

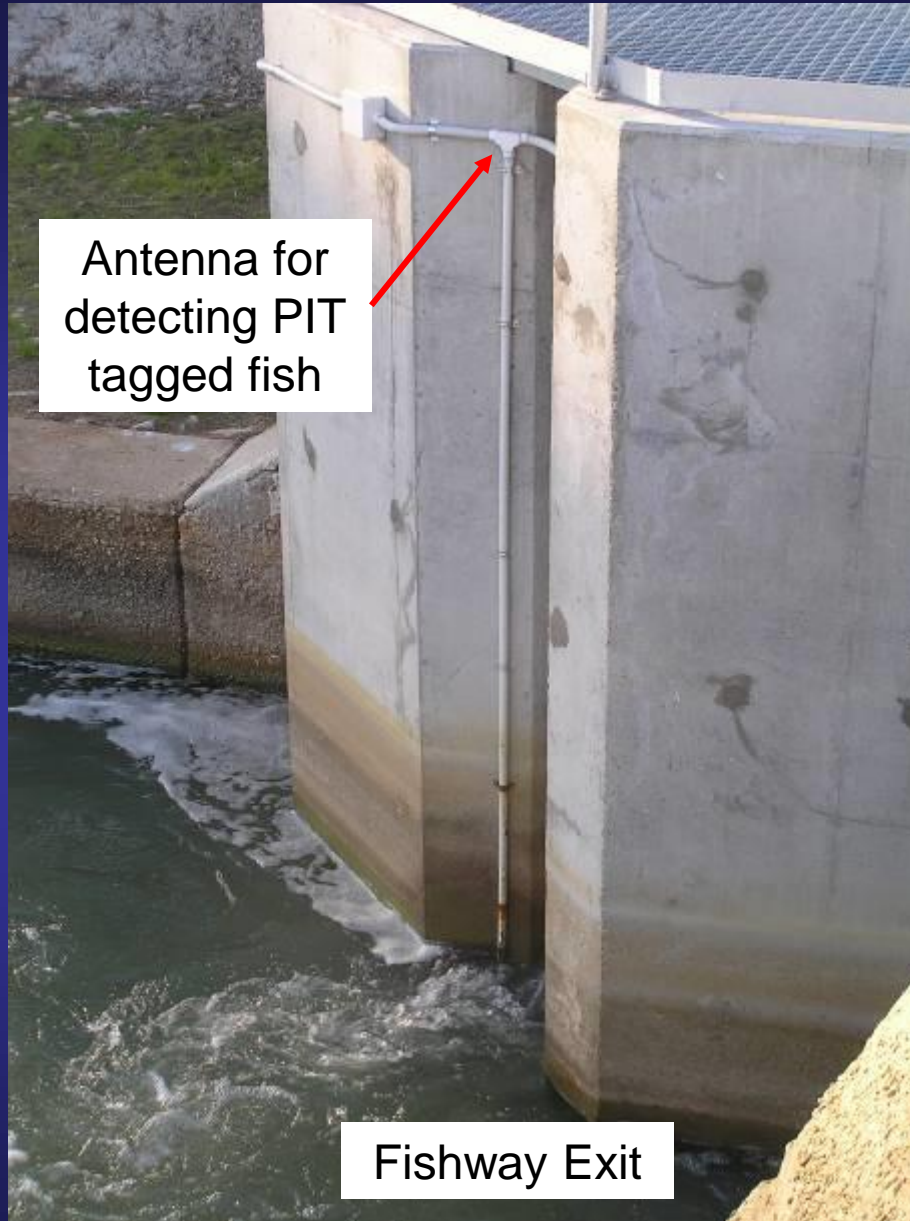
# MDBC PIT Database

An electronic database for the  
storage & retrieval of PIT-tagged  
fish data

Matthew Jones

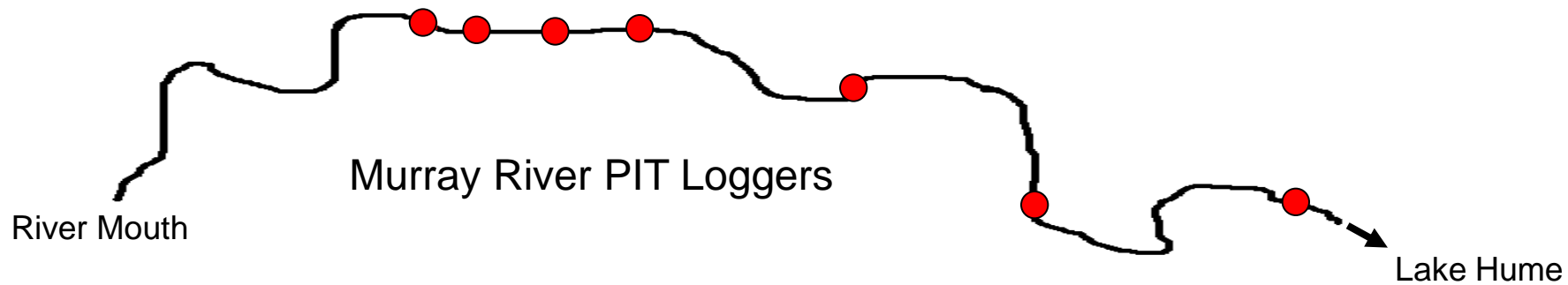
# Background

- The TRI-State Fishways team has PIT tagged thousands of fish in the Murray River below Lake Hume.
- When PIT tagged fish travel through Fishways, electronic equipment detects and records their movement.



