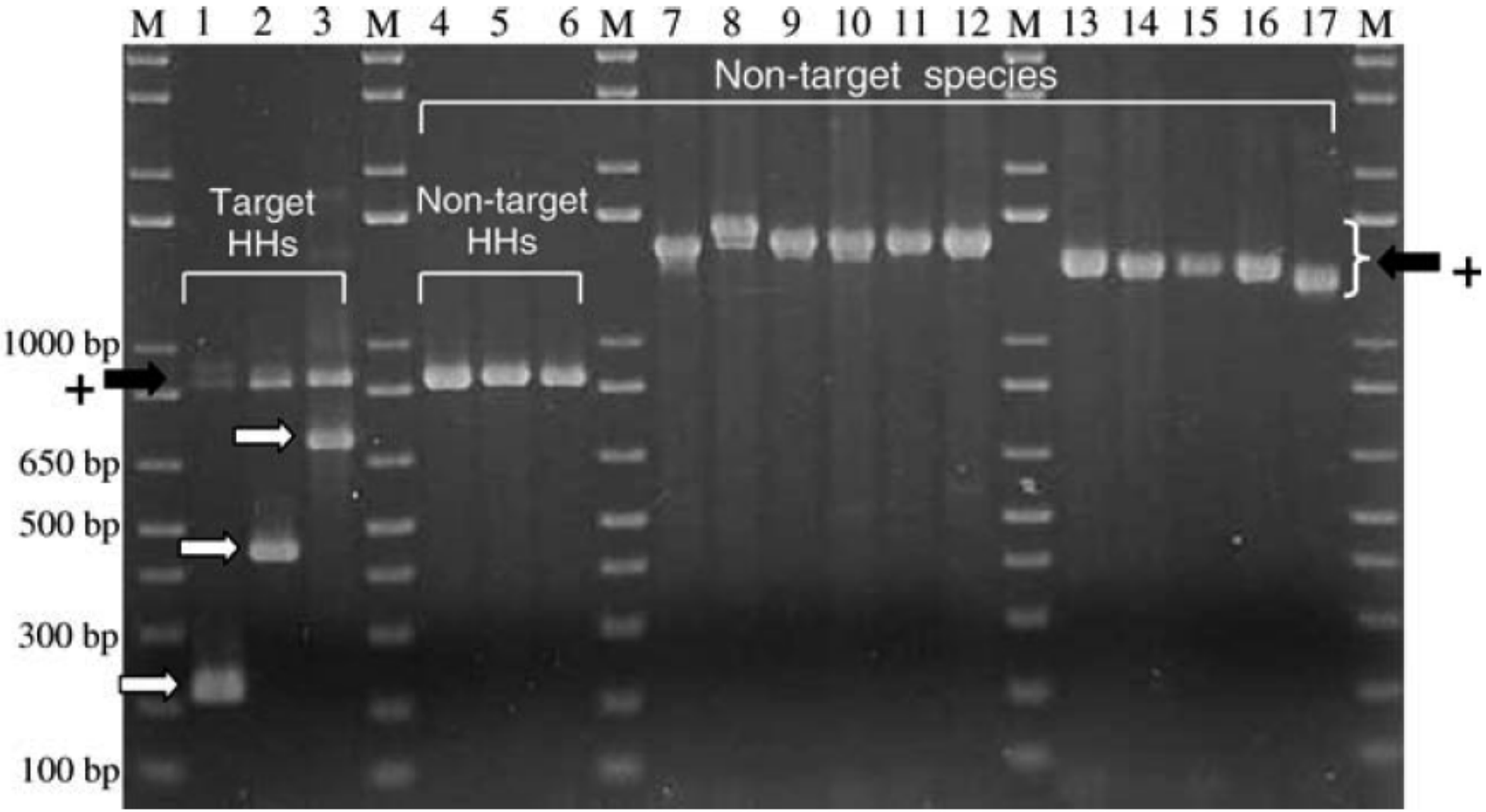
7_____

Hammerhead Species ID PCR

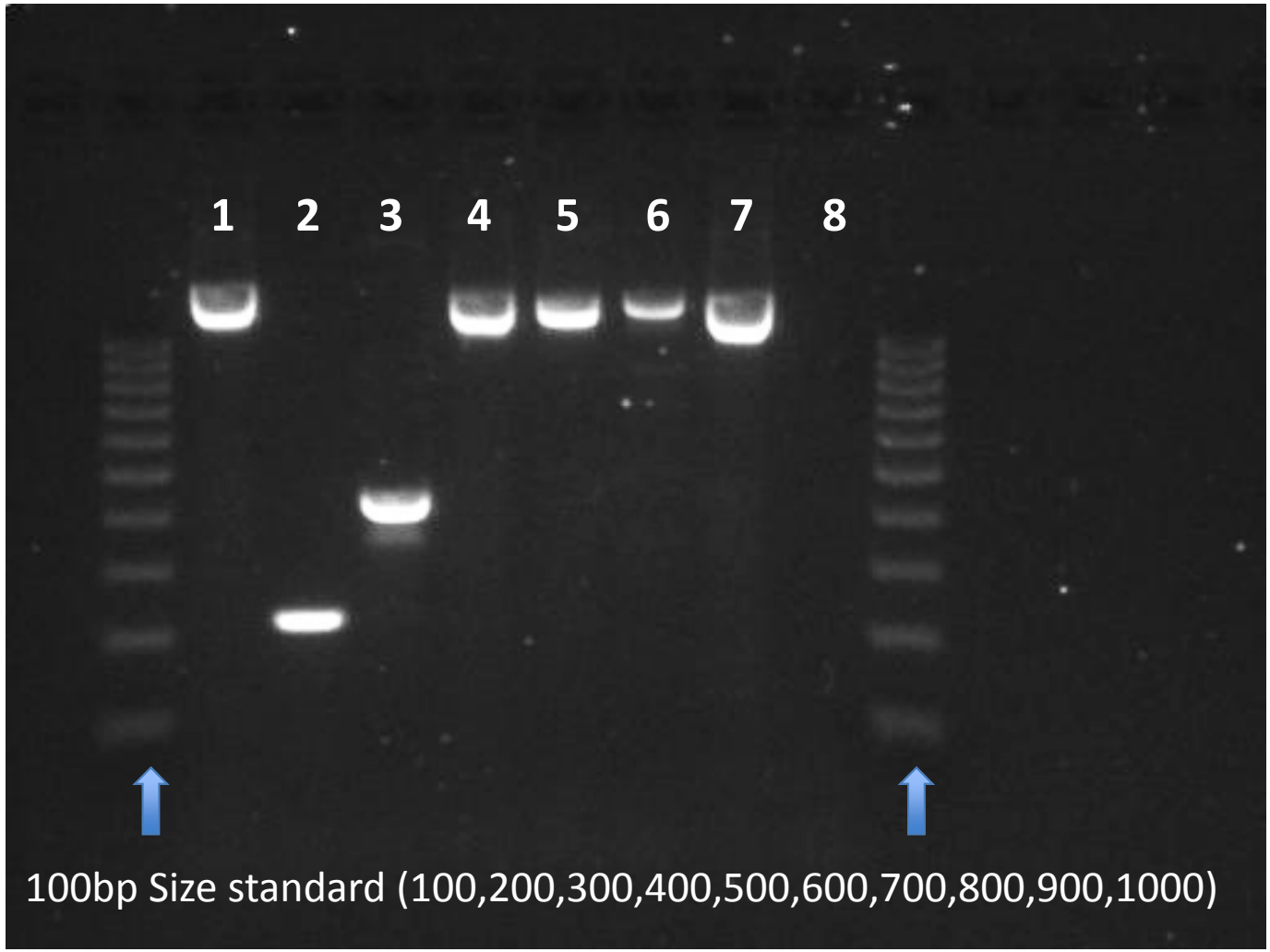
Control fragment ~860bp***
S. zygaena - 249bp
S. lewini - 445bp
S. mokarran - 782bp