Antenna for  
detecting PIT  
tagged fish

Fishway Exit



- Automated loggers are connected to the electronic detection systems. The loggers are currently operating at Fishways on Locks 7, 8, 9, 10, 15, Torrumbarry & the Yarrawonga Weir.
- The loggers transmit a constant stream of data (via email) on PIT tagged fish detected at each Fishway.

Karl.Pomorin	24/07/2006	6,274	<a href="#">🔗</a>	Lock 7 Fishway data
Karl.Pomorin	24/07/2006	5,364	<a href="#">🔗</a>	Lock T Fishway data
Karl.Pomorin	24/07/2006	22,888	<a href="#">🔗</a>	Lock 8 Fishway data
Karl.Pomorin	24/07/2006	5,431	<a href="#">🔗</a>	Lock 15 Fishway data
Karl.Pomorin	24/07/2006	11,229	<a href="#">🔗</a>	Lock 10 Fishway data
Karl.Pomorin	24/07/2006	5,332	<a href="#">🔗</a>	Lock 9 Fishway data
Karl.Pomorin	24/07/2006	22,490	<a href="#">🔗</a>	Lock Y Fishway data

## PIT tag recording system

Automated  
Logger

PIT readers

Battery Backup

```
"Start Time = 06-02-07 00:02:24"  
1, "00000111654123", 39119.3887170833  
1, "00000111654123", 39119.3887219676  
1, "00000111654123", 39119.3891570718  
1, "00000111654123", 39119.3891587037  
1, "00000111654123", 39119.3891603356  
1, "00000111654123", 39119.3891637732  
1, "00000111654123", 39119.5158441782  
2, "00000111654123", 39119.5188000926  
2, "00000111654123", 39119.518801713  
2, "00000111654123", 39119.5188033449  
2, "00000111654123", 39119.5188049769  
2, "00000111654123", 39119.5188179977  
2, "00000111654123", 39119.5188194444  
3, "00000111654123", 39119.5901314699  
3, "00000111654123", 39119.5901331019  
3, "00000111654123", 39119.5901347222  
3, "00000111654123", 39119.592721713  
3, "00000111654123", 39119.5927233333  
3, "00000111654123", 39119.5927249653  
3, "00000111654123", 39119.592726412  
4, "00000111654123", 39119.6030083449  
4, "00000111654123", 39119.6030099769  
4, "00000111654123", 39119.6030116088  
4, "00000111654123", 39119.6030132292  
4, "00000111654123", 39119.6030148611  
4, "00000111654123", 39119.6030164931  
4, "00000111654123", 39119.6030181134  
"End Time = 06-03-07 00:01:23"
```

**PIT Tag Reader /  
Antenna**



**Automated Logger**



**Emails data via mobile phone network**



**New PIT Tag  
Database**



**Researcher**



**Internet**



**Researcher**

# The new Database

- A new PIT tag database is under development
- The database will consolidate all the TRI-State survey data related to PIT tagged fish. (Over 25,000 PIT tagged fish)
  - Other agencies PIT tag data may also be incorporated

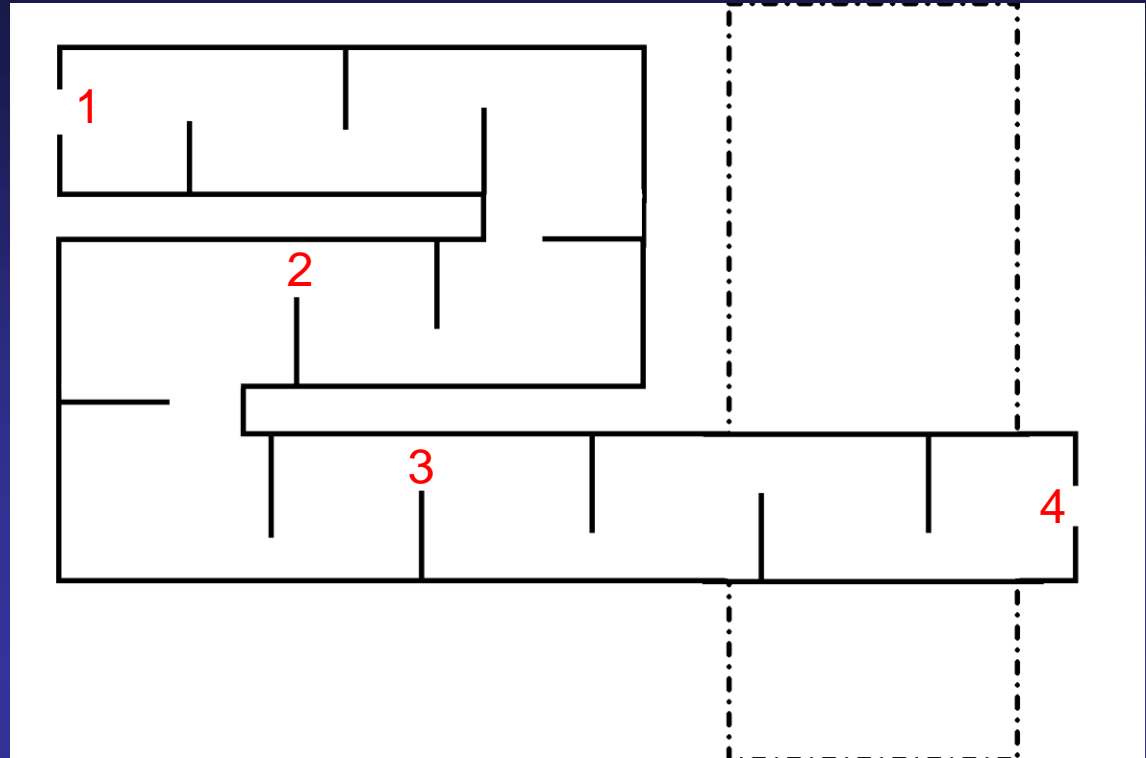
- The database will automatically integrate the emailed data received from the Fishway PIT tag loggers.
  - 100's of new entries each week
- The database will reside at the MDDBC offices in Canberra