Abercrombie et al. 2005

***note - control fragment in non *Sphyrna* species is ~1100-1200bp



Abercrombie et al. 2005 (HammerHead Shark ID Primers)



Sample Identification

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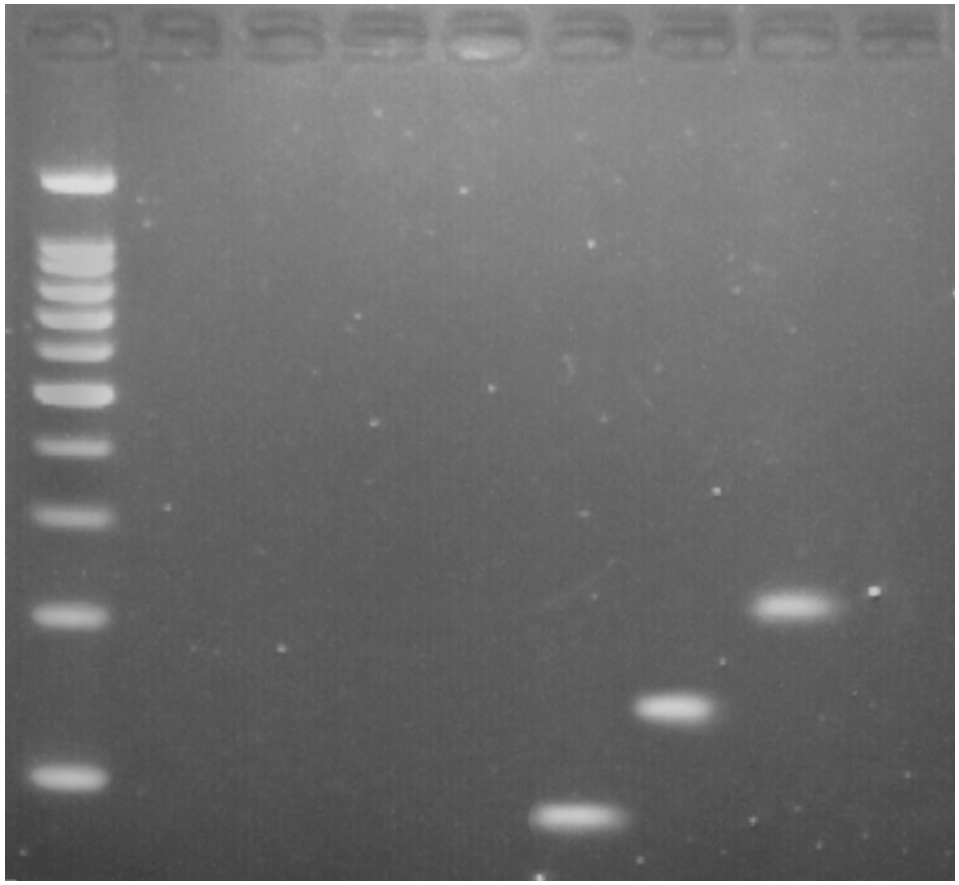
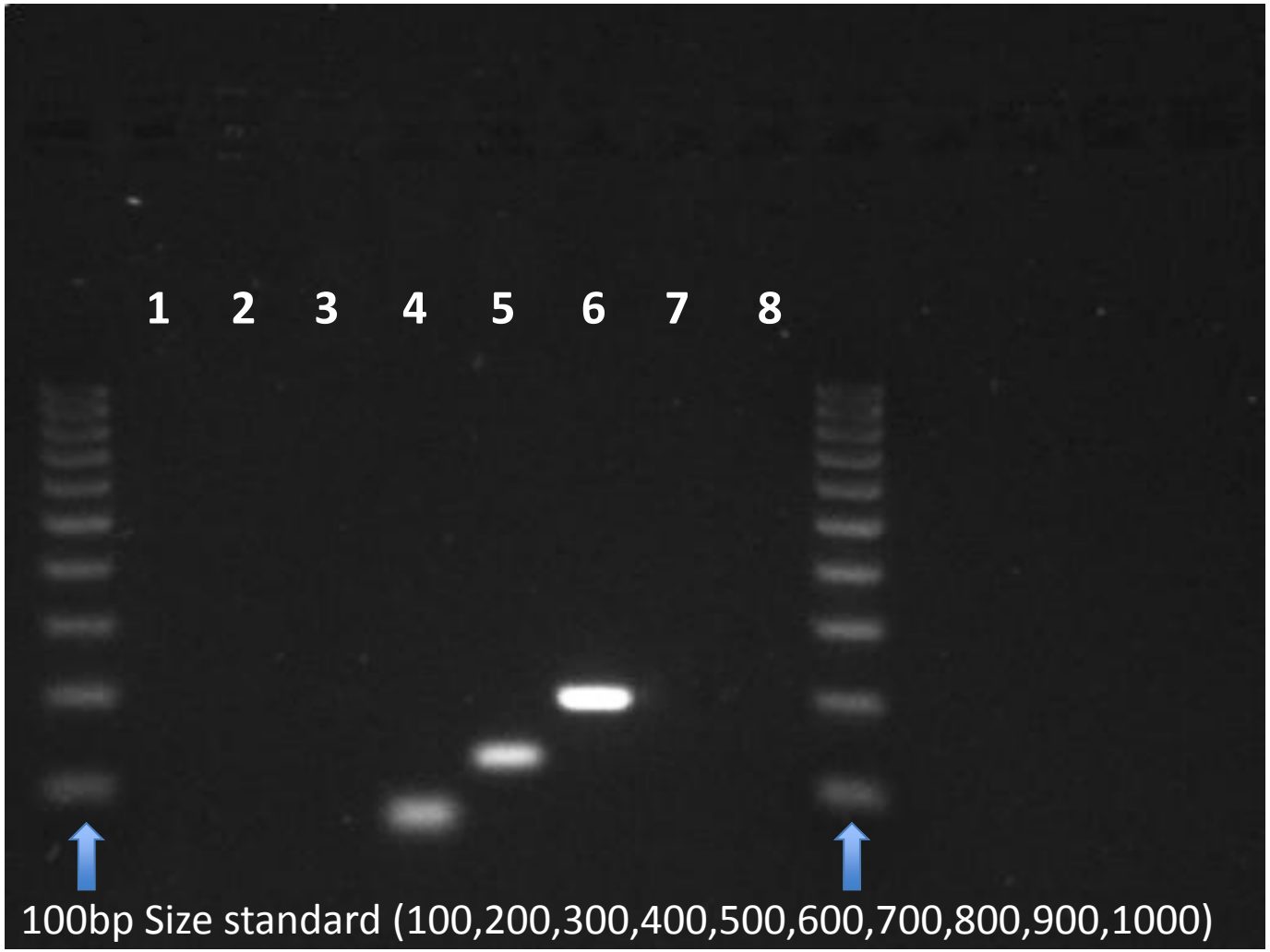
Thresher Shark Specific PCR

Caballero et al 2012

- *Alopias* species
  - *Alopias vulpinus* - 76bp
  - *A. pelagicus* - 198bp
  - *A. superciliosus* - 264bp
- No amplification in non target species



Caballero et al 2012 (Thresher Shark ID Primers)



Sample Identification

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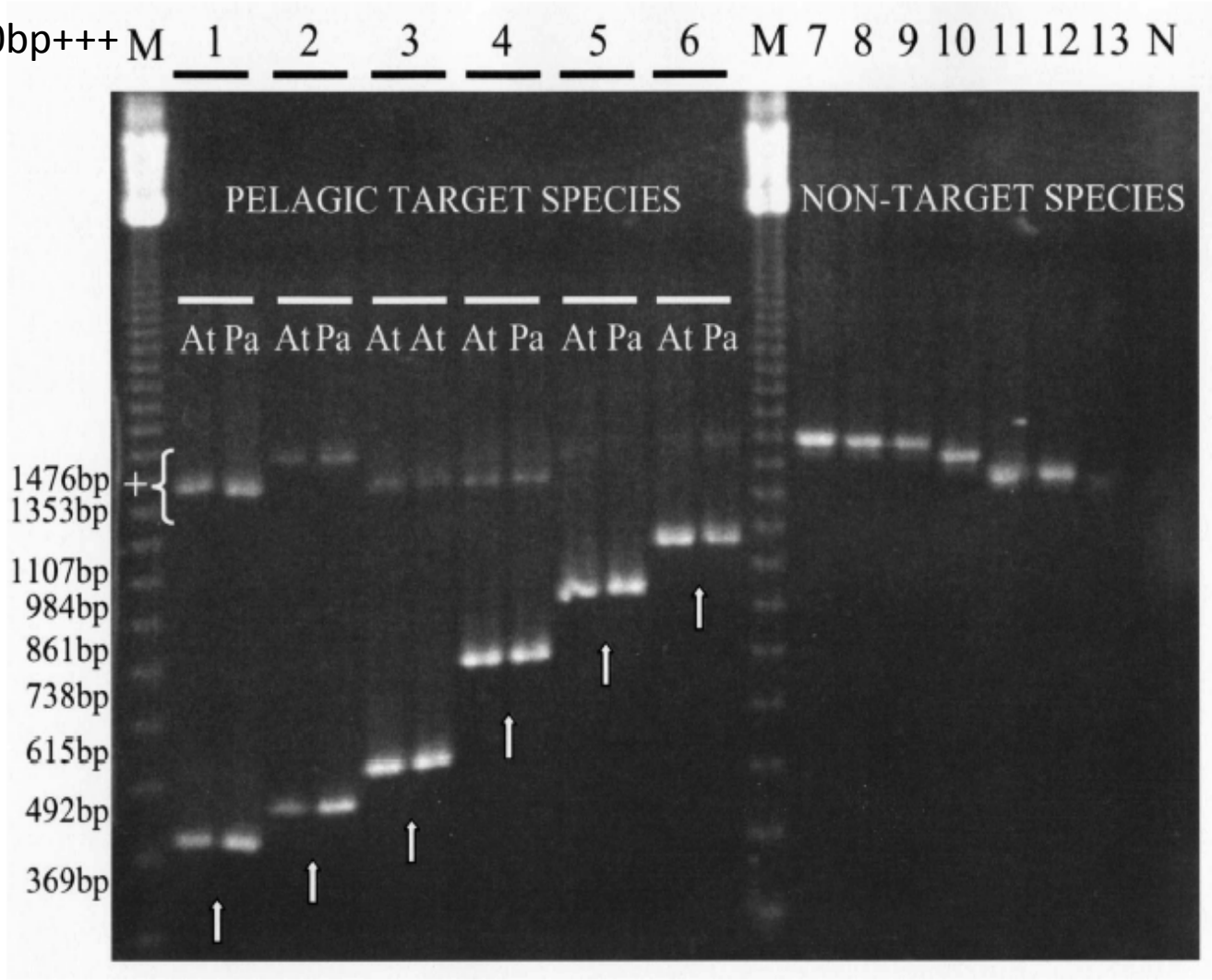
Multiple Shark Species ID PCR