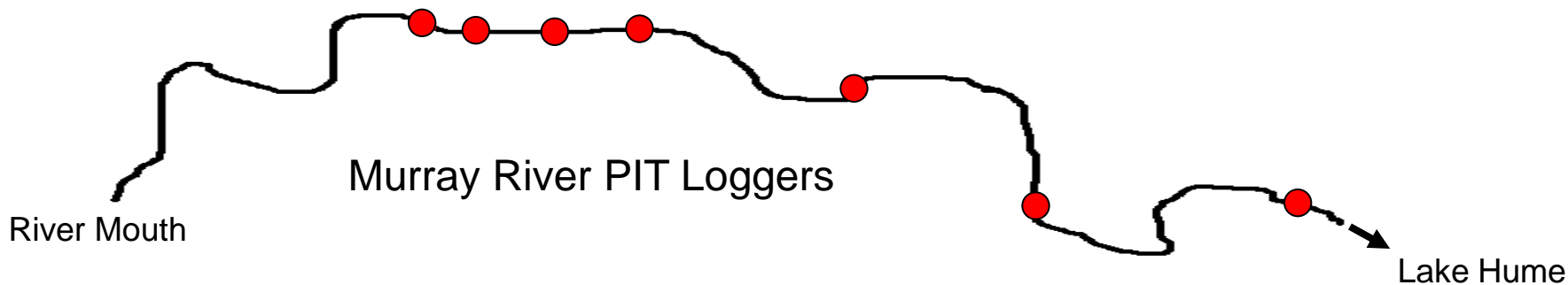
- The database will be an industry standard Simple Query Language (SQL) based system.
- Users will have a Microsoft-Access style 'frontend' on their local PC which will connect to the SQL database in Canberra via the internet.
- The database will include both standard and advanced queries.
  - Standard query example
    - fishway ascent time & between weir ascent time
  - Advanced query example
    - email notifications of particular fish movement

Entrance

```
"Start Time = 06-02-07 00:02:24"  
1, "00000111654123", 39119.3887170833  
1, "00000111654123", 39119.3887219676  
1, "00000111654123", 39119.3891570718  
1, "00000111654123", 39119.3891587037  
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3, "00000111654123", 39119.5901314699  
3, "00000111654123", 39119.5901331019  
3, "00000111654123", 39119.5901347222  
3, "00000111654123", 39119.592721713  
3, "00000111654123", 39119.5927233333  
3, "00000111654123", 39119.5927249653  
3, "00000111654123", 39119.592726412  
4, "00000111654123", 39119.6030083449  
4, "00000111654123", 39119.6030099769  
4, "00000111654123", 39119.6030116088  
4, "00000111654123", 39119.6030132292  
4, "00000111654123", 39119.6030148611  
4, "00000111654123", 39119.6030164931  
4, "00000111654123", 39119.6030181134  
"End Time = 06-03-07 00:01:23"
```



Exit



- Users will be able to construct custom queries on their local PC. The query will execute on the data held in Canberra.
- The custom queries cannot effect the integrity of data stored in the database.
  - i.e. A users custom-query cannot edit the raw data held in the database

# Benefits

- A single repository for all MDBC PIT tagged fish data.
- Standardisation of data collection resulting in high data integrity.
- An automated, ever growing dataset that may give rise to new, unanticipated, information on fish movement.
- Future expansion to accommodate angler recapture information. Anglers could access the database via a web interface.

# Future Vision

- With the combination of:
  - PIT database
  - Automated PIT loggers
  - Strategically located automated radiotelemetry towers
- Between Lake Hume and the mouth of the Murray River a tagged fish cannot move without us knowing about it.