Shivji et al 2002

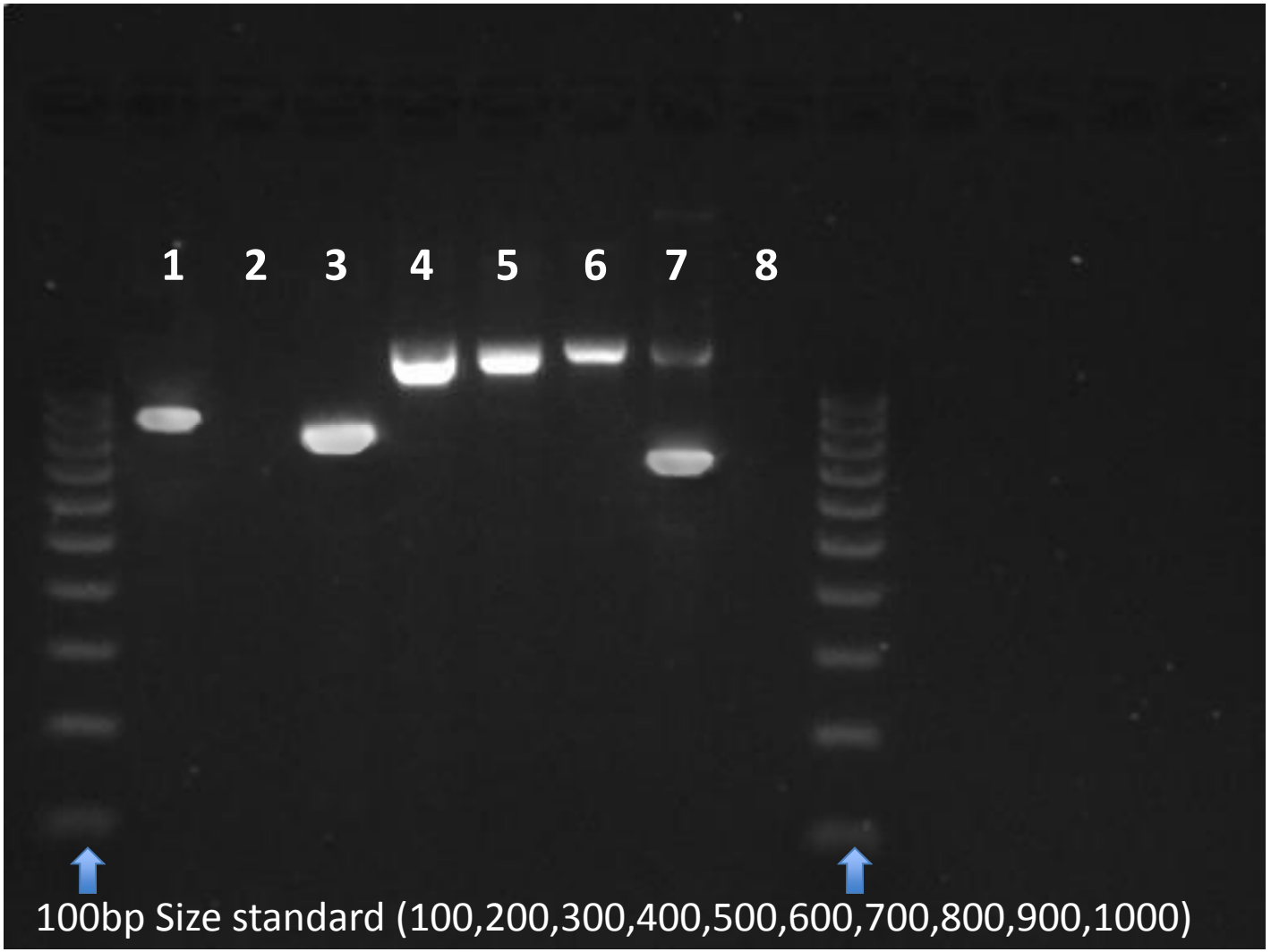
Control fragment ~ 1100-1200bp ***
Isurus paucus - 418bp
Carcharhinus obscurus - 480bp+++
Lamna nasus - 554bp
Isurus oxyrinchus - 771bp
Prionace glauca - 929bp
C. falciformis - 1085bp

***note - control fragment in *Sphyrna* spp. is ~ 860bp

+++note - *C. obscurus* primer also amplifies in *C. galapagensis* and *C. longimanus*



Shivji et al. 2002 (Multiple Shark Species ID Primers)



Sample Identification

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